

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

September 18, 2009

Mr. Mark J. Ajluni Manager, Nuclear Licensing Vogtle Electric Generating Plant 40 Inverness Center Parkway Birmingham, Alabama 35201

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: REVISED TECHNICAL SPECIFICATION FOR DELETION OF THE REACTOR COOLANT PUMP BREAKER POSITION REACTOR TRIP (TAC NOS. ME0982 AND ME0983)

Dear Mr. Ajluni:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 183 to Renewed Facility Operating License No. NPF-2 and Amendment No. 176 to Renewed Facility Operating License No. NPF-8 for the Joseph M. Farley Nuclear Plant, Units 1 and 2. The amendments change the Technical Specifications (TS) in response to your application dated March 30, 2009, by deleting the Reactor Coolant Pump breaker position reactor trip in TS 3.3.1, "Reactor Trip System (RTS) Instrumentation." The proposed changes would allow the elimination of trip circuitry that is susceptible to single-failure vulnerabilities that could result in unwarranted reactor trips.

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

Sincerely,

Martin

Robert E. Martin, 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. 183 to NPF-2
- 2. Amendment No. 176 to NPF-8
- 3. Safety Evaluation

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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

ALABAMA POWER COMPANY

DOCKET NO. 50-348

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 183 Renewed License No. NPF-2

- 1. The U.S. Nuclear Regulatory Commission has found that:
 - A. The application for amendment by Southern Nuclear Operating Company, Inc. (Southern Nuclear), dated March 30, 2009, 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) <u>Technical Specifications</u>

The Technical Specifications contained in Appendices A and B, as revised through Amendment No.183 are hereby incorporated in the 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 prior to the end of twenty-third refueling outage (U1R23).

FOR THE NUCLEAR REGULATORY COMMISSION

Melanie C. Wong, Acting Chief

Melagie C. Wong, Acting Chief Plant Licensing Branch II-1 Division of Operating Reactor Licensing Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: September 18, 2009



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

ALABAMA POWER COMPANY

DOCKET NO. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 176 Renewed License No. NPF-8

- 1. The U.S. Nuclear Regulatory Commission has found that:
 - A. The application for amendment by Southern Nuclear Operating Company, Inc. (Southern Nuclear), dated March 30, 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) <u>Technical Specifications</u>

The Technical Specifications contained in Appendices A and B, as revised through Amendment No.176 are hereby incorporated in the 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 prior to the end of twentieth refueling outage (U2R20).

FOR THE NUCLEAR REGULATORY COMMISSION

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Melanie C. Wong, Acting Chief Plant Licensing Branch II-1 Division of Operating Reactor Licensing Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: September 18, 2009

ATTACHMENT TO LICENSE AMENDMENT NO. 183

TO RENEWED FACILITY OPERATING LICENSE NO. NPF-2

DOCKET NO. 50-348, AND

ATTACHMENT TO LICENSE AMENDMENT NO. 176

TO RENEWED FACILITY OPERATING LICENSE NO. NPF-8

DOCKET NO. 50-364

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

<u>Remove</u>	Insert		
License Pages	License Pages		
NPF-2 page 4 NPF-8 page 3	NPF-2 page 4 NPF-8 page 3		
TS Pages	TS Pages		
3.3.1-6 3.3.1-17	3.3.1-6 3.3.1-17		

(2) <u>Technical Specifications</u>

The Technical Specifications contained in Appendix A, as revised through Amendment No 1831 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

4)

- g. Southern Nuclear shall maintain a secondary water chemistry monitoring program to inhibit steam generator tube degration. This program shall include:
 - Identification of a sampling schedule for the critical parameters and control points for these parameters;

A procedure for the recording and management of data;

- 2) Identification of the procedures used to quantify parameters that are critical to control points;
- 3) Identification of process sampling points:

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Farley - Unit 1

Renewed License No. NPF-2 Amendment No. 183

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 te 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;
 - 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 byproduct, 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 Commissions's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:
 - (1) Maximum Power Level

(2)

(4)

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

(2) <u>Technical Specifications</u>

The Technical Specifications contained in Appendix A, as revised through Amendment No. 176, are hereby incorporated in the renewed license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications.

