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

June 10, 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 RELATED TO TSTF 432, REVISION 1 (CAC NOS. MF6118 AND MF6119)

Dear Mr. Pierce:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 202 to Renewed Facility Operating License No. NPF-2 and Amendment No. 198 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 April 13, 2015, as supplemented by letters dated September 17, 2015, and April 13, 2016.

The amendments revise the TSs to incorporate risk-informed requirements for selected Required Action end states. The changes are consistent with NRC-approved Technical Specification Task Force Improved Standard Technical Specifications Change Traveler (TSTF)-432, Revision 1, "Change in Technical Specifications End States (WCAP-16294)," dated November 29, 2010.

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

Sincerely,

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. 202 to NPF-2
2. Amendment No. 198 to NPF-8
3. Safety Evaluation

cc w/enclosures: Distribution via Listserv

UNITED STATES
NUCLEAR REGULATORY COMMISSION
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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. 202
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 13, 2015, as supplemented by letters dated September 17, 2015, and April 13, 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. 202, 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 90 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 Technical Specifications

Date of Issuance: June 10, 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. 198
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 13, 2015, as supplemented by letters dated September 17, 2015, and April 13, 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-8 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 198, 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 90 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 Technical Specifications

Date of Issuance: June 10, 2016

ATTACHMENT TO

LICENSE AMENDMENT NO. 202

TO RENEWED FACILITY OPERATING LICENSE NO. NPF-2

DOCKET NO. 50-348

AND LICENSE AMENDMENT NO. 198

TO RENEWED FACILITY OPERATING LICENSE NO. NPF-8

DOCKET NO. 50-364

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

Remove	Insert
License	License
NPF-2, page 4	NPF-2, page 4
NPF-8, page 3	NPF-8, page 3
TSs	TSs
3.3.2-1	3.3.2-1
3.3.2-2	3.3.2-2
3.3.7-2	3.3.7-2
3.4.13-1	3.4.13-1
3.4.14-2	3.4.14-2
3.4.15-3	3.4.15-3
3.5.4-1	3.5.4-1
3.5.4-2	3.5.4-2
3.5.6-1	3.5.6-1
3.6.6-1	3.6.6-1
3.6.6-2	3.6.6-2
3.6.6-3	3.6.6-3
3.7.7-1	3.7.7-1
3.7.8-2	3.7.8-2
3.7.9-1	3.7.9-1
3.7.10-2	3.7.10-2
3.7.10-3	3.7.10-3
3.7.11-1	3.7.11-1
3.7.12-1	3.7.12-1
3.8.1-5	3.8.1-5
3.8.4-1	3.8.4-1
3.8.4-2	3.8.4-2
3.8.4-3	3.8.4-3
3.8.7-2	3.8.7-2
3.8.9-2	3.8.9-2

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 202, 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. 198, 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

3.3 INSTRUMENTATION

3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

LCO 3.3.2 The ESFAS instrumentation for each Function in Table 3.3.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2-1.

ACTIONS

---NOTE---
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.2-1 for the channel(s) or train(s).	Immediately
B. One channel or train inoperable.	B.1 Restore channel or train to OPERABLE status.	48 hours
	<u>OR</u>	
	B.2.1 Be in MODE 3.	54 hours
	<u>AND</u>	
	B.2.2 ------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------- Be in MODE 4.	60 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One train inoperable.	C.1 ------------NOTE---------- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ------------------------------	
	Restore train to OPERABLE status.	24 hours
	<u>OR</u>	
	C.2.1 Be in MODE 3.	30 hours
	<u>AND</u>	
	C.2.2 ------------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------	
	Be in MODE 4.	36 hours
D. One channel inoperable.	D.1 ------------NOTE---------- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ------------------------------	
	Place channel in trip.	72 hours
	<u>OR</u>	
	D.2.1 Be in MODE 3.	78 hours
	<u>AND</u>	
	D.2.2 Be in MODE 4.	84 hours

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.2	Place both CREFS trains in emergency recirculation mode.	Immediately
C. Required Action and associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.	C.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	C.2	------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. -------------------------------	
		Be in MODE 4.	12 hours
D. Required Action and associated Completion Time for Condition A or B not met during movement of irradiated fuel assemblies or during CORE ALTERATIONS.	D.1	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	D.2	Suspend movement of irradiated fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTE---
Refer to Table 3.3.7-1 to determine which SRs apply for each CREFS Actuation Function.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.2	Perform COT.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 RCS Operational LEAKAGE

LCO 3.4.13 RCS operational LEAKAGE shall be limited to:

a. No pressure boundary LEAKAGE;

b. 1 gpm unidentified LEAKAGE;

c. 10 gpm identified LEAKAGE; and

d. 150 gallons per day primary to secondary LEAKAGE through any one steam generator (SG).

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCS operational LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE or primary to secondary LEAKAGE.	A.1 Reduce LEAKAGE to within limits.	4 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Pressure boundary LEAKAGE exists. <u>OR</u> Primary to secondary LEAKAGE not within limit.	B.1 Be in MODE 3. <u>AND</u> B.2 ------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------- Be in MODE 4.	6 hours 12 hours

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.1	Isolate the high pressure portion of the affected system from the low pressure portion by use of one closed manual, deactivated automatic, or check valve.	4 hours
	AND		
	A.2	Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, deactivated automatic, or check valve.	72 hours
B. Required Action and associated Completion Time for Condition A not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------- Be in MODE 4.	12 hours
C. RHR System autoclosure or open permissive interlock function inoperable.	C.1	Place the affected valve(s) in the closed position and maintain closed under administrative control.	4 hours

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------- Be in MODE 4.	12 hours
E. All required monitors inoperable.	E.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of the required containment atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.2	Perform COT of the required containment atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.3	Perform CHANNEL CALIBRATION of the required containment atmosphere radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.4	Perform CHANNEL CALIBRATION of the required containment air cooler condensate level monitor.	In accordance with the Surveillance Frequency Control

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.4 Refueling Water Storage Tank (RWST)

LCO 3.5.4 The RWST shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

-----NOTES-----

1. RWST piping may be unisolated from non-safety related piping for ≤ 4 hours under administrative controls to perform SR 3.5.4.3.*

2. RWST piping may be unisolated from non-safety related piping for ≤ 30 days per fuel cycle under administrative controls for filtration or silica removal.*

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RWST boron concentration not within limits. OR RWST borated water temperature not within limits.	A.1 Restore RWST to OPERABLE status.	8 hours
B. RWST inoperable for reasons other than Condition A.	B.1 Restore RWST to OPERABLE status.	1 hour

*These Notes can only be applied during the next two fuel Cycles for each Unit. These Notes cannot be used after Refueling Outages 1R26 (Spring 2015) and 2R24 (Spring 2016).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 ------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------- Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	----------------------------NOTE---------------------------- Only required to be performed when ambient air temperature is < 35°F. --- Verify RWST borated water temperature is ≥ 35°F.	In accordance with the Surveillance Frequency Control Program
SR 3.5.4.2	Verify RWST borated water volume is ≥ 471,000 gallons.	In accordance with the Surveillance Frequency Control Program
SR 3.5.4.3	Verify RWST boron concentration is ≥ 2300 ppm and ≤ 2500 ppm.	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.6 ECCS Recirculation Fluid pH Control System

LCO 3.5.6 The ECCS Recirculation Fluid pH Control System shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ECCS Recirculation Fluid pH Control System inoperable.	A.1	Restore system to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	B.2	------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. -------------------------------- Be in MODE 4.	 54 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.6.1	Perform a visual inspection of the ECCS Recirculation Fluid pH Control System and verify the following: a. Three (3) storage baskets are in place, and b. Have maintained their integrity, and c. Each basket is filled with trisodium phosphate compound such that the level is between the indicated fill marks on the baskets.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.6 Containment Spray and Cooling Systems

LCO 3.6.6 Two containment spray trains and two containment cooling trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One containment spray train inoperable.	A.1	Restore containment spray train to OPERABLE status.	72 hours <u>AND</u> 10 days from discovery of failure to meet the LCO
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	B.2	------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. -------------------------------- Be in MODE 4.	54 hours
C. One containment cooling train inoperable.	C.1	Restore containment cooling train to OPERABLE status.	7 days <u>AND</u> 10 days from discovery of failure to meet the LCO

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.	6 hours
	AND		
	E.2	------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. -------------------------------- Be in MODE 4.	12 hours
F. Two containment spray trains inoperable. OR 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.2	Operate each required containment cooling train fan unit for ≥ 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 ≥ 1600 gpm.	In accordance with the Surveillance Frequency Control Program
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

3.7 PLANT SYSTEMS

3.7.7 Component Cooling Water (CCW) System

LCO 3.7.7 Two CCW trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CCW train inoperable.	A.1	------------NOTE------------- Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops — MODE 4," for residual heat removal loops made inoperable by CCW. -------------------------------- Restore CCW train to OPERABLE status.	 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. -------------------------------- Be in MODE 4.	 12 hours

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	C.2	-----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ----------------------------	
		Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	--------------------------NOTE--------------------------- Isolation of SWS flow to individual components does not render the SWS inoperable. ---	
	Verify each accessible SWS manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.8.2	Verify each SWS 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
SR 3.7.8.3	Verify each SWS pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.8.4	Verify the integrity of the SWS buried piping by visual inspection of the ground area.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

LCO 3.7.9 The UHS (Service Water Pond) shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. UHS water level or temperature not within the required limit(s).	A.1	Be in MODE 3.	42 hours
	AND		
	A.2	------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. -------------------------------	
		Be in MODE 4.	48 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Verify water level of UHS is ≥ 184 ft mean sea level.	In accordance with the Surveillance Frequency Control Program
SR 3.7.9.2	Verify water temperature of ≤ 95°F at the discharge of the Service Water Pumps	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. AND C.2 -----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. -------------------------------- Be in MODE 4.	6 hours 12 hours
D. Two CREFS trains inoperable in MODE 1, 2, 3, OR 4.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours
E. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies or during CORE ALTERATIONS.	E.1 Place OPERABLE CREFS train in emergency recirculation mode. OR E.2.1 Suspend CORE ALTERATIONS. AND E.2.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition B not met during movement of irradiated fuel assemblies or during CORE ALTERATIONS. <u>OR</u> Two CREFS trains inoperable during movement of irradiated fuel assemblies or during CORE ALTERATIONS.	F.1 Suspend CORE ALTERATIONS. <u>AND</u> F.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CREFS Pressurization train with the heaters operating and each CREFS Recirculation and Filtration train for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.10.2	Perform required CREFS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with VFTP
SR 3.7.10.3	-------------------------NOTE------------------------- Not required to be performed in MODES 5 and 6. --- Verify each CREFS train actuates on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.11 Control Room Air Conditioning System (CRACS)

LCO 3.7.11 Two CRACS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
During movement of irradiated fuel assemblies,
During CORE ALTERATIONS.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CRACS train inoperable.	A.1	Restore CRACS train to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------- Be in MODE 4.	12 hours
C. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies or during CORE ALTERATIONS.	C.1	Place OPERABLE CRACS train in operation.	Immediately
	OR		
	C.2.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	C.2.2	Suspend movement of irradiated fuel assemblies.	Immediately

3.7 PLANT SYSTEMS

3.7.12 Penetration Room Filtration (PRF) System

LCO 3.7.12 Two PRF trains shall be OPERABLE.

