

February 3, 1997

Mr. D. N. Morey
Vice President - Farley Project
Southern Nuclear Operating
Company, Inc.
Post Office Box 1295
Birmingham, Alabama 35201-1295

SUBJECT: ISSUANCE OF AMENDMENTS - JOSEPH M. FARLEY NUCLEAR PLANT,
UNITS 1 AND 2 (TAC NOS. M97245 AND M97246)

Dear Mr. Morey:

The Nuclear Regulatory Commission has issued the enclosed Amendment No.123 to Facility Operating License No. NPF-2 and Amendment No.118 to 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 submittal dated November 15, 1996.

The amendments replace Containment Systems TS 3.6.2.2 for the Spray Additive System with a new Emergency Core Cooling Systems (ECCS) TS 3.5.6 for the ECCS Recirculation Fluid pH Control System.

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,

Original signed by:

Jacob I. Zimmerman, Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-348 and 50-364

- Enclosures: 1. Amendment No. 123 to NPF-2
- 2. Amendment No. 118 to NPF-8
- 3. Safety Evaluation

cc w/enclosures: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

February 3, 1997

Mr. D. N. Morey
Vice President - Farley Project
Southern Nuclear Operating
Company, Inc.
Post Office Box 1295
Birmingham, Alabama 35201-1295

SUBJECT: ISSUANCE OF AMENDMENTS - JOSEPH M. FARLEY NUCLEAR PLANT,
UNITS 1 AND 2 (TAC NOS. M97245 AND M97246)

Dear Mr. Morey:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 123 to Facility Operating License No. NPF-2 and Amendment No. 118 to 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 submittal dated November 15, 1996.

The amendments replace Containment Systems TS 3.6.2.2 for the Spray Additive System with a new Emergency Core Cooling Systems (ECCS) TS 3.5.6 for the ECCS Recirculation Fluid pH Control System.

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,

A handwritten signature in cursive script, appearing to read "Jacob I. Zimmerman".

Jacob I. Zimmerman, Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-348 and 50-364

Enclosures: 1. Amendment No. 123 to NPF-2
2. Amendment No. 118 to NPF-8
3. Safety Evaluation

cc w/enclosures: See next page

Mr. D. N. Morey
Southern Nuclear Operating
Company, Inc.

Joseph M. Farley Nuclear Plant

cc:
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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 FACILITY OPERATING LICENSE

Amendment No. 123
License No. NPF-2

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Southern Nuclear Operating Company, Inc. (Southern Nuclear), dated November 15, 1996, 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 Facility Operating License No. NPF-2 is hereby amended to read as follows:

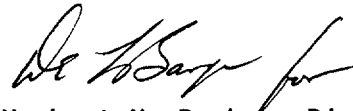
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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 123, 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 Mode 4 following the Unit 1 refueling outage in the spring of 1997.

FOR THE NUCLEAR REGULATORY COMMISSION



Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 3, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 123

TO FACILITY OPERATING LICENSE NO. NPF-2

DOCKET NO. 50-348

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

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B 3/4 1-3
B 3/4 5-3
B 3/4 6-3

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EMERGENCY CORE COOLING SYSTEMS

3/4.5.6 ECCS RECIRCULATION FLUID pH CONTROL SYSTEM

LIMITING CONDITION FOR OPERATION

3.5.6 The recirculation fluid pH control system shall be OPERABLE with a total of between 10,000 pounds (185 cubic feet) and 12,900 pounds (215 cubic feet) of trisodium phosphate compound as $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O} \cdot \frac{1}{4}\text{NaOH}$ (or appropriate weights/volumes for equivalent compounds) available in the storage baskets in the containment building.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the recirculation fluid pH control system INOPERABLE, restore the system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; restore the recirculation fluid pH control system to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

- 4.5.6 During each refueling outage the recirculation fluid pH control system shall be demonstrated OPERABLE by performing a visual inspection to verify that the:
- a. Three (3) storage baskets are in place,
 - b. Baskets have maintained their integrity,
 - c. Baskets are filled with trisodium phosphate compound such that the level is between the indicated fill marks on the baskets.

CONTAINMENT SYSTEMS

SPRAY ADDITIVE SYSTEM

SPECIFICATION 3.6.2.2 DELETED.

REACTIVITY CONTROL SYSTEMS

BASES

BORATION SYSTEMS (Continued)

MARGIN from expected operating conditions of 1.77% delta k/k after xenon decay and cooldown to 200°F. The maximum expected boration capability requirement occurs at EOL from full power equilibrium xenon conditions and requires 11,336 gallons of 7000 ppm borated water from the boric acid storage tanks or 44,826 gallons of 2300 ppm borated water from the refueling water storage tank.