> Renewed License No. NPF-8 Amendment No.: 176

Farley - Unit 2

-	CONDITION	R	EQUIRED ACTION	COMPLETION TIME
N.	Not used			
О.	Not used			
Ρ.	One Low Auto Stop Oil Pressure channel inoperable.	NOTE The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels.		
		P.1 <u>OR</u>	Place channel in trip.	72 hours
		P.2	Reduce THERMAL POWER to < P-9.	76 hours
Q.	One, two, or three Turbine Throttle Valve Closure channel(s) inoperable.	Q.1 <u>OR</u>	Place channel(s) in trip.	72 hours
		Q.2	Reduce THERMAL POWER to < P-9.	76 hours

Table 3.3.1-1 (page 4 of 8) Reactor Trip System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE	TRIP SETPOINT
11.	Not used						
12.	Undervoltage RCPs	1(1)	3	Μ	SR 3.3.1.6 SR 3.3.1.10	≥ 2640 V	≥ 2680 V
13.	Underfrequency RCPs	1(f)	3	Μ	SR 3.3.1.6 SR 3.3.1.10	≥ 56.9 Hz	≥ 57 Hz
14	Steam	12	3 per SG	F	SB 3 3 1 1	> 27 6%	> 28%
	Generator (SG)	•,-	5 po. 00	-	SR 3.3.1.7	= 2,.070	<u> </u>
	Water Level				SR 3.3.1.10		
	Low Low				SR 3.3.1.14		

(f) Above the P-7 (Low Power Reactor Trips Block) interlock.



SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 183 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-2

AND AMENDMENT NO. 176 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 March 30, 2009, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML090921030), to the U.S. Nuclear Regulatory Commission (NRC, the Commission), Southern Nuclear Operating Company (SNC, the licensee) submitted a license amendment request (LAR) requesting changes to the Technical Specifications (TSs) for Joseph M. Farley Nuclear Plant, Units 1 and 2 (FNP) in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.90, "Application for Amendment of License, Construction Permit, or Early Site Permit." The LAR includes proposed changes to delete the Reactor Coolant Pump (RCP) breaker position reactor trip in TS 3.3.1, "Reactor Trip System (RTS) Instrumentation." The proposed changes would allow the elimination of trip circuitry that is susceptible to single-failure vulnerabilities that could result in unwarranted reactor trips.

SNC stated that these changes will be implemented prior to the end of the 23rd refueling outage for Unit 1 (U1R23, expected to be during the Fall of 2010), and prior to the end of the twentieth refueling outage for Unit 2 (U2R20, expected to be during the Spring of 2010).

2.0 <u>REGULATORY EVALUATION</u>

The NRC staff considered the following regulatory requirements in its review of the LAR:

• 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," establishes the fundamental regulatory requirements with respect to the domestic licensing of nuclear production and utilization facilities. Specifically, Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50 provides, in part, the necessary design, fabrication, construction, testing, and performance requirements for structures, systems, and components important to safety.

- General Design Criteria (GDC) 13, "Instrumentation and Control," requires that
 instrumentation shall be provided to monitor variables and systems over their anticipated
 ranges for normal operation, for anticipated operational occurrences, and for accident
 conditions as appropriate to assure adequate safety, including those variables and
 systems that can affect the fission process, the integrity of the reactor core, the reactor
 coolant pressure boundary, and the containment and its associated systems. Appropriate
 controls shall be provided to maintain these variables and systems within prescribed
 operating ranges.
- GDC 20, "Protective System Functions," requires the protection system to be designed (1) to initiate automatically the operation of appropriate systems including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences and (2) to sense accident conditions and to initiate the operation of systems and components important to safety.
- 10 CFR 50.36(a)(1), "Technical Specifications," states, "Each applicant for a license authorizing operation of a production or utilization facility shall include in his application proposed technical specifications in accordance with the requirements of this section." Specifically, 10 CFR 50.36(c)(2)(ii) states, "A technical specification limiting condition for operation of a nuclear reactor must be established for each item meeting one or more of the following criteria":
 - (A) Criterion 1. Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.
 - (B) Criterion 2. A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.
 - (C) Criterion 3. A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.
 - (D) Criterion 4. A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

3.0 TECHNICAL EVALUATION

The position of both RCP breakers is monitored to provide a reactor trip if one RCP breaker is open above the P-8 setpoint. Above the P-7 setpoint and below the P-8 setpoint a reactor trip would be initiated if both RCP breakers are open.

The proposed LAR would revise TS 3.3.1, Table 3.3.1-1, to delete Function 11, "Reactor Coolant Pump Breaker Position," including Applicable Modes or other Specified Conditions, Required Channels, Conditions, Surveillance Requirements, Allowable Value, and Trip Setpoint, for both single-loop and two-loop reactor trips. The LAR also proposes to delete TS 3.3.1, Table 3.3.1-1, Footnotes (g) and (h). Additionally, the LAR proposes to delete TS 3.3.1, Conditions N and O,

Required Actions N.1, N.2, O.1, and O.2, and associated Completion Times.

TS 3.3.1, Conditions N and O, Required Actions N.1, N.2, O.1, and O.2, and the associated Completion Times, and TS 3.3.1, Table 3.3.1-1, Footnotes (g) and (h) are only applicable to the RCP breaker position reactor trip function.