----------------------------------- NOTE -----------------------------------
The PRF and Spent Fuel Pool Room (SFPR) boundaries may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, and 4 for post LOCA mode of operation,
During movement of irradiated fuel assemblies in the SFPR for the fuel handling accident mode of operation.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One PRF train inoperable.	A.1	Restore PRF train to OPERABLE status.	7 days
B. Two PRF trains inoperable in MODE 1, 2, 3, or 4 due to inoperable PRF boundary.	B.1	Restore PRF boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4. OR Two PRF trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	C.1 AND C.2	Be in MODE 3. ------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. -------------------------------- Be in MODE 4.	6 hours 12 hours
D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the SFPR.	D.1 OR D.2	Place OPERABLE PRF train in operation. Suspend movement of irradiated fuel assemblies in the SFPR.	Immediately Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. One automatic load sequencer inoperable.	G.1 Restore automatic load sequencer to OPERABLE status.	12 hours
H. Required Action and associated Completion Time of Condition A, B, D, or G not met.	H.1 Be in MODE 3. AND H.2 ------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------- Be in MODE 4.	6 hours 12 hours
I. Three or more required AC sources inoperable.	I.1 Enter LCO 3.0.3.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources — Operating

LCO 3.8.4 The Train A and Train B Auxiliary Building and Service Water Intake Structure (SWIS) DC electrical power subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One Auxiliary Building DC electrical power subsystem inoperable.	A.1	Restore the Auxiliary Building DC electrical power subsystem to OPERABLE status.	2 hours 12 hours for 1B Auxiliary Building DC electrical power subsystem inoperable due to inoperable battery for cycle 19 only
B. One Auxiliary Building DC electrical power subsystem with battery connection resistance not within limit.	B.1	Restore the battery connection resistance to within limit.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. -------------------------------- Be in MODE 4.	12 hours
D. One required SWIS DC electrical power subsystem battery connection resistance not within limit.	D.1	Restore the battery connection resistance to within the limit.	24 hours

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. One required SWIS DC electrical power subsystem inoperable. OR Required Action and associated Completion Time of Condition D not met.	E.1	Declare the associated Service Water System train inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 127.8 V on float charge.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify post-to-post battery connection resistance of each cell-to-cell and terminal connection is ≤ 150 microhms for the Auxiliary Building batteries and ≤ 1500 microhms for the SWIS batteries.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.4.4	Remove visible terminal corrosion, verify battery cell-to-cell and terminal connections are coated with anti-corrosion material.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.5	Verify post-to-post battery connection resistance of each cell-to-cell and terminal connection is ≤ 150 microhms for the Auxiliary Building batteries and ≤ 1500 microhms for the SWIS batteries	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.6	-----NOTE----- This Surveillance may be performed in MODE 1, 2, 3, 4, 5, or 6 provided spare or redundant charger(s) placed in service are within surveillance frequency to maintain DC subsystem(s) OPERABLE. ----------	
	Verify each required Auxiliary Building battery charger supplies ≥ 536 amps at ≥ 125 V for ≥ 4 hours and each required SWIS battery charger supplies ≥ 3 amps at ≥ 125 V for ≥ 4 hours.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.7	-----NOTES----- 1. The performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7 once per 60 months. 2. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test at any time. 3. This Surveillance shall not be performed for the Auxiliary Building batteries in MODE 1, 2, 3, or 4. ----------	
	Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design load profile described in the Final Safety Analysis Report, Section 8.3.2, by subjecting the battery to a service test.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	------------NOTE----------- LCO 3.0.4.a is not applicable when entering MODE 4. ----------------------------------	
		Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct inverter voltage, frequency, and alignment to required AC vital buses.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	------------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ------------------------------ Be in MODE 4.	12 hours
E. One Service Water Intake Structure (SWIS) DC electrical power distribution subsystem inoperable.	E.1	Declare the associated Service Water train inoperable.	Immediately
F. Two trains with inoperable distribution subsystems that result in a loss of safety function.	F.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.9.1	Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution subsystems.	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. 202 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-2

AND

AMENDMENT NO. 198 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 April 13, 2015 (Reference 1), as supplemented by letters dated September 17, 2015 (Reference 2), and April 13, 2016 (Reference 3), Southern Nuclear Operating Company, Inc. (SNC, the licensee) submitted a request to change the Joseph M. Farley Nuclear Plant (FNP or Farley), Units 1 and 2, Technical Specifications (TSs). The supplemental letters dated September 17, 2015, and April 13, 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 May 26, 2015 (80 FR 30102).

The licensee proposed to adopt U.S. Nuclear Regulatory Commission (the Commission or NRC)-approved Revision 1 to Technical Specifications Task Force Improved Standard Technical Specifications Change Traveler-432, "Change in Technical Specifications End States (WCAP-16294)," dated November 29, 2010 (TSTF-432) (Reference 4). TSTF-432 incorporates the NRC-approved Nuclear Energy Institute (NEI) Topical Report (TR) WCAP-16294-NP-A, Revision 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action End states for Westinghouse NSSS [nuclear steam supply system] PWRs [pressurized water reactors]" (TR WCAP-16294) (Reference 5), into NUREG-1431, "Standard Technical Specifications Westinghouse Plants" (Westinghouse STS) (Reference 6). The licensee stated that its license amendment request (LAR) is consistent with the notice of availability of TSTF-432 announced in the *Federal Register* on May 11, 2012 (77 FR 27814).

Enclosure 3

2.0 REGULATORY EVALUATION

2.1 Background

TSTF-432 is one of the industry's initiatives developed under the Risk Management Technical Specifications program. The purpose of risk-informed TS changes is to maintain or improve safety while reducing unnecessary burden and to make TS requirements consistent with the Commission's other risk-informed regulatory requirements.

The Westinghouse STS define the following six operational modes. Of specific relevance to TSTF-432 are Modes 4 and 5:

- Mode 1 - Power operation. The reactor is critical and thermal power is greater than 5 percent of the rated thermal power.
- Mode 2 – Startup. The reactor is critical and thermal power is ≤ 5 percent of the rated thermal power
- Mode 3 - Hot standby. The reactor is subcritical and the average reactor coolant system (RCS) temperature is ≥ 350 degrees Fahrenheit (°F).
- Mode 4 - Hot shutdown. The reactor is subcritical and the average RCS temperature is greater than 200 °F and less than 350 °F. The reactor vessel head closure bolts are fully tensioned.
- Mode 5 - Cold shutdown. The reactor is subcritical and the average RCS temperature is less than or equal to 200 °F. The reactor vessel head closure bolts are fully tensioned.
- Mode 6 – Refueling. The reactor in this mode is shut down and one or more reactor vessel head closure bolts are less than fully tensioned.

An end state is a condition that the reactor must be placed in if the TS Required Action(s) cannot be met. The end states are currently defined based on placing the unit into a mode or condition in which the TS limiting conditions for operation (LCOs) are not applicable. Mode 5 is the current end state for LCOs that are applicable in Modes 1 through 4.

TR WCAP-16294 identifies and evaluates new TS Required Action end states for a number of TS LCOs using a risk-informed approach, consistent with Regulatory Guide (RG) 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis" (Reference 7), and RG 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications" (Reference 8).

The risk of the transition from Mode 1 to Modes 4 or 5 depends on the availability of alternating current (AC) sources. During the realignment from Mode 4 to Mode 5, there is an increased potential for loss-of-shutdown cooling and loss-of-inventory events. Decay heat removal following a loss-of-offsite power event in Mode 5 is dependent on AC power for shutdown cooling, whereas in Mode 4, TR WCAP-16294 requires that the steam turbine driven auxiliary

feedwater (AFW) pump must be available to remain in this MODE. Should steam generator cooling be lost while relying on this Required Action, as required by TSTF-432, FNP's TS Bases change, stated in Section 3.3 of this safety evaluation (SE), requires the licensee to establish preplanned actions to ensure long-term decay heat removal.

Therefore, transitioning to Mode 5 is not always the appropriate end state from a risk perspective. Thus, for specific TS conditions, TR WCAP-16294 justifies Mode 4 as an acceptable alternate end state to Mode 5. The proposed change to the TSs would allow time to perform short-duration repairs, which currently necessitate exiting the original mode of applicability. The Mode 4 TS end state is applied, and risk is assessed and managed, in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants." Modified end states are limited to conditions where: (1) entry into the shutdown mode is for a short interval, (2) entry is initiated by inoperability of a single train of equipment or a restriction on a plant operational parameter, unless otherwise stated in the applicable TS, and (3) the primary purpose is to correct the initiating condition and return to power operation as soon as is practical.

Most of today's TSs and the design-basis analyses were developed under the perception that putting a plant in cold shutdown would result in the safest condition and the design-basis analyses would bound credible shutdown accidents. In the late 1980s and early 1990s, the NRC and licensees recognized the potential significance of events occurring during shutdown conditions, and guidance was issued to improve shutdown operation. Since enactment of a shutdown rule was expected, almost all TS changes involving power operation, including a revised end state requirement, were postponed (for example, see the Final Policy Statement on TS Improvements (Reference 6)). However, in the mid-1990s, the Commission decided a shutdown rule was not necessary in light of industry improvements.

Controlling shutdown risk encompasses control of conditions that can cause potential initiating events and responses to those initiating events that do occur. Initiating events are a function of equipment malfunctions and human error. Responses to events are a function of plant sensitivity, ongoing activities, human error, defense-in-depth (DID), and additional equipment malfunctions.

2.2 Description of the Proposed Changes

As summarized in the following table, the requested TS changes would permit an end state of hot shutdown (Mode 4), rather than an end state of cold shutdown (Mode 5), for the following TS action requirements.

Proposed Changes to End States	
STS Condition	Title
3.3.2-B 3.3.2-C	Engineered Safety Feature Actuation System (ESFAS) Instrumentation
3.3.7-C	Control Room Ventilation System (CRVS) Actuation Instrumentation
3.4.13-B	RCS Operational Leakage
3.4.14-B	RCS Pressure Isolation Valve (PIV) Leakage
3.4.15-F	RCS Leakage Detection Instrumentation
3.5.3-C	Emergency Core Cooling System (ECCS) – Shutdown
3.5.4-C	Refueling Water Storage Tank (RWST)
3.6.6-B 3.6.6-E	Containment Spray and Cooling Systems
3.6.7-B	Spray Additive System
3.7.7-B	Vital Component Cooling Water (CCW) System
3.7.8-B	Auxiliary Saltwater (ASW) System
3.7.9-B	Ultimate Heat Sink (UHS)
3.7.10-C	Control Room Ventilation System (CRVS)
3.7.12-C	Auxiliary Building Ventilation System (ABVS)
3.8.1-H	AC Sources – Operating
3.8.4-E	DC [direct current] Sources – Operating
3.8.7-B	Inverters – Operating
3.8.9-D	Distribution Systems – Operating

This LAR is limited to inoperability of a single train of equipment or a restriction on a plant operational parameter unless otherwise stated in the applicable TSs, and the primary purpose is to correct the inoperable component(s) and return to power operation as soon as is practical.

2.3 Regulatory Requirements

Section 182a of the Atomic Energy Act of 1954, as amended, requires applicants for nuclear power plant operating licenses to include TSs as part of the license. The Commission's regulatory requirements related to the content of the TS are contained in 10 CFR 50.36, "Technical specifications." Pursuant to 10 CFR 50.36(c), the TSs are required to include items in the following specific categories related to plant operation: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) LCOs; (3) surveillance requirements; (4) design features; and (5) administrative controls. The regulation at 10 CFR 50.36(c)(2) states, in part: "When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met."

The regulation at 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors," requires that the reactor must be provided with an ECCS that must be designed so that its calculated cooling performance following postulated loss-of-coolant accidents (LOCAs) conforms to the criteria set forth in 10 CFR 50.46(b).

The regulation at 10 CFR 50.65(a)(4) requires that:

> Before performing maintenance activities (including but not limited to surveillance, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. The scope of the assessment may be limited to structures, systems, and components that a risk-informed evaluation process has shown to be significant to public health and safety.

- RG 1.182, "Assessing and Managing Risk before Maintenance Activities at Nuclear Power Plants" (Reference 9), provides guidance on implementing the provisions of 10 CFR 50.65(a)(4) by endorsing a revised Section 11 to NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants" (Reference 10). RG 1.182 was withdrawn since it was determined that the document (RG 1.182) was redundant due to the inclusion of its subject matter in Revision 3 of RG 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," May 2012 (Reference 11). Withdrawal of RG 1.182 was published in the *Federal Register* on November 27, 2012 (77 FR 70846). The *Federal Register* notice also stated that withdrawal of RG 1.182 neither altered any prior or existing licensing commitments based on its use, nor constituted backfitting as defined in 10 CFR 50.109 (the Backfit Rule) and was not otherwise inconsistent with the issue finality provisions in 10 CFR Part 52.

- RG 1.160 endorsed Revision 4A of the NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," April 2011 (Reference 12). NUMARC 93-01 provides methods that are acceptable to the NRC staff for complying with the provisions of Section 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," of 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The model SE for the TSTF currently refers to the guidance in Revision 2 of NUMARC 93-01. The application states, "SNC assesses the risk of maintenance activities consistent with the guidance in RG 1.160."

Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," provides, in part, the necessary design, fabrication, construction, testing, and performance requirements for structures, systems, and components important to safety.

- Criterion 38, "Containment heat removal," requires the provision of a containment heat removal system that will rapidly reduce containment pressure and temperature following any LOCA and maintain them at acceptably low levels. The containment heat removal system supports the containment function by minimizing the duration and intensity of the pressure and temperature increase following an LOCA, thus lessening the challenge to containment integrity.

