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Docket Nos. 50-348  
and 50-364

Mr. F. L. Clayton  
Senior Vice President  
Alabama Power Company  
Post Office Box 2641  
Birmingham, Alabama 35291

Dear Mr. Clayton:

The Commission has issued the enclosed Amendment No. 30 to Facility Operating License No. NPF-2 and Amendment No. 22 to NPF-8 for the Joseph M. Farley Nuclear Plant, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications in response to your application transmitted by letter dated December 30, 1982, as supplemented by letters dated February 11 and March 4, 1983.

The amendments delete Technical Specification Limiting Conditions for Operation and surveillance requirements for the boron injection tank and the heat tracing system.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

~~ORIGINAL SIGNED~~

Edward A. Reeves, Project Manager  
Operating Reactors Branch #1  
Division of Licensing

Enclosures:

1. Amendment No. 30 to NPF-2
2. Amendment No. 22 to NPF-8
3. Safety Evaluation
4. Notice of Issuance

cc w/enclosures:  
See next page

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FR NOTICE  
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AMENDMENT

OFFICE	ORB#1:DL	ORB#1:DL	ORB#1:DL	AD/OR,DL	OELD	
SURNAME	CParrish	EReeves:dm	SVarga	GLamas	M. KARMAN	
DATE	03/09/83	03/14/83	03/14/83	03/14/83	03/15/83	

Mr. F. L. Clayton  
Alabama Power Company

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

ALABAMA POWER COMPANY

DOCKET NO. 50-348

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 30  
License No. NPF-2

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Alabama Power Company (the licensee) dated December 30, 1982, as supplemented February 11 and March 4, 1983, 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 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:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 30, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Steven A. Varga, Chief  
Operating Reactors Branch #1  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: March 15, 1983

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 30 TO FACILITY OPERATING LICENSE NO. NPF-2

DOCKET NO. 50-348

Revise Appendix A as follows:

Remove Pages

3/4 5-9

3/4 5-10

B3/4 5-2

Insert Pages

3/4 5-9

3/4 5-10

B3/4 5-2

EMERGENCY CORE COOLING SYSTEMS

3/4.5.4 BORON INJECTION SYSTEM

BORON INJECTION TANK

THIS SPECIFICATION DELETED

EMERGENCY CORE COOLING SYSTEMS

HEAT TRACING

THIS SPECIFICATION DELETED

## EMERGENCY CORE COOLING SYSTEMS

### BASES

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The Surveillance Requirements provided to ensure OPERABILITY of each component ensures that at a minimum, the assumptions used in the safety analyses are met and that subsystem OPERABILITY is maintained. Surveillance requirements for throttle valve position stops and flow balance testing provide assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses.

#### 3/4.5.4 BORON INJECTION SYSTEM

THIS SPECIFICATION DELETED.

#### 3/4 5.5 REFUELING WATER STORAGE TANK

The OPERABILITY of the Refueling Water Storage Tank (RWST) as part of the ECCS ensures that sufficient negative reactivity is injected into the core to counteract any positive increase in reactivity caused by RCS system cooldown. RCS cooldown can be caused by inadvertent depressurization, a loss-of-coolant accident or a steam line rupture.

The OPERABILITY of the RWST as part of the ECCS also ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. The limits on RWST minimum volume and boron concentration ensure that 1) sufficient water is available within containment to permit recirculation cooling flow to the core, and 2) the reactor will remain subcritical in the cold condition following mixing of the RWST and the RCS water volumes with all control rods inserted except for the most reactive control assembly. These assumptions are consistent with the LOCA analyses.

The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.



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

ALABAMA POWER COMPANY

DOCKET NO. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 22  
License No. NPF-8

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Alabama Power Company (the licensee) dated December 30, 1982, as supplemented February 11 and March 4, 1983, 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 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.