With the RCS temperature below 200°F, one injection system is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the additional restrictions prohibiting CORE ALTERATIONS and positive reactivity changes in the event the single injection system becomes inoperable.

The limitation for a maximum of one centrifugal charging pump to be OPERABLE and the Surveillance Requirement to verify all charging pumps except the required OPERABLE pump to be inoperable below 180°F provides assurance that a mass addition pressure transient can be relieved by the operation of a single RHR relief valve.

The boron capability required below 200°F is sufficient to provide a SHUTDOWN MARGIN of 1% delta k/k after xenon decay and cooldown from 200°F to 140°F. This condition requires either 2,000 gallons of 7000 ppm borated water from the boric acid storage tanks or 7,750 gallons of 2300 ppm borated water from the refueling water storage tank.

The contained water volume limits include allowance for water not available because of discharge line location and other physical characteristics.

The limits on contained water volume and boron concentration of the RWST also ensure a pH value of between 7.5 and 10.5 for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components.

The OPERABILITY of one boron injection system during REFUELING ensures that this system is available for reactivity control while in MODE 6.

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

The specifications of this section ensure that (1) acceptable power distribution limits are maintained, (2) the minimum SHUTDOWN MARGIN is maintained, and (3) limit the potential effects of rod misalignment on associated accident analyses. OPERABILITY of the control rod position indicators is required to determine control rod positions and thereby ensure compliance with the control rod alignment and insertion limits.

EMERGENCY CORE COOLING SYSTEMS

BASES

The limits on contained water volume and boron concentration of the RWST also ensure a pH value of between 7.5 and 10.5 for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components.

3/4.5.6 ECCS RECIRCULATION FLUID pH CONTROL SYSTEM

The OPERABILITY of the ECCS recirculation fluid pH control system ensures that there is a total of between 10,000 pounds (185 cubic feet) and 12,900 pounds (215 cubic feet) of trisodium phosphate compound as $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O} \cdot \frac{1}{4}\text{NaOH}$ (or appropriate weights/volumes for equivalent compounds) available in the storage baskets in containment to raise the pH of the recirculating solution into the range of 7.5 to 10.5. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components. The verification that the storage baskets contain the required amount of trisodium phosphate compound level is accomplished by verifying that the trisodium phosphate compound level is between the indicated fill marks on the baskets. An equivalent amount of trisodium phosphate compound with a different chemical formula may be used. When equivalent compounds are used, the allowable weights/volumes may be different; however, the equivalent amount of trisodium phosphate compound must raise the pH of the recirculating solution into the range of 7.5 to 10.5.

CONTAINMENT SYSTEMS

BASES

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 CONTAINMENT SPRAY SYSTEM

The OPERABILITY of the containment spray system ensures that containment depressurization and cooling capability will be available in the event of a LOCA. The pressure reduction and resultant lower containment leakage rate are consistent with the assumptions used in the accident analyses.

The containment spray system and the containment cooling system are redundant to each other in providing post accident cooling of the containment atmosphere. However, the containment spray system also provides a mechanism for removing iodine from the containment atmosphere and therefore the time requirements for restoring an inoperable spray system to OPERABLE status have been maintained consistent with that assigned other inoperable ESF equipment.

3/4.6.2.2 SPRAY ADDITIVE SYSTEM

THIS SPECIFICATION DELETED.

3/4.6.2.3 CONTAINMENT COOLING SYSTEM

The OPERABILITY of the containment cooling system ensures that 1) the containment air temperature will be maintained within limits during normal operation, and 2) adequate heat removal capacity is available when operated in conjunction with the containment spray systems during post-LOCA conditions.

The containment cooling system and the containment spray system are redundant to each other in providing post accident cooling of the containment atmosphere. As a result of this redundancy in cooling capability, the allowable out of service time requirements for the containment cooling system have been appropriately adjusted. However, the allowable out of service time requirements for the containment spray system have been maintained consistent with that assigned other inoperable ESF equipment since the containment spray system also provides a mechanism for removing iodine from the containment atmosphere.



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 FACILITY OPERATING LICENSE

Amendment No. 118
License No. NPF-8

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Southern Nuclear Operating Company, Inc. (Southern Nuclear), dated November 15, 1996, 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 Facility Operating License No. NPF-8 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 118, 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 Mode 4 following the Unit 2 refueling outage in the spring of 1998.