- Criterion 41, "Containment atmosphere cleanup," requires that systems to control fission products, hydrogen, oxygen, and other substances, which may be released into the reactor containment, shall be provided, as necessary, to reduce, consistent with the functioning of other associated systems, the concentration and quality of fission products released to the environment following postulated accidents, and to control the concentration of hydrogen or oxygen and other substances in the containment atmosphere following postulated accidents to assure that containment integrity is maintained.

The staff's review of the licensee's Final Safety Analysis Report (FSAR), Revision 17, Section 3.1, "Conformance with Nuclear Regulatory Commission (NRC) General Design Criteria (GDC)," shows the licensee's commitment to Criterion 38 and Criterion 41 discussed above.

RG 1.174 (Reference 7) describes a risk-informed approach acceptable to the NRC for assessing the nature and impact of proposed permanent licensing-basis changes by considering engineering issues and applying risk insights. RG 1.174 also provides risk acceptance guidelines for evaluating the results of such evaluations.

RG 1.177 (Reference 8) (1) describes an acceptable risk-informed approach specifically for assessing proposed permanent allowed outage time and surveillance test interval TS changes, (2) provides risk acceptance guidelines for evaluating the results of such assessments, and (3) identifies a three-tiered approach for the licensee's evaluation of the risk associated with a proposed Completion Time TS change. Per RG 1.177, the improved STS use the terminology "completion times" and "surveillance frequency" in place of "allowed outage time" and "surveillance test interval."

General guidance for evaluating the technical basis for proposed risk-informed changes is provided in Section 19.2, "Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance," of the NRC Standard Review Plan (SRP), NUREG-0800 (Reference 13). Guidance on evaluating probabilistic risk assessment (PRA) technical adequacy related to risk-informed TS changes is provided in SRP Section 16.1, "Risk-Informed Decision Making: Technical Specifications" (Reference 14), which includes Completion Time changes as part of risk-informed decisionmaking.

The licensee's application states:

> A description of the proposed TS change and its relationship to applicable regulatory requirements were published in the Model Safety Evaluation (SE) (NRC ADAMS Accession Number ML120200384). SNC has reviewed the NRC staffs model SE referenced in the CLIIP Notice of Availability and concluded that the regulatory evaluation section is applicable to Farley Units 1 and 2.

3.0 TECHNICAL EVALUATION

The changes proposed in TSTF-432 are consistent with the changes proposed and justified in TR WCAP-16294 and approved by the NRC in a safety evaluation (SE) dated March 29, 2010 (Reference 15). Specifically, end states are prescribed in the TSs when Required Actions are not met. The current TS actions require placing the plant in cold shutdown (Mode 5) based on

the expectation that this condition would result in the safest condition, since most design-basis accidents (DBAs) and transients either cannot physically occur during shutdown or would have significantly reduced plant impact and occur much less frequently, due to the reduced temperatures and pressures in the plant. Accidents and transients unique to shutdown conditions were anticipated to be of less significance compared to the design-bases events applicable to power operation.

The requested change to the TS is to allow a Mode 4 end state rather than a Mode 5 end state for selected TS LCO actions. TR WCAP-16294 provides a comparative qualitative assessment of the availability of plant equipment for decay heat removal and accident mitigation in Modes 4 and 5, and considers the likelihood and consequences of initiating events that may occur in these modes. A quantitative risk assessment of operation in these modes, including the risk associated with the transition from Mode 4 to Mode 5 and then back to Mode 4 to support the return to service, is also provided using a shutdown and transition PRA model developed to support the review of TR WCAP-16294.

TR WCAP-16294 concludes that the availability of steam generator heat removal capability in Mode 4, and the avoidance of transitioning the plant to and from shutdown cooling, makes Mode 4 the preferred end state over Mode 5 for each of the TS conditions proposed to be changed. This conclusion is further supported by quantitative risk analyses, which demonstrate a reduction in plant risk by remaining in Mode 4 compared to the alternative of transitioning to and from Mode 5 in accordance with the existing TS requirements.

Both the qualitative and quantitative analyses of TR WCAP-16294 support a Mode 4 end state. This conclusion is primarily due to the availability of steam generator cooling in Mode 4 via the turbine driven AFW pump, which is not reliant upon AC power, compared to the use of shutdown cooling in Mode 5, which requires the availability of AC power. Further, the transition risks associated with establishing shutdown cooling alignments and the resulting potential for loss-of-inventory or loss-of-cooling events due to human error during such alignments are avoided by remaining in Mode 4.

This general assessment is applied as the basis for changing the required end state from Mode 5 to Mode 4 for those TSs that govern plant equipment which is not included in the PRA models, supported by qualitative assessments of the plant impact of the unavailability of the TS equipment. For those TSs covering plant equipment that is included in the PRA models, a quantitative risk assessment is also provided, which assesses the comparative risk of completing repairs in Mode 4 or proceeding to Mode 5 for repairs and then returning to Mode 4 for plant startup, considering the available equipment for accident mitigation.

Changing the required end state to Mode 4 will also result in increased plant availability by decreasing the time of shutdown. The additional time required to transition to Mode 5 from Mode 4 when shutting down and also to Mode 4 from Mode 5 when restarting can be eliminated with the end state change. A typical time for the transition from Mode 4 to Mode 5 during shutdown and from Mode 5 to Mode 4 during startup is 24 hours. Therefore, this change would allow an availability increase of approximately 24 hours.

Changing the end states would allow continued operation with the LCO not met by removing the TS requirement to exit the LCO Applicability. In this case, the requirements of LCO 3.0.4.a

would apply unless otherwise stated. LCO 3.0.4.a allows entry into a mode or other specified condition in the Applicability with the LCO not met when the associated Actions to be entered permit continued operation in the mode or other specified condition in the Applicability for an unlimited period of time. Compliance with Required Actions that permit continued operation of the unit for an unlimited period of time in a mode or other specified condition provides an acceptable level of safety for continued operation. This is without regard to the status of the unit before or after the mode change. Therefore, in such cases, entry into a mode or other specified condition in the Applicability may be made in accordance with the provisions of the Required Actions.

Thus, implementing modified end states would require adding a Note to the affected Required Actions to prevent using the allowance of LCO 3.0.4.a when entering Mode 4 from Mode 5. This is done to avoid unit operation in a condition that should be prohibited by TSs since LCO 3.0.4.a allows entry into a mode or other specified condition in the Applicability when the associated Actions to be entered permit continued operation in the mode or other specified condition in the Applicability for an unlimited period of time. Applying the allowance of LCO 3.0.4.a to modified end states was not analyzed in TR WCAP-16294; therefore, the NRC staff concludes that an appropriate limitation should be applied by the addition of a Note to the affected TS Required Actions stating that LCO 3.04.a is not applicable when entering Mode 4 from Mode 5.

3.1 Technical Analysis

This section provides the NRC staff evaluation of the impact of each proposed end state change on DID and safety margins as applied to the corresponding safety systems. The NRC staff's evaluation applies only to the proposed changes to the TSs as described below. Consistent with its March 29, 2010, SE, the NRC staff concludes that the TR WCAP-16294 used realistic assumptions regarding the plant conditions and the availability of various mitigating systems in analyzing the risks and considering the DID and safety margins. Thus, the NRC staff concludes that TR WCAP-16294 uses realistic assumptions to justify the proposed changes in the end state. However, during the proposed Mode 4 end state, due to the safety injection (SI) signal blockage and non-availability of accumulators, operator actions will be required to mitigate potential events.

During the proposed Mode 4 end state, risk is assessed and managed consistent with 10 CFR 50.65. The NRC staff's review is based on the knowledge of lower RCS pressure in Mode 4, which reduces the severity of an LOCA and limits any coolant inventory loss in the event of an LOCA.

3.1.1 Proposed Required Actions

The proposed changes would add a Note stating that, "LCO 3.0.4.a is not applicable when entering Mode 4." to each Required Action listed in the table below. In general, the end state for each Required Action shown in the table below would be revised to be in Mode 4 instead of in Mode 5. The following table provides: (1) the TS number and title, (2) which Required Action to be revised, (3) the current end state and Completion Time, and (4) the proposed end state and Completion Time.

Proposed Changes to End States			
TS Number and Title	**TS Required Action**	**Current End State and Completion Time**	**Proposed End State and Completion Time**
3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation Functions: 1.a, 2.a, 3.a(1), and 3.b(1)	B.2.2	Mode 5 in 84 hours	Mode 4 in 60 hours
3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation Functions: 1.b, 2.b, 3.a(2), and 3.b(2)	C.2.2	Mode 5 in 60 hours	Mode 4 in 36 hours
3.3.7 Control Room Emergency Filtration System (CREFS) Actuation Instrumentation	C.2	Mode 5 in 36 hours	Mode 4 in 12 hours
3.4.13 RCS Operational Leakage	B.2	Mode 5 in 36 hours	Mode 4 in 12 hours
3.4.14 RCS Pressure Isolation Valve (PIV) Leakage	B.2	Mode 5 in 36 hours	Mode 4 in 12 hours
3.4.15 RCS Leakage Detection Instrumentation	D.2	Mode 5 in 36 hours	Mode 4 in 12 hours
3.5.3 ECCS – Shutdown	The licensee states: "Farley TS 3.5.3 includes an additional Condition (Condition B) for inoperability of an Emergency Core Cooling System (ECCS) centrifugal charging subsystem when 100% of the ECCS flow equivalent to a single ECCS train is available that is not included in ISTS TS 3.5.3. Farley TS 3.5.3, Condition 0 is also modified from ISTS TS 3.5.3, Condition C to reflect the additional Condition. The additional and modified Conditions in Farley TS 3.5.3 are plant-specific aspects of the licensing basis, and are not readily adaptable to the changes described in TSTF-432-A. Therefore, the TS and Bases changes identified in TSTF-432-A for ISTS 3.5.3 are not adopted."		
3.5.4 Refueling Water Storage Tank (RWST)	C.2	Mode 5 in 36 hours	Mode 4 in 12 hours

Proposed Changes to End States			
TS Number and Title	**TS Required Action**	**Current End State and Completion Time**	**Proposed End State and Completion Time**
3.5.6 ECCS Recirculation Fluid pH Control System	B.2	Mode 5 in 84 hours	Mode 4 in 54 hours
3.6.6 Containment Spray and Cooling Systems	B.2 E.2	Mode 5 in 84 hours Mode 5 in 36 hours	Mode 4 in 54 hours Mode 4 in 12 hours
ITS 3.6.7 Spray Additive System	Per the licensee, ITS 3.6.7 change is not applicable for Farley TSs		
3.7.7 Component Cooling Water (CCW) System	B.2	Mode 5 in 36 hours	Mode 4 in 12 hours
3.7.8 Service Water System (SWS)	C.2	Mode 5 in 36 hours	Mode 4 in 12 hours
3.7.9 Ultimate Heat Sink (UHS)	A.1 A.2	Mode 4 in 48 hours Mode 5 in 60 hours	Mode 3 in 42 hours Mode 4 in 48 hours
3.7.10 Control Room	C.2 D.1 D.2	Mode 5 in 36 hours -- --	Mode 4 in 12 hours Mode 3 in 6 hours Mode 5 in 36 hours
3.7.11 Control Room Air Conditioning System (CRACS)	B.2	Mode 5 in 36 hours	Mode 4 in 12 hours
3.7.12 Penetration Room Filtration (PRF) System	C.2	Mode 5 in 36 hours	Mode 4 in 12 hours
3.7.19 Engineered Safety Feature (ESF) Room Coolers	The licensee's supplemental letter withdrew the change proposed in its original application for LCO 3.7.19.		
3.8.1 AC Sources – Operating	H.2	Mode 5 in 36 hours	Mode 4 in 12 hours
3.8.4 DC Sources – Operating	C.2	Mode 5 in 36 hours	Mode 4 in 12 hours
3.8.7 Inverters – Operating	B.2	Mode 5 in 36 hours	Mode 4 in 12 hours
3.8.9 Distribution Systems – Operating	D.2	Mode 5 in 36 hours	Mode 4 in 12 hours

3.1.2 Evaluation of Proposed Changes

TR WCAP-16294 does not address entry into Mode 4 from Mode 5 when the Required Actions are in effect. Such a mode change would be permissible since the proposed revised actions permit continued operation in Mode 4 for an unlimited period of time, and therefore, transitioning from Mode 5 to Mode 4 would be permissible using LCO 3.0.4.a. Since applying LCO 3.0.4.a to modified end states was not analyzed in TR WCAP-16294, an appropriate note is proposed to be added to each affected Required Action, which identifies that the provisions of LCO 3.0.4.a are not applicable to Mode 4 entry from Mode 5.