The proposed changes to the TS are supported by a modification to the RTS that would move the sensing for the RCP undervoltage (UV) reactor trip, TS 3.3.1, Table 3.3.1-1, Function 12, "Undervoltage RCPs," to the motor side of the RCP breakers. This modification would enable the RCP UV sensors to detect the opening of the RCP breakers in addition to bus UV. This modification would make the FNP RTS design similar to other Westinghouse RTS designs that do not contain an RCP breaker position reactor trip function.

The RCS low-flow reactor trip, TS 3.3.1, Table 3.3.1-1, Function 10, "Reactor Coolant Flow – Low," is the primary reactor trip for a complete loss of RCS flow event. The RCS low-flow function is generated by two out of three low RCS flow signals per reactor coolant loop. Between P-7 and P-8 low flow in any two loops will actuate a reactor trip. Below P-7, a reactor trip on low RCS flow is blocked. The RCS low-flow reactor trip ensures that the criterion of maintaining the minimum Departure from Nucleate Boiling Ratio (DNBR) above the limit value is met in the event of a complete loss of RCS flow. The RCP UV reactor trip function and the RCP underfrequency (UF) reactor trip, TS 3.3.1, Table 3.3.1-1, Function 13, "Underfrequeny RCPs," provide backup reactor trips for a complete loss of RCS flow.

The RCS low-flow reactor trip is the primary reactor trip for the loss of single-loop flow event. The RCS low-flow reactor trip ensures that the criterion of maintaining the minimum DNBR above the limit value is met in the event of a single-loop loss of RCS flow. Backup reactor trips for partial loss of RCS flow are provided by the overtemperature delta temperature (OTDT) reactor trip, TS 3.3.1, Table 3.3.1-1, Function 6, "Overtemperature Δ T," and the overpower delta temperature (OPDT) reactor trip, TS 3.3.1, Table 3.3.1-1, Function 7, "Overpower Δ T."

The RCS low-flow reactor trip is credited as the primary reactor trip for both loss of RCS flow and partial loss of RCS flow. The FNP accident analyses take no credit for the RCP breaker position reactor trip.

The criteria in 10 CFR 50.36(c)(2)(ii)(A) through (D) is not applicable to the RCP breaker position reactor trip function as follows:

- Criterion 1 is not applicable to the RCP breaker position reactor trip function since this backup trip function is not used for detection and indication in the control room of any degradation of the reactor coolant pressure boundary.
- Criterion 2 is not applicable to the RCP breaker position reactor trip function since this backup trip function is not an initial condition of a design basis accident or transient analysis.
- Criterion 3 is not applicable because the RCP breaker position reactor trip function is not part of the primary success path related to the integrity of a fission product barrier. It serves as a backup reactor trip to the primary reactor trip, the RCS low-flow reactor trip function.

• Criterion 4 is not applicable because the RCP breaker position reactor trip function is not relied upon as a signal to initiate a reactor trip for any events modeled in the scope of the probable risk assessment model.

The RCS low-flow reactor trip along with backup RCP UV reactor trip, RCP UF reactor trip, OTDT reactor trip, and OPDT reactor trip will continue to ensure that the requirements of GDC 13, GDC 20, and 10 CFR 50.36 are met without the RCP breaker position reactor trip. Therefore, the deletion of TS 3.3.1, Table 3.3.1-1, Function 11, including Applicable Modes or other Specified Conditions, Required Channels, Conditions, Surveillance Requirements, Allowable Value, and Trip Setpoint, TS 3.3.1, Table 3.3.1-1, Footnotes (g) and (h), and TS 3.3.1, Conditions N and O, Required Actions N.1, N.2, O.1, and O.2, and associated Completion Times is acceptable.

On the basis of the above review, the NRC staff concludes that the proposed changes meet the plant's current licensing basis and 10 CFR Part 50 and, therefore, are acceptable.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to 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 dated May 19, 2009 (74 FR 23448). 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) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: B. Marcus

Date of issuance: September 18, 2009

Mr. Mark J. Ajluni Manager, Nuclear Licensing Vogtle Electric Generating Plant 40 Inverness Center Parkway Birmingham, Alabama 35201

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2 RE: ISSUANCE OF AMENDMENTS RE: REVISED TECHNICAL SPECIFICATION FOR DELETION OF THE REACTOR COOLANT PUMP BREAKER POSITION REACTOR TRIP (TAC NOS. ME0982 AND ME0983)

Dear Mr. Ajluni:

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

Sincerely,

/RA/

Robert E. Martin, 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:

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Amendment No.: ML092220022

*Per Memo Dated, (**) Per E-mail

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