FOR THE NUCLEAR REGULATORY COMMISSION



Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 3, 1997

ATTACHMENT TO LICENSE AMENDMENT NO.118

TO FACILITY OPERATING LICENSE NO. NPF-8

DOCKET NO. 50-364

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Remove

Insert

VI
VII
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3/4 6-12
3/4 8-31
B 3/4 1-3
B 3/4 5-3
B 3/4 6-3

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EMERGENCY CORE COOLING SYSTEMS

3/4.5.6 ECCS RECIRCULATION FLUID pH CONTROL SYSTEM

LIMITING CONDITION FOR OPERATION

3.5.6 The recirculation fluid pH control system shall be OPERABLE with a total of between 10,000 pounds (185 cubic feet) and 12,900 pounds (215 cubic feet) of trisodium phosphate compound as $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O} \cdot \frac{1}{4}\text{NaOH}$ (or appropriate weights/volumes for equivalent compounds) available in the storage baskets in the containment building.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the recirculation fluid pH control system INOPERABLE, restore the system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; restore the recirculation fluid pH control system to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.5.6 During each refueling outage the recirculation fluid pH control system shall be demonstrated OPERABLE by performing a visual inspection to verify that the:

- a. Three (3) storage baskets are in place,
- b. Baskets have maintained their integrity,
- c. Baskets are filled with trisodium phosphate compound such that the level is between the indicated fill marks on the baskets.

CONTAINMENT SYSTEMS

SPRAY ADDITIVE SYSTEM

SPECIFICATION 3.6.2.2 DELETED.

TABLE 3.8-2 (Continued)

MOTOR OPERATED VALVES THERMAL OVERLOAD
PROTECTION DEVICES*

<u>VALVE NUMBER</u>	<u>FUNCTION</u>	<u>BYPASS DEVICE</u>
MOV-8106	Charging Pump Mini Flow Isolation	No
MOV-8826A	Containment Spray Suction from Containment Sump	No
MOV-8826B	Containment Spray Suction from Containment Sump	No
MOV-8827A	Containment Spray Suction from Containment Sump	No
MOV-8827B	Containment Spray Suction from Containment Sump	No
MOV-8817A	Containment Spray Suction from RWST	No
MOV-8817B	Containment Spray Suction from RWST	No
MOV-8820A	Discharge to Spray Ring	No
MOV-8820B	Discharge to Spray Ring	No
MOV-8803A	BIT Inlet	No
MOV-8803B	BIT Inlet	No
MOV-8801A	BIT Outlet	No
MOV-8801B	BIT Outlet	No
MOV-8886	Charging Pump Discharge to Hot Leg	No
MOV-8884	Charging Pump Discharge to Hot Leg	No
MOV-8885	Charging Pump Discharge to Cold Leg	No
MOV-8808A	SIS Accumulator Outlet	No
MOV-8808B	SIS Accumulator Outlet	No
MOV-8808C	SIS Accumulator Outlet	No
MOV-8811A	RHR Suction from Containment Sump	No
MOV-8811B	RHR Suction from Containment Sump	No
MOV-8812A	RHR Suction from Containment Sump	No
MOV-8812B	RHR Suction from Containment Sump	No
MOV-8809A	RHR Suction from RWST	No
MOV-8809B	RHR Suction from RWST	No
MOV-8887A	RHR Discharge Crossconnect	No
MOV-8887B	RHR Discharge Crossconnect	No
FCV-602B	RHR Pump Mini Flow	No
FCV-602A	RHR Pump Mini Flow	No
MOV-8889	RHR Discharge to Hot Leg	No
MOV-8888A	RHR Discharge to Cold Leg	No
MOV-8888B	RHR Discharge to Cold Leg	No
MOV-8706A	RHR Discharge to Charging Pump Suction	No
MOV-8706B	RHR Discharge to Charging Pump Suction	No
MOV-8112	Seal Water Return Containment Isolation	No
MOV-8100	Seal Water Return Containment Isolation	No

REACTIVITY CONTROL SYSTEMS

BASES

BORATION SYSTEMS (Continued)

MARGIN from expected operating conditions of 1.77% delta k/k after xenon decay and cooldown to 200°F. The maximum expected boration capability requirement occurs at EOL from full power equilibrium xenon conditions and requires 11,336 gallons of 7000 ppm borated water from the boric acid storage tanks or 44,826 gallons of 2300 ppm borated water from the refueling water storage tank.

With the RCS temperature below 200°F, one injection system is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the additional restrictions prohibiting CORE ALTERATIONS and positive reactivity changes in the event the single injection system becomes inoperable.