In some instances, the TSs proposed to be revised by the LAR had different TS numbers, titles, language, or content as compared to TSTF-432. If the NRC staff determined that these

differences had an impact on the technical content of the amendment, then an evaluation documenting the acceptability of the differences is included in this SE. The remaining differences that were deemed administrative in nature by the staff are considered acceptable and consistent with the intent of TSTF-432.

There are TS and LCO requirements that are revised by TSTF-432 but do not exist in the FNP TSs. TSTF-432 modifies the end states for existing TS Required Actions, but it is not intended to add new TSs or LCO requirements that do not exist in a licensee's TSs. Based on this, the subject LAR, which represents a plant-specific adoption of TSTF-432, only proposes changing the end states for existing FNP Required Actions. These differences between the LAR and TSTF-432 are deemed administrative in nature by the staff and are, therefore, acceptable and consistent with the intent of TSTF-432.

In select cases, the licensee chose not to adopt the TSTF-432 changes. Since the changes specified by TSTF-432 relax existing requirements in the TSs, not adopting the changes results in the TSs retaining the same level of conservatism. Also, each change specified by TSTF-432 is independent of the other changes, so by choosing not to adopt a change, the other changes will not be affected. The staff considers these differences to be administrative in nature and, therefore, acceptable and consistent with the intent of TSTF-432.

A brief description of the systems and components covered by the scope of TSTF-432 and the NRC staff's evaluation of the proposed changes to the TSs are provided in the following paragraphs.

3.1.2.1 <u>TS 3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation</u>

The ESFAS instrumentation initiates necessary safety systems based on the setpoint for selected parameters to protect against violating core design limits and the RCS pressure boundary and to mitigate accidents. FNP TS ESFAS instrumentation functions are listed in TS Table 3.3.2-1, and those relevant to the LAR are described below:

<u>Function 1.a</u> <u>Safety Injection - Manual Initiation</u>
<u>Function 1.b</u> <u>Safety Injection - Automatic Actuation Logic and Actuation Relays</u>

SI system: The SI system provides two primary functions: (1) primary side water addition to ensure maintenance or recovery of reactor vessel water level (covering the active fuel for heat removal, clad integrity, and for limiting the peak clad temperature to < 2200 °F), and (2) boration to ensure recovery and maintenance of shutdown margin (keff < 1.0). These functions mitigate the effects of high energy line breaks both inside and outside of containment.

Manual initiation causes actuation of all components in the same manner as any of the automatic actuation signals. The automatic actuation logic and actuation relays must be operable in Mode 4 to support system level manual initiation. FNP TS 3.3.2 for both manual initiation and automatic actuation logic and actuation relays requires that two channels for manual initiation, or two trains for automatic actuation, shall be operable in Modes 1, 2, 3, and 4.

<u>Function 2.a</u> <u>Containment Spray - Manual Initiation</u>
<u>Function 2.b</u> <u>Containment Spray - Automatic Actuation Logic and Actuation Relays</u>

Containment spray system: The containment spray system provides two primary functions: (1) lowers containment pressure and temperature after a high energy line break in containment, and (2) reduces the amount of radioactive iodine in the containment atmosphere. These functions are necessary to ensure the containment structure pressure boundary and limit the radioactive iodine release to the environment in the event of failure of containment structure.

The operator can initiate containment spray by actuating either of two containment spray actuation pushbuttons in the control room. Simultaneously actuating the two pushbuttons will start both trains of containment spray.

There are two trains for automatic actuation. In Mode 4, adequate time is available to manually actuate required components in the event of a DBA. However, because of the large number of components actuated, actuation is simplified by the use of the manual actuation push buttons. Automatic actuation logic and actuation relays must be operable in Mode 4 to support system level manual initiation.

FNP TS 3.3.2 for both manual initiation and automatic actuation logic and actuation relays requires that two channels per train for manual initiation, or two trains for automatic actuation, shall be operable in Modes 1, 2, 3, and 4.

<u>Function 3.a(1)</u>	<u>Containment Isolation - Phase A Isolation - Manual Initiation</u>
<u>Function 3.a(2)</u>	<u>Containment Isolation - Phase A Isolation - Automatic Actuation Logic and Actuation Relays</u>
<u>Function 3.b(1)</u>	<u>Containment Isolation - Phase B Isolation - Manual Initiation</u>
<u>Function 3.b(2)</u>	<u>Containment Isolation - Phase B Isolation - Automatic Actuation Logic and Actuation Relays</u>

Containment isolation (CI) system: The CI system provides isolation of the containment atmosphere and selected process systems that penetrate containment from the environment. This function is necessary to prevent or limit the release of radioactivity to the environment in the event of a large-break LOCA.

There are two separate CI signals, Phase A and Phase B. The Phase A signal isolates all automatically isolable process lines exiting containment, except component cooling water (CCW) and reactor coolant pump (RCP) seal return at a relatively low containment pressure. The Phase A CI is actuated automatically by SI or manually via the automatic actuation logic. All process lines penetrating containment, with the exception of CCW and RCP seal return, are isolated.

Phase B signal isolates CCW and RCP seal return. Manual Phase B CI is accomplished by the same pushbuttons that actuate containment spray. When the two containment spray pushbuttons are depressed simultaneously, Phase B CI and containment spray will be actuated in both trains.

The LCO for 3.a(1) and 3.b(1) requires that two channels be operable in Modes 1, 2, 3, and 4. The LCO for 3.a(2) and 3.b(2) requires that two trains be operable in Modes 1, 2, 3, and 4.

Switchover from the Refueling Water Storage Tank to the Containment Sump

Regarding the TSTF-432 change for STS 3.3.2, Condition K, ESFAS function for switchover from the refueling water storage tank (RWST) to the containment sump when RWST level is Low-Low, the application states that FNS TS Table 3.3.2-1 does not include this function; therefore, the TSTF change is not adopted.

The NRC staff concludes that the deviation is acceptable since (1) the proposed change is consistent with TSTF-432 by providing an additional 6 hours to be in Mode 4 after the time requirement to be in Mode 3, and (2) the justification provided by the TSTF-432 model SE for changing this end state is still applicable and encompasses the deviation. The evaluation of the change to the end state is below.

Evaluation of SI, Containment Spray, and CI

For Functions 1.a and 1.b, Function 1.a has two channels and Function 1.b has two trains. If one channel or train is inoperable, the other channel or train is available to initiate SI. For Functions 2.a and 2.b, if one train is inoperable, the other train is available for the operator to initiate containment spray. For Functions 3.a(1), 3.a(2), 3.b(1), and 3.b(2), if one channel or train is inoperable, the other channel or train is available to the operator to initiate CI. In addition, the CI valves, containment spray system, and containment cooling system are available in Mode 4.

A cooldown to Mode 4 leaves the unit in a state in which transients progress slower than at power, backup core cooling is available via residual heat removal (RHR), there is increased time for operator actions and mitigation strategies, and there is a lower overall risk than proceeding to Mode 5. Placing the unit in Mode 5 does not increase the instrumentation available for event mitigations; therefore, there is no benefit with regard to monitoring plant status by proceeding to Mode 5. Sufficient DID is maintained when the end state is changed from Mode 5 to Mode 4. In addition, the NRC staff anticipates that equipment repairs requiring plant shutdown and entry into Mode 4 would be infrequent events of short duration. Therefore, the NRC staff concludes that the proposed change is acceptable.

3.1.2.2 TS 3.3.7 Control Room Emergency Filtration/Pressurization System (CREFS) Actuation Instrumentation

FNP CREFS provides an enclosed control room environment from which both units can be operated following an uncontrolled release of radioactivity. Upon receipt of an actuation signal, the CREFS shifts from normal operation and initiates filtered ventilation and pressurization of the control room.

The CREFS actuation instrumentation consists of redundant radiation monitors in the air intake. A high radiation signal from one of these detectors will isolate the control room ventilation. The control room operator can initiate CREFS trains by manual switches in the control room. The CREFS is automatically actuated by a Phase A containment isolation signal, which also isolates the control room ventilation.

The LCO requirements ensure that instrumentation necessary to initiate the CREFS is operable. The CREFS functions must be OPERABLE in MODES 1, 2, 3, and 4, and the radiation monitor and manual initiation functions must also be OPERABLE during CORE ALTERATIONS and movement of irradiated fuel assemblies to ensure a habitable environment for the control room operators.

NRC Staff Evaluation

The CREFS design provides redundancy and DID from the multiple channels, trains, and functions available to actuate each system. For CREFS actuation instrumentation, if one or more functions are inoperable, the Required Actions require one train to be placed in the emergency recirculation mode of operation. This accomplishes the actuation instrumentation function and places the unit in a conservative mode of operation.

If the operator is unable to place the system in the emergency recirculation mode of operation in accordance with the Required Actions, then the proposed TS would require the plant to be placed in Mode 4 (hot shutdown) instead of the current requirement of Mode 5 (cold shutdown). The likelihood of an initiating event is not increased by placing the unit in Mode 4. Placing the unit in Mode 5 does not increase the instrumentation available for event mitigation; therefore, there is no benefit with regard to monitoring plant status by proceeding to Mode 5. The design of the system maintains sufficient DID when the end state is changed from Mode 5 to Mode 4. In addition, the NRC staff anticipates that equipment repairs requiring plant shutdown and entry into Mode 4 would be infrequent events of short duration. Therefore, the staff concludes that the proposed change is acceptable.

3.1.2.3 ISTS TS 3.3.8. Fuel Building Air Cleanup System Actuation Instrumentation

The application states:

> ISTS TS 3.3.8, Condition D provides end state requirements for inoperability of the Fuel Building Air Cleanup System Actuation Instrumentation. The Farley TS do not include a corresponding specification for the Fuel Building Air Cleanup System Actuation Instrumentation. The changes described in TSTF-432-A, Revision 1 for ISTS TS 3.3.8, Condition D are therefore not adopted.

The staff's review concludes that the licensee's above deviation from TSTF-432 acceptance regarding ISTS 3.3.8, Condition D is acceptable, since TSTF-432 does not require a licensee to address such conditions in order to justify the proposed change.

3.1.2.4 TS 3.4.13 RCS Operational Leakage

The safety significance of RCS operational leakage varies widely depending on its source, rate, and duration. Therefore, detecting and monitoring RCS leakage into the containment area is necessary. A limited amount of leakage inside containment is expected from auxiliary systems that cannot be made 100 percent leak-tight. Leakage from these systems should be detected, located, and isolated from the containment atmosphere, if possible, so as not to interfere with RCS leakage detection.

TS LCO 3.4.13 pertains to the protection of the reactor coolant pressure boundary (RCPB) from degradation and the core from inadequate cooling, in addition to preventing the accident analyses radiation release assumptions from being exceeded.

In Modes 1, 2, 3, and 4, RCS operational leakage shall be limited to:

a. No pressure boundary leakage;
b. 1 gallons per minute (gpm) unidentified leakage;
c. 10 gpm identified leakage; and
d. 150 gallons per day primary to secondary leakage through any one steam generator (SG).

NRC Staff Evaluation

RCS leakage that is not large enough to be a small-break LOCA should be treated as an event leading to a controlled shutdown, which is not modeled in the quantitative risk analysis.

In Mode 4, the RCS pressure is significantly reduced, which reduces the leakage. All LOCA mitigating systems, with the exception of the accumulators, are available, and the RHR serves as the backup to AFW for decay heat removal. If RCS operational leakage is not within limits for reasons other than pressure boundary leakage or primary-to-secondary leakage, the leakage must be reduced to within limits in 4 hours, consistent with Required Action A.1. If operational leakage is not restored to within limits in 4 hours in accordance with Required Action A.1, or pressure boundary leakage exists, or primary-to-secondary leakage is not within the limit, then Required Actions B.1 and B.2 become applicable. The proposed Required Actions B.1 and B.2 require that the unit be placed in Mode 3 within 6 hours and Mode 4 within 12 hours. Thus, the reactor must be brought to lower pressure conditions to reduce the severity of the leakage and its potential consequence. In addition, the NRC staff anticipates that equipment repairs requiring plant shutdown and entry into Mode 4 would be infrequent events of short duration. Therefore, the NRC staff concludes that the proposed change to revise Required Action B.2 so that the plant would be allowed to remain in Mode 4 is acceptable.

3.1.2.5 TS 3.4.14 RCS Pressure Isolation Valve Leakage

The regulations at 10 CFR 50.2, "Definitions," and 10 CFR 50.55a(c), "Codes and standards," define RCS pressure isolation valves (PIVs) as any two normally closed valves in series within the RCPB, which separate the high pressure RCS from an attached low pressure system. The RCS PIV leakage LCO allows RCS high pressure operation when leakage through these valves exists in amounts that do not compromise safety. This is true during operation only when the loss of RCS mass through two series valves is determined by a water inventory balance. A known component of the identified leakage before operation begins is the least of the two individual leak rates determined for leaking series PIVs during the required surveillance testing. Leakage measured through one PIV in a line is not RCS operational leakage if the other is leak-tight. FNP TS Bases refer to the above regulations as well as GDC 55 for FNP's compliance with the RCS PIV leakage requirements.

The main purpose of this specification is to prevent overpressure failure of the low pressure portions of the connecting systems. The leakage limit is an indication that the PIVs between the

RCS and the connecting systems are degraded or degrading. PIV leakage could lead to overpressure of the low pressure piping or components. The failure consequences could be an LOCA outside of containment, an unanalyzed accident that could degrade the ability for low pressure injection.

Applicability in the FNP TS Bases states:

> In MODES 1, 2, 3, and 4, this LCO applies because the PIV leakage potential is greatest when the RCS is pressurized. In MODE 4, valves in the RHR flow path are not required to meet the requirements of this LCO when in, or during the transition to or from, the RHR mode of operation.
>
> In MODES 5 and 6, leakage limits are not provided because the lower reactor coolant pressure results in a reduced potential for leakage and for a LOCA outside the containment.

NRC Staff Evaluation

TS 3.4.14 limits RCS leakage because of the concern of over-pressurization of a lower pressure system that can lead to an interfacing system LOCA. In Mode 4, the RCS pressure is significantly reduced, which reduces the PIV leakage. All LOCA mitigating systems with the exception of the accumulators are available, and RHR serves as the backup to AFW for decay heat removal. Therefore, sufficient DID is maintained when the end state is changed from Mode 5 to Mode 4. In addition, the NRC staff anticipates that equipment repairs requiring plant shutdown and entry into Mode 4 would be infrequent events of short duration. Therefore, the NRC staff concludes that the proposed change to revise Required Action B.2 so that the plant would be allowed to remain in Mode 4 is acceptable.

3.1.2.6 TS 3.4.15 RCS Leakage Detection Instrumentation

General Design Criterion 30 of Appendix A to 10 CFR Part 50, "Quality of reactor coolant pressure boundary," requires means for detecting and, to the extent practical, identifying the location of the source of reactor coolant leakage. Leakage detection systems must have the capability to detect significant RCPB degradation as soon after occurrence as practical to minimize the potential for propagation to a gross failure. Thus, an early indication or warning signal is necessary to permit proper evaluation of all unidentified RCS leakage. FNP TS Bases refers to GDC 30 of Appendix A to 10 CFR 50 as well as guidance of RG 1.45, "Guidance on Monitoring and Responding to Reactor Coolant System Leakage," for FNP's compliance with the RCS PIV leakage requirements.

The LCO requires in Modes 1, 2, 3, and 4 that the following RCS leakage detection instrumentation be operable:

a. One containment atmosphere particulate radioactivity monitor, and
b. One containment air cooler condensate level monitor or one containment atmosphere gaseous radioactivity monitor.

The application states:

> ISTS 3.4.15, Condition A provides requirements for the containment sump monitor leak detection instrumentation that is not included in the Farley TS. Additionally, Farley TS 3.4.15 includes Conditions reflecting combinations of reactor coolant system leakage detection instrumentation inoperability (i.e., containment atmosphere particulate and gaseous radiation monitors, containment air cooler level monitor) that are not included in ISTS TS 3.4.15. The end state Completion Times for these additional Conditions are consistent with those evaluated in WCAP-16294, Revision 1, and provided in TSTF-432-A, Revision 1. The Completion Time for Required Action D.2 is revised to reflect these values.

The licensee identified a deviation from TSTF-432 concerning FNP TS 3.4.15. Specifically, FNP TS 3.4.15 includes conditions that reflect combinations of inoperable instrumentation not included in the STS. Even with the differences, the existing and proposed end state Completion Times for this TS are in agreement with TSTF-432, and the justification provided by the TSTF-432 model SE for changing this end state bounds the deviation. Therefore, the NRC staff concludes that the deviation is acceptable.

<u>NRC Staff Evaluation</u>

If one function is inoperable, the other functions are available to provide an indication of RCS leakage. In the unlikely event that Condition E (all required monitors inoperable and associated Completion Time not met) occurs, the likelihood of an initiating event in Mode 4 is not higher than in Mode 5. Placing the unit in Mode 5 does not increase the instrumentation available for detecting RCS leakage; therefore, there is no benefit with regard to monitoring plant status by proceeding to Mode 5. Therefore, sufficient DID is maintained when the end state is changed from Mode 5 to Mode 4. In addition, the NRC staff anticipates that equipment repairs requiring plant shutdown and entry into Mode 4 would be infrequent events of short duration. Therefore, the NRC staff concludes that the proposed change to revise Required Action D.2 so that the plant would be allowed to remain in Mode 4 is acceptable.

3.1.2.7 <u>TS 3.5.3 ECCS – Shutdown</u>

The application states:

> Farley TS 3.5.3 includes an additional Condition (Condition B) for inoperability of an Emergency Core Cooling System (ECCS) centrifugal charging subsystem when 100% of the ECCS flow equivalent to a single ECCS train is available that is not included in ISTS TS 3.5.3. Farley TS 3.5.3, Condition D is also modified from ISTS TS 3.5.3, Condition C to reflect the additional Condition. The additional and modified Conditions in Farley TS 3.5.3 are plant-specific aspects of the licensing basis, and are not readily adaptable to the changes described in TSTF-432-A. Therefore, the TS and Bases changes identified in TSTF-432-A for ISTS 3.5.3 are not adopted.

The staff's review concludes that the licensee's deviation from TSTF-432 is acceptable since the TSTF does not provide allowance for the LCOs plant-specific conditions discussed above.

3.1.2.8 TS 3.5.4 Refueling Water Storage Tank (RWST)

The RWST supplies borated water to the chemical and volume control system during abnormal operating conditions (boration flow path) to the refueling cavity during refueling and to the ECCS and the containment spray (CS) system during accident conditions. At FNP, the RWST supplies both trains of the ECCS through one header and both trains of the containment spray system through a separate supply header during the injection phase of a loss-of-coolant recovery.

NRC Staff Evaluation

At FNP, in MODES 1, 2, 3, and 4, RWST OPERABILITY requirements are dictated by ECCS and containment spray system OPERABILITY requirements. Since both the ECCS and the containment spray system must be OPERABLE in MODES 1, 2, 3, and 4, the RWST must also be OPERABLE to support their operation.

Since SI and recirculation may not be available due to an inoperable RWST, any loss-of-inventory events that cannot be isolated can lead to core damage. From Table 3.2.1 in the final SE of WCAP-16294, remaining in Mode 4 instead of cooldown to Mode 5 reduces the core damage probability (CDP) by more than a factor of 3. The primary accidents such as LOCAs and steam line breaks (SLBs) are less likely to occur in Mode 4. Since control rods are inserted in Mode 4, the SLB analysis assumption of the highest worth rod stuck is an unlikely scenario. In the lower part of Mode 4, transients progress slower than at power, backup cooling is available via RHR, and there is increased time for operator action and mitigation strategies. Proceeding to Mode 5 may add additional risk by switching from AFW cooling to RHR cooling. Based on Table 3.2.1 in the final SE of WCAP-16294, if RWST is inoperable, a shutdown to Mode 4 is appropriate.

In Mode 4, the transient conditions are less severe than at power so that variations in the RWST parameters or other reasons of inoperability are less significant. In addition, if the boron concentration is low, the emergency boration equipment is likely to be available to increase the RCS boron concentration. By changing the end state for Required Action C.2 to Mode 4, the possibility of a loss-of-inventory event due to switching to RHR cooling is eliminated, reducing the possibility that the RWST inventory would be required. Therefore, sufficient DID is maintained when the unit remains in Mode 4 rather than transitioning to Mode 5 with LCO 3.0.4.a not applicable for entry into Mode 4. In addition, the NRC staff anticipates that equipment repairs requiring plant shutdown and entry into Mode 4 would be infrequent events of short duration. Therefore, the NRC staff concludes that the proposed change to revise TS 3.5.4 so that the plant would be allowed to remain in Mode 4 is acceptable.

3.1.2.9 TS 3.5.6 ECCS Recirculation Fluid pH Control System

FNP's recirculation fluid pH control system is a passive system designed to raise the long-term pH of the solution in the containment sump following a DBA. The recirculation fluid pH control system consists of baskets of crystalline trisodium phosphate (TSP) that are located inside the

containment. In MODES 1, 2, 3, and 4, a DBA could cause the release of radioactive material in containment, requiring the operation of the ECCS recirculation fluid pH control system. The ECCS recirculation fluid pH control system assists in reducing the amount of radioactive material available for release to the outside atmosphere after a DBA.

The TSs currently require the unit to be in Mode 3 in 6 hours and Mode 5 in 84 hours if the system is inoperable, and the Required Action and associated Completion Time are not met.

The application states:

> ISTS TS 3.6.7 provides Conditions for inoperability of the Spray Additive System. The Farley design does not employ a Spray Additive System, and uses a recirculation fluid pH control system instead. The recirculation fluid pH control system consists of baskets of crystalline TSP that are located inside containment. The ISTS does not provide a model specification for recirculation fluid pH control systems that utilize TSP baskets, and it is therefore not specifically included in TSTF-432-A, Revision 1. However, end state Completion Times for recirculation fluid pH control systems that utilize TSP baskets are discussed in Section 3.1.15 of WCAP-16294, Revision 1. The Completion Time for Required Action 8.2 of Farley TS 3.5.6 is revised to reflect the value evaluated in WCAP-16294, Revision 1.

<u>NRC Staff Evaluation</u>

The TR WCAP-16294 provides the technical basis for the proposed change by indicating that, "Events, such as a LOCA or a secondary side break, are less likely in Mode 4 due to the limited time in the mode and less severe thermal-hydraulic conditions. Therefore, sufficient DID is maintained when the end state is changed from Mode 5 to Mode 4." TR WCAP-16294 further states that, "proceeding to Mode 5 does not increase the protection available," and that it is highly unlikely all of the baskets would be empty; therefore, an inoperable recirculation fluid pH control system would still provide some pH control.

Containment spray will still be available to reduce the iodine fission product inventory in the containment. The RCS pressures and temperatures are lower, the ECCS operation is maintained so the criteria of 10 CFR 50.46 are met, and the containment spray systems and containment cooling systems are available to depressurize and reduce the airborne radioiodine in containment. The staff notes the design differences between the ISTS and FNP's pH controlled systems discussed by the licensee above. However, the NRC staff concludes that the function of the systems is similar, and that the proposed change is within the scope of the approved WCAP-16294, Revision 1; therefore, the change is acceptable.

3.1.2.10 <u>TS 3.6.6 Containment Spray and Cooling Systems</u>

FNP's containment spray and containment cooling systems provide containment atmosphere cooling to limit post-accident pressure and temperature in containment to less than the design values. Reduction of containment pressure and the iodine removal capability of the spray reduces the release of fission product radioactivity from containment to the environment, in the event of a DBA, to within limits. The containment spray system consists of two separate trains.

Each train includes a containment spray pump, piping, and valves. Each train is powered from a separate engineered safety feature (ESF) bus. The RWST supplies borated water to the containment spray system during the injection phase of operation. After the RWST has been exhausted, the containment recirculation pumps or RHR pumps are used to supply the containment spray ring headers.

FNP's containment cooling system consists of two trains of containment fan cooling. Each train consists of two fan units supplied with cooling water from a separate train of service water (SW). However, under post-accident conditions, a single fan unit with at least 600 gpm SW flow provides sufficient cooling capacity to meet post-accident heat removal requirements. Air is drawn into the coolers through the fan and discharged to the steam generator compartments, pressurizer compartment, and outside the secondary shield in the lower areas of containment.