The limitation for a maximum of one centrifugal charging pump to be OPERABLE and the Surveillance Requirement to verify all charging pumps except the required OPERABLE pump to be inoperable below 180°F provides assurance that a mass addition pressure transient can be relieved by the operation of a single RHR relief valve.

The boron capability required below 200°F is sufficient to provide a SHUTDOWN MARGIN of 1% delta k/k after xenon decay and cooldown from 200°F to 140°F. This condition requires either 2,000 gallons of 7000 ppm borated water from the boric acid storage tanks or 7,750 gallons of 2300 ppm borated water from the refueling water storage tank.

The contained water volume limits include allowance for water not available because of discharge line location and other physical characteristics.

The limits on contained water volume and boron concentration of the RWST also ensure a pH value of between 7.5 and 10.5 for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components.

The OPERABILITY of one boron injection system during REFUELING ensures that this system is available for reactivity control while in MODE 6.

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

The specifications of this section ensure that (1) acceptable power distribution limits are maintained, (2) the minimum SHUTDOWN MARGIN is maintained, and (3) limit the potential effects of rod misalignment on associated accident analyses. OPERABILITY of the control rod position indicators is required to determine control rod positions and thereby ensure compliance with the control rod alignment and insertion limits.

EMERGENCY CORE COOLING SYSTEMS

BASES

The limits on contained water volume and boron concentration of the RWST also ensure a pH value of between 7.5 and 10.5 for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components.

3/4.5.6 ECCS RECIRCULATION FLUID pH CONTROL SYSTEM

The OPERABILITY of the ECCS recirculation fluid pH control system ensures that there is a total of between 10,000 pounds (185 cubic feet) and 12,900 pounds (215 cubic feet) of trisodium phosphate compound as $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O} \cdot \frac{1}{2}\text{NaOH}$ (or appropriate weights/volumes for equivalent compounds) available in the storage baskets in containment to raise the pH of the recirculating solution into the range of 7.5 to 10.5. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components. The verification that the storage baskets contain the required amount of trisodium phosphate compound level is accomplished by verifying that the trisodium phosphate compound level is between the indicated fill marks on the baskets. An equivalent amount of trisodium phosphate compound with a different chemical formula may be used. When equivalent compounds are used, the allowable weights/volumes may be different; however, the equivalent amount of trisodium phosphate compound must raise the pH of the recirculating solution into the range of 7.5 to 10.5.

CONTAINMENT SYSTEMS

BASES

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 CONTAINMENT SPRAY SYSTEM

The OPERABILITY of the containment spray system ensures that containment depressurization and cooling capability will be available in the event of a LOCA. The pressure reduction and resultant lower containment leakage rate are consistent with the assumptions used in the accident analyses.

The containment spray system and the containment cooling system are redundant to each other in providing post accident cooling of the containment atmosphere. However, the containment spray system also provides a mechanism for removing iodine from the containment atmosphere and therefore the time requirements for restoring an inoperable spray system to OPERABLE status have been maintained consistent with the assigned other inoperable ESF equipment.

3/4.6.2.2 SPRAY ADDITIVE SYSTEM

THIS SPECIFICATION DELETED.

3/4.6.2.3 CONTAINMENT COOLING SYSTEM

The OPERABILITY of the containment cooling system ensures that 1) the containment air temperature will be maintained within limits during normal operation, and 2) adequate heat removal capacity is available when operated in conjunction with the containment spray systems during post-LOCA conditions.

The containment cooling system and the containment spray system are redundant to each other in providing post accident cooling of the containment atmosphere. As a result of this redundancy in cooling capability, the allowable out of service time requirements for the containment cooling system have been appropriately adjusted. However, the allowable out of service time requirements for the containment spray system have been maintained consistent with that assigned other inoperable ESF equipment since the containment spray system also provides a mechanism for removing iodine from the containment atmosphere.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 123 TO FACILITY OPERATING LICENSE NO. NPF-2
AND AMENDMENT NO. 118 TO 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 letter dated November 15, 1996, the Southern Nuclear Operating Company, Inc., et al. (the licensee), submitted a request for changes to the Joseph M. Farley Nuclear Plant, Units 1 and 2, Technical Specifications (TS). The requested changes would replace the Containment System TS 3.6.2.2 for the Spray Additive System with a new Emergency Core Cooling System (ECCS) TS 3.5.6 for the ECCS Recirculation Fluid pH Control System. This action is to support a planned plant modification that would eliminate the containment spray additive system for Units 1 and 2.