The application states:

> ISTS TS 3.6.6B, Containment Spray and Cooling Systems, Condition F
>
> ISTS TS 3.6.6B provides operability requirements for containment spray and cooling systems, where no credit is taken for iodine removal by the Containment Spray System. The Farley design credits containment spray for iodine removal in the event of a LOCA. The design also credits baskets of crystalline trisodium phosphate located inside containment for reduction of airborne iodine activity levels inside containment and retention of removed iodine in the containment sump following an accident. As a result, the changes identified in TSTF-432-A, Revision 1 for ISTS TS 3.6.6B are not adopted.
>
> ISTS TS 3.6.6C, Containment Spray System, Condition B
>
> The Farley design does not include an ice condenser. The changes identified in TSTF-432-A, Revision 1 for ISTS TS 3.6.6C are therefore not adopted.
>
> ISTS TS 3.6.6D, Quench Spray System, Condition B
>
> The Farley design does not include a Quench Spray System. The changes identified in TSTF-432-A, Revision 1 for ISTS TS 3.6.6D are therefore not adopted.
>
> ISTS TS 3.6.6E, Recirculation Spray System, Condition B
>
> The Farley design does not include a Recirculation Spray System. The changes identified in TSTF-432-A, Revision 1 for ISTS TS 3.6.6E are therefore not adopted.

The staff has reviewed the licensee's deviation from TSTF-432 concerning FNP TS 3.6.6. Specifically, the STS includes conditions that reflect combinations of containment spray and cooling inoperability that are not included in the FNP TSs. Since the FNP TSs do not include these conditions representing the different combinations of inoperable equipment, entrance into LCO 3.0.3 is required upon their occurrence. Even with the differences, the proposed end state

Completion Time for this TS is in agreement with TSTF-432, and the justification provided in the TSTF-432 model SE for changing this end state bounds the deviation. Therefore, the NRC staff concludes that the deviation is acceptable.

NRC Staff Evaluation

The following is an evaluation of the licensee's proposed end state changes for TS LCO 3.6.6 Condition B when Condition A is not met (regarding inoperability of one containment spray train) and Condition E when Condition C or Condition D are not met (regarding inoperability of one or two containment cooling trains).

The containment spray system and containment cooling system are designed for accident conditions initiated at full power. Design assumptions regarding containment air cooling are met by two containment spray trains and the containment cooling system consisting of four fan units. In the event of an accident, a minimum of one containment cooling train with a single OPERABLE fan unit and one containment spray train are required to maintain the containment peak pressure and temperature below the design limits. Additionally, one containment spray train is also required to remove iodine from the containment atmosphere and maintain concentrations below those assumed in the safety analysis. To ensure that these requirements are met, two containment spray trains and two containment cooling trains with a single OPERABLE fan unit per cooling train with at least 600 gpm SW flow must be OPERABLE. Therefore, in the event of an accident, at least one train in each system operates, assuming the worst case single active failure occurs. Condition F requires that if two containment spray trains are inoperable, or any combination of three or more trains is inoperable, the plant must immediately enter LCO 3.0.3. The requirements of Criterion 3 of 10 CFR 50.36(c)(2)(ii) will still be met. As stated above, sufficient DID is maintained when the unit remains in Mode 4 rather than transitioning to Mode 5 with LCO 3.0.4.a not applicable for entry into Mode 4.

Based on the above, the NRC staff concludes that the proposed change is acceptable.

3.1.2.11 ISTS TS 3.6.11, Iodine Cleanup System, Condition 8
ISTS TS 3.6.12, Vacuum Relief Valves, Condition 8
ISTS TS 3.6.13, Shield Building Air Cleanup System, Condition B
ISTS TS 3.6.14, Air Return System, Condition B
ISTS TS 3.6.18, Containment Recirculation Drains, Condition C

The application states:

> The Farley design does not include an Iodine Cleanup System. The changes identified in TSTF-432-A, Revision 1 for ISTS TS 3.6.11 are therefore not adopted.
>
> The Farley design does not include containment vacuum relief valves. The changes identified in TSTF-432-A, Revision 1 for ISTS TS 3.6.12 are therefore not adopted.

The Farley design does not include a shield building air cleanup system. The changes identified in TSTF-432-A, Revision 1 for ISTS TS 3.6.13 are therefore not adopted.

The Farley design does not include an ice condenser air return system. The changes identified in TSTF-432-A, Revision 1 for ISTS TS 3.6.13 are therefore not adopted.

The Farley design does not include containment recirculation drains. The changes identified in TSTF-432-A, Revision 1 for ISTS TS 3.6.13 are therefore not adopted.

The staff concludes that the licensee's above deviation from TSTF-432 regarding ISTS LCOs 3.6.11 through 3.6.13 conditions is acceptable since TSTF-432 does not require a licensee to address such Conditions in order to justify the proposed change.

3.1.2.12 TS 3.7.7 Component Cooling Water (CCW) System

The CCW system provides a heat sink for the removal of process and operating heat from safety-related components during a DBA or transient. During normal operation, the CCW system also provides this function for various nonessential components, as well as the spent fuel storage pool. The CCW system serves as a barrier to the release of radioactive byproducts between potentially radioactive systems and the service water system, and thus, to the environment.

FNP's CCW system is arranged as two independent, full capacity cooling loops with one shared pump and spare heat exchanger, and has isolatable non-safety-related components. Each safety-related train includes a full capacity pump, heat exchanger, piping, valves, instrumentation, and a shared surge tank, with a separate section to serve each train. Each safety-related train is powered from a separate bus. An open surge tank in the system ensures that sufficient net positive suction head is available. The pump in each train is automatically started on receipt of SI signal, and all nonessential components are isolated.

The principal safety-related function of the CCW system is the removal of decay heat from the reactor via the RHR system. This may be during a normal or post-accident cooldown and shutdown. Decay heat removal may be during a normal or post-accident cooldown and shutdown. The LCO requires two CCW trains to be operable in Modes 1, 2, 3, and 4.

NRC Staff Evaluation

The CDP values listed in Table 3.2.1 of the final SE of TR WCAP-16294 (from the evaluation for the scenarios) show that there is slightly less risk associated with Mode 4 than there is with a cooldown to Mode 5 when a train of CCW is inoperable. One CCW train will be operating when the unit enters Mode 4. Each train is designed to handle 100 percent of the heat loads during power operation and accident conditions. The heat loads will be significantly less in the shutdown modes, and some accidents are less likely to occur. Therefore, sufficient DID is maintained when the end state is changed from Mode 5 to Mode 4. Accordingly, the NRC staff

concludes that the proposed change to revise TS 3.7.7 Required Action B.2 so that the plant will be allowed to remain in Mode 4 is acceptable.

3.1.2.13 TS 3.7.8 Service Water System (SWS)

FNP's SWS consists of two separate, 100 percent capacity, safety-related, cooling water trains. Each train consists of two 100 percent capacity pumps, one CCW heat exchanger, piping, valving, instrumentation, and two cyclone separators. The pumps and valves are remote and manually aligned, except in the unlikely event of an LOCA. The pumps aligned to the critical loops are automatically started upon receipt of an SI signal, and all essential valves are aligned to their post-accident positions. The SWS also provides emergency makeup to the diesel generator jacket water systems and is the backup water supply to the AFW system.

The SWS provides a heat sink for the removal of process and operating heat from safety-related components during a DBA or transient. During normal operation and a normal shutdown, the SWS also provides this function for various safety-related and non-safety-related components.

The principal safety-related function of the SWS is the removal of decay heat from the reactor via the CCW system. The safety-related function is covered by TS LCO 3.7.8, which requires that two SWS trains shall be operable in Modes 1, 2, 3, and 4.

The application states:

> Farley TS 3.7.8 includes an additional Condition for operability of the automatic Service Water System (SWS) isolation valve for the Turbine Building. The end state Completion Times for this additional Condition reflects a plant-specific attribute of the Farley SWS design, and is consistent with those evaluated in WCAP-16294, Revision 1, and provided in TSTF-432-A, Revision 1. The Completion Time for Required Action C.2 is revised to reflect these values.

NRC Staff Evaluation of the SWS

The CDP values listed in Table 3.2.1 of the final SE of TR WCAP-16294 (from the evaluation for the scenarios) show that there is slightly less risk associated with Mode 4 than there is with a cooldown to Mode 5 when a train of SWS is inoperable. One SWS train will be operating when the unit enters Mode 4. Each train is designed to handle 100 percent of the heat loads during power operation and accident conditions. The heat loads will be significantly less in the shutdown modes, and some accidents are less likely to occur. Therefore, sufficient DID is maintained when the end state is changed from Mode 5 to Mode 4.

Therefore, the NRC staff concludes that the proposed change to revise TS 3.7.8, Required Action C.2, so that the plant would be allowed to remain in Mode 4 is acceptable. In addition, the staff concludes that the licensee's statement regarding its additional plant-specific LCO condition is acceptable, since this condition ensures that the SWS trains remain fully capable of performing the required safety function, and the proposed change does not affect this function.

3.1.2.14 TS 3.7.9 Ultimate Heat Sink (UHS)

The FNP UHS, or Service Water Pond, provides a heat sink for processing heat from safety-related components during a transient or accident, as well as during normal operation. This is done by utilizing the SWS and the CCW system.

In MODES 1, 2, 3, and 4, the UHS is required to support the OPERABILITY of the equipment serviced by the UHS and required to be OPERABLE in these MODES. In MODES 5 or 6, the OPERABILITY requirements of the UHS are determined by the systems it supports.

The application states:

> The structure and content of Farley TS 3.7.9 differs from that of ISTS TS 3.7.9. Farley TS 3.7.9 provides a singular Condition (Condition A) for ultimate heat sink (UHS) water level or temperature not within limits. The Completion Times for this Condition provide end state requirements, and there is not a separate Condition with end state requirements, as there is in the ISTS. The end state Completion Times for the additional UHS water level operability requirement reflect plant-specific attributes of the Farley UHS design, and are consistent with those evaluated in WCAP-16294, Revision 1, and provided in TSTF-432-A, Revision 1. The Completion Time for Required Action A.2 is revised to reflect these values.

NRC Staff Evaluation

The UHS is designed to remove 100 percent of the heat loads generated during power operation and accident conditions. The heat load will be significantly less in the shutdown modes. Some accidents are less likely to occur during shutdown modes. Therefore, sufficient DID is maintained when the end state is changed from Mode 5 to Mode 4. Therefore, the NRC staff concludes that the proposed change to revise Required Action A.2 so that the plant would be allowed to remain in Mode 4 is acceptable. In addition, the staff concludes that the licensee's statement regarding its singular plant-specific LCO condition versus those in the ISTS LCO conditions is acceptable, since TSTF-432 does not require a licensee to address such conditions in order to justify the proposed change.

3.1.2.15 TS 3.7.10 Control Room

FNP's control room provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity, chemicals, or toxic gas. This environment is protected by the integrity of the control room envelope and the operation of the control room emergency filtration/pressurization system (CREFS). The Unit 1 and Unit 2 control room is a common room served by a shared CREFS.

The CREFS consists of two independent, redundant trains that recirculate and filter the control room air in conjunction with the CRACS, and two independent, redundant trains that pressurize the control room with filtered outside air. Each filter unit consists of a prefilter, a high efficiency particulate air filter, and an activated charcoal adsorber section for removal of gaseous activity (principally iodine). Each pressurization filter also contains a heater. Each train contains filter units, fans, and instrumentation, which form the system.

The licensee's original application stated:

> ISTS TS 3.7.10, Control Room Emergency Filtration System, Condition C (Farley TS 3.7.10, Control Room, Condition C), Farley TS 3.7.10, Condition C, provides an additional end state requirement when two Control Room Emergency Filtration System (CREFS) trains are inoperable for reasons other than inoperable control room boundary that is not provided in ISTS TS 3.7.10. With two CREFS trains inoperable under these conditions, ISTS TS 3.7.10 would require entry into LCO 3.0.3, which would then require that the unit be brought to MODE 3 within 7 hours, and MODE 5 within 37 hours. Under these same conditions, with two CREFS trains inoperable, Farley TS 3.7.10, Condition C, allows 6 hours to be in MODE 3, and 36 Hours to be in MODE 5. Adoption of the end state Completion Times for this additional requirement is consistent with those evaluated in WCAP-16294, Revision 1, and provided in TSTF-432-A, Revision 1. The Completion Time for Required Action C.2 is revised to reflect these values.

During review of the licensee's application, the staff found that the proposed change for LCO 3.7.10, if approved, would have also applied to a loss of both trains condition in MODES 1, 2, 3, or 4, a condition that was not approved in the staff's approved SE/TSTF, and therefore, the proposed end state change was not appropriate for such condition. The staff's letter dated August 18, 2015 (see Reference 2), stated its concern to the licensee and requested additional information from the licensee.

The licensee's letter dated September 17, 2015, provided a modification to its original proposed change to LCO 3.7.10, Condition C, by separating the condition into two separate conditions with the explanation below:

> The proposed Technical Specification and Bases changes for Farley TS 3.7.10 are revised to separate Condition C. The revised Condition C will only apply to situations involving the "Required Action and Associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4." The End State completion times of TSTF-432-A are applied to this Condition. The portion of Condition C that currently applies to situations involving two CREFS trains inoperable in MODE 1, 2, 3, or 4, will be provided in a new Condition D. Completion Times for the existing Condition C will be retained for the new Condition D, and the End State completion times from TSTF-432-A will not be applied to this new Condition D. Existing Conditions D and E will be renumbered as Conditions E and F.
>
> The TS and Bases markup pages reflecting the above are included in Enclosure 2 of this response. The TS and Bases markup pages for TS 3.7.10 from the original LAR submittal are superseded by this RAI response and are no longer applicable.

<u>NRC Staff Evaluation</u>

FNP's CREFS is an emergency system, parts of which may also operate during normal unit operations in the standby mode of operation. Upon receipt of the actuating signal(s), normal air

supply to the control room is isolated, and the stream of ventilation air is recirculated through the system filter trains. TS LCO 3.7.10 requires that two CREFS trains be operable in Modes 1 through 6 and during movement of recently irradiated fuel assemblies.

If one CREFS train is inoperable, the other train remains available to provide control room filtration. If two CREFS trains are inoperable, an independent initiating event and radioactive release must occur for filtration to be required in Modes 4. Therefore, sufficient DID is maintained when the end state is changed from Mode 5 to Mode 4. Therefore, the NRC staff concludes that the proposed change to revise Required Action C.2 so that the plant would be allowed to remain in Mode 4 is acceptable. In addition, the staff's review of the licensee's modified Condition C, as specified above, found similarities between the licensee's TS LCO 3.7.10 requirements versus those specified in ISTS. Since the revised, proposed end state change for LCO 3.7.10, Condition C, is within the scope of TSTF-432, and renumbering of original Conditions D and E to E and F due to the insertion of new Condition D (which is a portion of original Condition C), is administrative since there is no change in the requirements of the LCO Conditions, the staff concludes that these changes are acceptable.

3.1.2.16 TS 3.7.11 Control Room Air Conditioning System (CRACS)

The CRACS is an emergency system, parts of which may also operate during normal unit operations. The CRACS consists of two independent and redundant trains that provide cooling and heating of recirculated control room air. Each train consists of heating coils, cooling coils, instrumentation, and controls to provide for control room temperature control following isolation of the control room. TS LCO 3.7.11 requires that two CRACS trains be operable in Modes 1 through 6 and during movement of recently irradiated fuel assemblies.

The licensee's supplemental letter states:

> ISTS 3.7.11 applies to the Control Room Air Conditioning System (CRACS). The CRACS provides temperature control for the control room following isolation of the control room. The CRACS consists of two independent and redundant trains that provide heating and cooling of recirculated control room air. Each train consists of heating coils, cooling coils, instrumentation, and controls to provide for control room temperature control. The CRACS is a subsystem providing air temperature control for the control room. The CRACS is a normal and emergency system. A single CRACS train can provide the required temperature control.
>
> Farley TS 3.7.11 applies to the Control Room Emergency Air Temperature Control System (CREATCS). The design and functions that are covered under ISTS 3.7.11 and Farley TS 3.7.11, and that were evaluated in WCAP-16294, are the same with the exception that the CRACS includes a design function for control room heating that is not a design function of the CREATCS, and is not included in Farley TS 3.7.11. The heating function is not required for Farley, and the difference does not adversely affect the conclusions of WCAP-16294, Revision 1 related to the application of revised end state conditions for Farley TS 3.7.11 Condition B.

NRC Staff Evaluation

If one CRACS train is inoperable, the other train remains available to provide control room temperature control. The slower nature of accident event progression in the shutdown modes and increased time for operator actions and mitigation strategies limit the severity of accidents in the shutdown modes. The inoperability of equipment does not affect the likelihood of an event occurring, and some events are less likely to occur in the shutdown modes. Therefore, sufficient DID is maintained when the end state is changed from Mode 5 to Mode 4. Therefore, the NRC staff concludes that the proposed change to revise Required Action B.2 so that the plant would be allowed to remain in Mode 4 is acceptable. In addition, the staff's review of the licensee's comparison between ISTS 3.7.11, "Control Room Emergency Air Temperature Control System," and Farley TS 3.7.11, "Control Room Air Conditioning System," provided above, found similarities between the two systems; therefore, the proposed change is within the scope of TSTF-432, as evaluated above.

3.1.2.17 TS 3.7.12 Penetration Room Filtration (PRF) System

The PRF system consists of two independent and redundant trains. Each train consists of a heater, a prefilter, a high efficiency particulate air filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a recirculation fan and an exhaust fan. Ductwork, valves or dampers, and instrumentation, also form part of the system. The heater is not credited in the analysis but serves to reduce the relative humidity of the air stream. The system initiates filtered ventilation of the spent fuel pool room following receipt of a high radiation signal or a low air flow signal from the normal ventilation system. The system initiates filtered ventilation of the ECCS pump rooms and penetration area following receipt of a containment isolation actuation system Phase B signal and manual isolation of the spent fuel pool room.

The PRF system is a standby system normally aligned to filter the spent fuel pool room. During emergency operation, the PRF system filters the spent fuel pool room or the ECCS pump rooms and penetration area with fan actuation signals and damper re-alignments to the ECCS pump rooms and penetration area (to support each respective area). Upon receipt of the actuating Engineering Safety Feature Actuation System signal for post-LOCA conditions, or upon receipt of a high radiation signal or a low air flow signal from the normal spent fuel pool room ventilation system, the PRF fans are started and the ventilation air stream discharges through the system filter trains.

In MODES 1, 2, 3, or 4, the PRF system is required to be OPERABLE to provide fission product removal associated with ECCS leaks, due to an LOCA. In MODES 5 or 6, the PRF system is not required to be OPERABLE since the ECCS is not required to be OPERABLE.

The application states:

> ISTS TS 3.7.14, Condition C provides end state requirements for inoperability of the Penetration Room Exhaust Air Cleanup System. The corresponding Farley requirements are located in TS 3.7.12, Piping Room Filtration (PRF) System, Condition C. The Applicability for ISTS 3.7.14 is MODES 1, 2, 3, and 4. The Applicability for Farley TS 3.7.12, applies during movement of irradiated fuel

assemblies in the spent fuel pool room (SFPR), in addition to the ISTS requirements. This difference results in additional non-end state Conditions in the Farley TS for PRF System inoperability during irradiated fuel movement in the Spent Fuel Pool Room that do not appear in the ISTS.

Additionally, with two penetration room exhaust air cleanup systems inoperable, ISTS TS 3.7.14 would require entry into LCO 3.0.3, which would then require that the unit be brought to MODE 3 within 7 hours, and MODE 5 within 37 hours. This condition is addressed in Farley TS 3.7.12, Condition C, which allows 6 hours to be in MODE 3, and 36 Hours to be in MODE 5. Adoption of the end state Completion Times for this additional requirement is consistent with those evaluated in WCAP-16294, Revision 1, and provided in TSTF-432-A, Revision 1. The Completion Time for Required Action C.2 is revised to reflect these values.

NRC Staff Evaluation

If one penetration room exhaust air cleanup system (PREACS) train is declared inoperable, the other train remains available to provide penetration room air filtration. If two PREACS trains are inoperable due to an inoperable penetration room boundary, an LOCA and passive failure in the penetration room must occur to require air filtration.

An LOCA is less likely to occur during shutdown modes because the following are significantly reduced or eliminated: energy contained within the reactor pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses. Therefore, sufficient DID is maintained when the end state is changed from Mode 5 to Mode 4. Therefore, the NRC staff concludes that the proposed change to revise TS 3.7.12 Required Action C.2 so that the plant would be allowed to remain in Mode 4 is acceptable. In addition, the staff's review found similarities between the FNP and ISTS LCO requirements as discussed by the licensee above; therefore, TSTF-432 proposed end state change is applicable to FNP's LCO.

3.1.2.18 TS 3.7.19 Engineered Safety Feature (ESF) Room Coolers

The licensee's original application proposed to adopt TSTF-432 end state for its TS LCO 3.7.19. However, in response to the staff's RAI, the licensee's supplemental letter September 17, 2015, withdrew the proposed change as explained below by the licensee:

> The ECCS PREACS is described in ISTS 3.7.12. The ECCS PREACS filters air from the area of the active ECCS components during the recirculation phase of a loss of coolant accident. The ECCS PREACS, in conjunction with other normally operating systems, also provides environmental control of temperature and humidity in the ECCS pump room area and the lower reaches of the Auxiliary Building. Farley TS 3.7.19 provides requirements for the ESF Room Coolers. Operability requirements for the ESF room coolers are not included within the scope of end state conditions evaluated in WCAP-16294, Rev. 1 for ISTS 3.7.12. The requested end state change for Farley TS 3.7.19 is, therefore, withdrawn.

Since the proposed change was outside the scope of the WCAP and the TSTF, it was withdrawn by the licensee. The staff concludes that the licensee's withdrawal of the subject change is acceptable.

3.1.2.19 ISTS TS 3.7 13 Fuel Building Air Cleanup System

The application states:

> ISTS TS 3.7.13, Condition C provides end state requirements for inoperability of the Fuel Building Air Cleanup System. The Farley TS do not include a corresponding specification for the Fuel Building Air Cleanup System. The changes described in TSTF-432-A, Revision 1 for ISTS TS 3.7.13, Condition B are therefore not adopted.

Since TSTF-432 does not require a licensee to adopt the ISTS LCO condition specified above for the adoption of the licensee's subject proposed change, the licensee's deviation from TSTF-432 is acceptable.

3.1.2.20 TS 3.8.1 AC Sources – Operating
TS 3.8.4 DC Sources – Operating
TS 3.8.7 Inverters – Operating
TS 3.8.9 Distribution Systems – Operating

(a) TS 3.8.1 AC Sources – Operating

The unit Class 1E AC electrical power distribution system AC sources consist of offsite power sources (normal and alternate) and the onsite standby power sources (three diesel generators (DGs) for each unit). As required by 10 CFR 50, Appendix A, GDC 17, the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the ESF systems.

The onsite Class 1E AC distribution system for each unit is divided into three load groups so that the loss of any one group does not prevent the minimum safety functions from being performed. Each load group has connections to two offsite power sources and a single DG.

Offsite power is supplied to the 230 kilovolt (kV) and 500 kV switchyards from the transmission network by two 230 kV transmission lines and three 500 kV transmission lines. These two electrically and physically separated circuits provide AC power, through auxiliary and standby startup transformers, to the 4.16 kV ESF buses.

After the DG has started, it will automatically tie to its respective bus after offsite power is tripped as a consequence of ESF bus undervoltage or degraded voltage, independent of or coincident with, an SI signal. The DGs will also start and operate in the standby mode without tying to the ESF bus on an SI signal alone. Following the trip of offsite power, an undervoltage signal strips nonpermanent loads from the ESF bus. When the DG is tied to the ESF bus, loads are then sequentially connected to their respective ESF bus by the load sequencing timers (ESF timers). The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG. Each ESF component is provided with its own load sequencing

timer. In Modes 1, 2, 3, and 4, the TS LCO 3.8.1 requires (1) two qualified circuits between the offsite transmission network and the onsite AC electrical power distribution system, and (2) three DGs capable of supplying the onsite power distribution subsystem(s).

The application for TS 3.8.1 AC Sources – Operating states:

> Farley TS 3.8.1 includes an additional end state Condition, Condition F, that is not provided as a separate Condition in ISTS TS 3.8.1. Condition F directs that the unit be brought to MODE 3 within 6 hours when the Completion Times for Conditions related to emergency diesel generator operability are not met. Consistent with Condition G in the ISTS, Condition H of Farley TS 3.8.1 addresses all other inoperability conditions involving end state requirements for TS 3.8.1. The end state Completion Time for Condition C reflects the historical licensing basis for the Farley plant and is retained. This difference does not affect the intent of TSTF-432-A, and the Completion Time for Required Action H.2 of Farley TS 3.8.1 is revised to reflect the value evaluated in WCAP-16294, Revision 1.

The licensee's above statement is discussed in subsection (e) below.

(b) TS 3.8.4 DC Sources – Operating

The station DC electrical power system provides the AC emergency power system with control power. It also provides both motive and control power to selected safety-related equipment and preferred AC vital bus power (via inverters). The DC electrical power system is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure. Per the FNP FSAR, Revision 21, the DC electrical power system also conforms to the recommendations of RG 1.6, "Independence between Redundant Standby (Onsite) Power Sources and Between Their Distribution Systems, (Safety Guide 6)," and IEEE-308.