The planned plant modifications will be made on Unit 1 during the refueling outage in the spring of 1997 and on Unit 2 during the refueling outage in the spring of 1998.

2.0 EVALUATION

The containment spray system (CSS) is an engineered safety feature system that functions to reduce reactor containment building pressure and temperature and the quantity of airborne fission products in the containment atmosphere during the initial injection and subsequent recirculation phases after a loss-of-coolant accident (LOCA). In the original design, liquid sodium hydroxide (NaOH) is added to the containment spray water to increase the pH in order to enhance absorption of the airborne fission product iodine, retain the iodine in the containment sump solution, minimize hydrogen production, and inhibit stress corrosion cracking of mechanical systems and components.

During the LOCA injection phase, the licensee has proposed to operate the containment spray system with a boric acid (2300 to 2500 ppm) solution from the refueling water storage tank (RWST), which has a pH of approximately 4.5. Recent results, documented in Revision 2 of the Standard Review Plan (SRP), Section 6.5.2, "Containment Spray As A Fission Product Cleanup System" addressing iodine removal, demonstrate that a low pH value would not affect the removal rate of the elemental and particulate iodine from the post-LOCA containment atmosphere.

These rates are determined by the first-order removal coefficients which, for elemental iodine removal by spray water and deposition on the containment walls, are independent of pH and therefore are not affected by elimination of the pH controlling additive. The same applies to the removal coefficients for particulate iodine, which is controlled by the hydrodynamic characteristics of the spray.

During the recirculation spray phase, coolant from the sump will contain dissolved iodine removed from the containment atmosphere during the injection phase. In a radiation environment this iodine could be desorbed from the water and released to the containment atmosphere if the pH of the sump solution is too low. Since the long-term pH of the ECCS solution should be no less than 7.0, a chemical additive must be utilized to raise the pH of the solution in the containment building sump.

The licensee has proposed to control the pH above a level of 7.5 by the addition of the ECCS recirculation fluid pH control system. This is a passive system that consists of crystalline trisodium phosphate (TSP) stored in three baskets located in the containment sump area with a total minimum TSP loading of approximately 10,000 pounds (185 feet³). The TSP baskets are designed to Seismic Category 1 standards and would be anchored to the filler slab at an elevation of 105 feet - 6 inches. In accordance with the proposed ECCS recirculation fluid pH control system TS, the licensee has proposed to verify, during each refueling outage, that the three storage baskets (a) are in place, (b) have maintained their integrity, and (c) are filled with TSP compound such that the level is between the indicated fill marks on the baskets.

The licensee plans to selectively leave in place or remove the components associated with the spray additive system. The blind flanges installed in the educator lines will meet ASME Code, Section III, Class 3 requirements. The containment spray piping will continue to meet the plant seismic and ASME Code, Section III, Class 3 requirements. The level and flow indicators and hand switches associated with these components will be removed from the main control board and replaced with cover plates.

The sump water must also be maintained in the alkaline condition in order to minimize corrosion of metallic surfaces. Chloride-induced stress corrosion cracking of austenitic stainless steel components is considerably reduced if the pH of the solution is maintained above 7. During the injection phase, the TSP will begin to dissolve and the pH of the ECCS sump solution will be raised from 4.5 into the range of 7.5 to 10.5. The surfaces sprayed during the injection will be resprayed during the recirculation phase with a high pH solution.

Control of the sump pH is also required to minimize hydrogen generation by corrosion of aluminum and zinc on galvanized surfaces and in the organic coatings on containment surfaces. The proposed change will affect the pH by introducing an initial pH of 4.5 (borated water spray) followed by a pH range

of 7.5 to 10.5 using TSP. The proposed lowering of the pH for the spray will have no significant effect on the corrosion of aluminum as long as the pH remains above 4.5. The corrosion of zinc and zinc-based paints will produce hydrogen. However, the results of NRC-sponsored studies performed by Sandia National Laboratory demonstrate that with a controlled pH the corrosion rate will be low and no significant amounts of hydrogen would be produced. The operating conditions proposed by the licensee would preclude any unfavorable conditions.

TSP is being used in similar passive systems at several operating nuclear power plants. The proposed pH levels have been determined to have no significant effect on the removal of elemental and particulate iodine from the post-LOCA containment atmosphere. Also, the potential for stress corrosion and hydrogen generation has been evaluated and dismissed as credible threats to the plant components by study of the pH levels. The staff has reviewed the proposed changes and finds the proposed TS changes acceptable.

3.0 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.

4.0 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 (61 FR 66718 dated December 18, 1996). 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.

5.0 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.

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Date: February 3, 1997