FNP's 125 VDC electrical power system consists of two main systems. The Auxiliary Building System and the Service Water Intake Structure System. The Auxiliary Building 125 VDC system consists of two independent and redundant subsystems (Train A and Train B), which supply DC power to various ESF systems throughout the plant. Each Auxiliary Building subsystem (train) consists of a 125 VDC battery, an associated full capacity battery charger, and all associated control equipment and interconnecting cabling. Each Auxiliary Building 125 VDC train is normally supplied by the associated battery charger (A or B).

During normal operation, the 125 VDC load is powered from the battery chargers with the batteries floating on the system. In case of loss of normal power to the battery charger, the DC load is automatically powered from the station batteries.

In Modes 1, 2, 3, and 4, the TS LCO 3.8.4 requires that the DC electrical power subsystems, each subsystem consisting of one battery, battery charger for each battery, and the corresponding control equipment and interconnecting cabling supplying power to the associated bus are OPERABLE to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated

DBA. Loss of any one DC electrical power subsystem does not prevent the minimum safety function from being performed.

An OPERABLE DC electrical power subsystem requires the battery and its normal or backup charger to be operating and connected to the associated DC bus.

The application for TS 3.8.4 DC Sources – Operating states:

> ISTS TS 3.8.4 provides requirements for the direct current (DC) electrical power distribution subsystems. The scope of Farley TS 3.8.4 is more limited than the ISTS, and provides requirements for the auxiliary building and service water intake structure DC vital bus electrical power distribution subsystems. As a result of this difference the structure and content of Farley TS 3.8.4 differs from that of ISTS TS 3.8.4. These differences do not affect the intent of TSTF-432-A, Revision 1 or the end state Completion Times evaluated in WCAP-16294, Revision 1. The Completion Time for Required Action C.2 is revised to reflect these values.

The licensee's above statement is discussed in subsection (e) below.

(c) <u>TS 3.8.7 Inverters - Operating</u>

The function of the inverter is to convert DC to AC. Through use of an inverter, the station batteries can provide AC electrical power to the vital buses. The inverters can be powered from an AC source or from the station battery. FNP's four Class 1E inverters provide the preferred source of 120 volt (V), 60 Hz power for the reactor protection system, the ESF actuation system, the nuclear steam supply system control and instrumentation, the post-accident monitoring system, and the safety-related radiation monitoring system.

The inverters are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of anticipated operational occurrences or abnormal transients; and

b. Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

<u>(d) TS 3.8.9 Distribution systems – Operating</u>

FNP's onsite Class 1E AC, DC, and AC vital bus electrical power distribution systems are divided into two redundant and independent AC, DC, and AC vital bus electrical power distribution trains.

The AC electrical power subsystem for each train consists of a primary ESF 4.16 kV bus and secondary 600 and 208/120 V buses, distribution panels, motor control centers, and load centers. Each train of 4.16 kV ESF buses has at least one separate and independent offsite source of power, as well as an onsite diesel generator (DG) source. Each 4.16 kV ESF bus is

normally connected to a preferred offsite source. If all offsite sources are unavailable, the onsite emergency DG supplies power to the 4.16 kV ESF bus(es). Control power for the 4.16 kV breakers is supplied from the Class 1E batteries.

The secondary AC electrical power distribution subsystem for each train includes the safety-related buses, load centers, motor control centers, and distribution panels shown in FNP TS Table B 3.8.9-1. The 120 VAC vital buses are arranged in four buses and are normally powered from the inverters. The alternate power supply for the 120 VAC vital buses are Class 1E constant voltage source transformers powered from the same bus as the associated inverter, and its use is governed by LCO 3.8.7, "Inverters - Operating." The DC electrical power distribution subsystem consists of 125 V bus(es) and distribution panel(s). TS LCO 3.8.9 requires that the required Class 1E AC, DC, and 120 VAC vital bus electrical power distribution subsystems shall be OPERABLE in Modes 1, 2, 3, and 4.

The application for TS 3.8.9 Distribution Systems – Operating states:

> Farley TS 3.8.9 includes additional Conditions related to operability of the auxiliary building and service water intake structure DC vital bus electrical power distribution subsystems that are not included in ISTS TS 3.8.9. These additional Conditions do not affect the intent of TSTF-432-A, Revision 1 or the end state Completion Times evaluated in WCAP-16294, Revision 1. The Completion Time for Required Action D.2 is revised to reflect these values.

The licensee's above statement is discussed in subsection (e) below.

(e) <u>NRC Staff Evaluation of AC Sources, DC Sources, Inverters, and Distribution Systems</u>

The final SE of TR WCAP-16294, Table 3.2.1, shows that the CDP decreases slightly when the unit is cooled down to Mode 4, instead of Mode 5, for each condition in TS 3.8.1, TS 3.8.4, TS 3.8.7, and TS 3.8.9.

For TS 3.8.1, two trains of DGs are available if two offsite power circuits are inoperable, and similarly, two offsite power circuits are available if two DGs are inoperable. If an offsite power circuit and/or a DG are inoperable, at least one of each remains available. For TS 3.8.4, there are two redundant trains of DC power; if one is inoperable, the other is available to provide the necessary DC power. For TS 3.8.7, there are two redundant trains of inverters; if one is inoperable, the other train is available to provide the necessary AC power.

The slower nature of event progression during shutdown modes provides increased time for operator actions and mitigation strategies if an event were to occur. In addition, some events are less likely to occur during shutdown modes. Therefore, sufficient DID is maintained when the end state is changed from Mode 5 to Mode 4. Therefore, the NRC staff concludes that the proposed change to revise TS 3.8.1, Required Action H.2; TS 3.8.4, Required Action C.2; TS 3.8.7, Required Action B.2; and TS 3.8.9, Required Action D.2, so that the plant would be allowed to remain in Mode 4, is acceptable. In addition, the staff concludes that FNP's plant-specific design differences and numbering of the LCO conditions discussed by the licensee above, are acceptable since the proposed changes are within the scope of TSTF-432.

3.2 Risk Evaluation

FNP stated in its application that the information in the Westinghouse TR WCAP 16294 and TSTF-432 are applicable to FNP, Units 1 and 2. As stated in the final SE for TR WCAP-16294, the NRC staff reviewed TR WCAP-16294 using SRP Chapters 19.2 and 16.1, and the five key principles of risk-informed decisionmaking presented in RG 1.174 and RG 1.177. The final SE also stated that design and operational differences among Westinghouse plants were identified and appropriate sensitivity studies were performed, which show that the conclusions of the quantitative risk assessment apply to all Westinghouse plants. The NRC staff concludes that the risk evaluation, as discussed in the NRC staff's final SE, is applicable to FNP, Units 1 and 2.

3.3 TS Bases Changes

TSTF-432 included and the licensee submitted the following TS Bases changes:

- A reference to the NRC-approved TR WCAP-16294 has been added to the reference section of the TS Bases for each TS affected in TSTF-432.
- The following statement was added to each TS Bases Action section affected:

> Remaining within the Applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Reference 19). In MODE 4 the steam generators and residual heat removal system are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference [ ], the steam turbine driven auxiliary feedwater pump must be available to remain in MODE 4. Should steam generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

The licensee's supplemental letter dated April 13, 2016, in response to the staff letter dated April 7, 2016 (Reference 3), deleted the following statement from the TS Bases, page B 3.8.4-6, since the statement was determined to be contrary to the staff's approved TSTF changes.

> The Completion Time to bring the unit to MODE 5 is consistent with the time required in Regulatory Guide 1.93 (Ref. 8).

The NRC staff generally does not approve TS Bases changes; however, the staff does review the changes for consistency with the proposed TS change. The NRC staff determined that TS Bases changes are consistent with the proposed TS changes and the Commission's Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors, dated July 2, 1993 (58 FR 39132).

3.4 Summary

The NRC staff has reviewed the licensee's proposed adoption of TSTF-432 to modify the TS requirements to permit an end state of hot shutdown mode with the implementation of TR WCAP-16294. The NRC staff concludes that the changes are acceptable as discussed in the preceding sections. The NRC staff also concludes that the changes are consistent with the requirements of 10 CFR 50.36 and consistent with the approved TR WCAP-16294.

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 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 May 26, 2015 (80 FR 30102). 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.

7.0 REFERENCES

1. Southern Nuclear Operating Company application, dated April 13, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15103A656), regarding adoption of TSTF-432, Revision 1, "Change in Technical Specifications End States (WCAP-16294)."

2. Southern Nuclear Operating Company supplemental letter dated September 17, 2015 (ADAMS Accession No. ML15260B228), regarding the licensee's response to the NRC staff letter dated August 18, 2015 (ADAMS Accession No. ML15194A192), for Request for Additional Information.

3. Southern Nuclear Southern Nuclear Operating Company supplemental letter dated April 13, 2016 (ADAMS Accession No. ML16104A123), regarding the NRC staff letter dated April 7, 2016 (ADAMS Accession No. ML16077A177), for Request for Additional Information.

4. Request for Additional Information regarding TSTF-432, Revision 0, "Change in Technical Specifications End States (WCAP-16294)," dated November 29, 2010 (ADAMS Accession No. ML103360003).

5. WCAP-16294-NP-A, Revision 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010 (ADAMS Accession No. ML103430249).

6. NUREG-1431, Volume 1, Revision 3, "Standard Technical Specifications Westinghouse Plants," June 2004 (ADAMS Accession No. ML041830612; Volume 2 available at ADAMS Accession No. ML041830205; and NUREG-1431, Volume 1, Revision 4.0, available at ADAMS Accession No. ML12100A222).

7. Regulatory Guide 1.174, Revision 1, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," November 2002 (ADAMS Accession No. ML023240437).

8. Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," August 1998 (ADAMS Accession No. ML003740176).

9. Regulatory Guide 1.182, "Assessing and Managing Risk before Maintenance Activities at Nuclear Power Plants," May 2000 (ADAMS Accession No. ML003699426).

10. NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Section 11, "Assessment of Risk Resulting from Performance of Maintenance Activities," dated February 22, 2000 (ADAMS Accession No. ML003704489).

11. New 11-Regulatory Guide 1.160, Revision 3, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," May 2012 (ADAMS Accession Package No. ML113610098).

12. NUMARC 93-01, Revision 4A, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," April 2011 (ADAMS Accession No. ML11116A198).

13. NUREG-0800, "Standard Review Plan," Section 19.2, "Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance," June 2007 (ADAMS Accession No. ML071700658).

14. NUREG-0800, Standard Review Plan, Section 16.1, Revision 1, "Risk-Informed Decision Making: Technical Specifications," March 2007 (ADAMS Accession No. ML070380228).

15. Final Safety Evaluation of NEI Topical Report WCAP-16294-NP, Revision 0, "Risk-Informed Evaluation of Changes to Technical Specification Required Endstates for Westinghouse NSSS PWRs," dated March 29, 2010 (ADAMS Package Accession No. ML100820533).

Principal Contributor: Ravinder Grover

Date: June 10, 2016

June 10, 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 RELATED TO TSTF 432, REVISION 1 (CAC NOS. MF6118 AND MF6119)

Dear Mr. Pierce:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 202 to Renewed Facility Operating License No. NPF-2 and Amendment No. 198 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 April 13, 2015, as supplemented by letters dated September 17, 2015, and April 13, 2016.

The amendments revise the TSs to incorporate risk-informed requirements for selected Required Action end states. The changes are consistent with NRC-approved Technical Specification Task Force Improved Standard Technical Specifications Change Traveler (TSTF)-432, Revision 1, "Change in Technical Specifications End States (WCAP-16294)," dated November 29, 2010.

A copy of the Safety Evaluation is also enclosed. 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. 202 to NPF-2
2. Amendment No. 198 to NPF-8
3. Safety Evaluation

cc w/enclosures: Distribution via Listserv

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RidsRgn2MailCenter Resource
RecordsAmend

ADAMS Accession No.: ML15289A227 *by internal memo (ML15342A002)

OFFICE	DORL/LPL2-1/PM	DORL/LPL2-1/LA	DSS/STSB/BC*
NAME	SWilliams	LRonewicz	AKlein
DATE	05/16/16	06/10/16	05/04/16
OFFICE	OGC	DORL/LPL2-1/BC	DORL/LPL2-1/PM
NAME	VHoang	MMarkley	SWilliams (RMartin for)
DATE	06/02/16	06/10/16	6/10/16

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