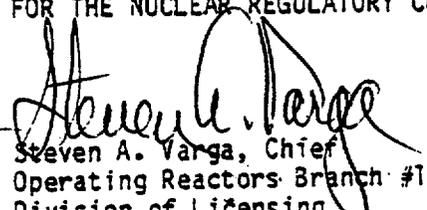
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-8 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 22, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Steven A. Varga, Chief  
Operating Reactors Branch #1  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: March 15, 1983

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 22 TO FACILITY OPERATING LICENSE NO. NPF-8

DOCKET NO. 50-364

Revise Appendix A as follows:

Remove Pages

3/4 5-9

3/4 5-10

B3/4 5-2

Insert Pages

3/4 5-9

3/4 5-10

B3/4 5-2

EMERGENCY CORE COOLING SYSTEMS

3/4.5.4 BORON INJECTION SYSTEM

BORON INJECTION TANK.

THIS SPECIFICATION DELETED

EMERGENCY CORE COOLING SYSTEMS

HEAT TRACING

THIS SPECIFICATION DELETED

## EMERGENCY CORE COOLING SYSTEMS

### BASES

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The Surveillance Requirements provided to ensure OPERABILITY of each component ensures that at a minimum, the assumptions used in the safety analyses are met and that subsystem OPERABILITY is maintained. Surveillance requirements for throttle valve position stops and flow balance testing provide assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses.

#### 3/4.5.4 BORON INJECTION SYSTEM

THIS SPECIFICATION DELETED.

#### 3/4.5.5 REFUELING WATER STORAGE TANK

The OPERABILITY of the Refueling Water Storage Tank (RWST) as part of the ECCS ensures that sufficient negative reactivity is injected into the core to counteract any positive increase in reactivity caused by RCS system cooldown. RCS cooldown can be caused by inadvertent depressurization, a loss-of-coolant accident or a steam line rupture.

The OPERABILITY of the RWST as part of the ECCS also ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. The limits on RWST minimum volume and boron concentration ensure that 1) sufficient water is available within containment to permit recirculation cooling flow to the core, and 2) the reactor will remain subcritical in the cold condition following mixing of the RWST and the RCS water volumes with all control rods inserted except for the most reactive control assembly. These assumptions are consistent with the LOCA analyses.

The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 30 TO FACILITY OPERATING LICENSE NO. NPF-2  
AND AMENDMENT NO. 22 TO FACILITY OPERATING LICENSE NO. NPF-8

ALABAMA POWER COMPANY

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-348 AND 50-364

Introduction

By letter dated December 30, 1982 Alabama Power Company (APCo) applied for approval to eliminate the Technical Specifications relating to the 22,000 ppm boron concentration in the Boron Injection Tank (BIT). The proposed change would delete the existing boron requirements upon the BIT and would result in reduced manpower requirements, maintenance costs, and improved plant availability.

The purpose of the BIT is to provide a concentrated source of boron to mitigate the increased reactivity insertion which can result from excessive heat removal transients. Alabama Power Company submitted analyses to demonstrate that overcooling transients can be accommodated without the highly concentrated boric acid in the BIT, without violating NRC Standard Review Plan (SRP) guidelines. We have evaluated the analyses herein.

Discussion and Evaluation

Main Steam Line Break (MSLB) Analysis

A double-ended rupture of a main steam line causes a rapid increase in heat removal from the primary coolant system, with a resulting increase in reactivity due to moderator feedback. In addition to the negative reactivity inserted by the control rods, boron supplied by the safety injection system is used to control reactivity. Alabama Power Company's analysis of MSLB was performed in conformance with the NRC SRP, using analytical methods which are nearing completion of the NRC staff review.

Our review of the Westinghouse computer codes and methodology indicate reasonable assurance that the conclusions will not be appreciably changed by completion of review. Should our review indicate that revision to the analyses are necessary, APCo would be required to revise the MSLB analyses as appropriate. The rate of decrease in temperature was conservatively over estimated by postulating perfect

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moisture separation in the steam generator, by assuming maximum feedwater flow, and by taking no credit for the compensating influence of decay heat and heat stored in structural components. The calculation was performed at zero power, assuming the most reactive Rod Cluster Control Assembly (RCCA) stuck in the withdrawn position. Negative reactivity feedback due to power generation was also deliberately underestimated.

Consequently, the core reactivity used in the calculation was conservatively high. Boron injection was conservatively underestimated by assuming failure of all but one train of safety injection and by taking no credit for the low concentration of boric acid in the emergency core cooling lines between the Refueling Water Storage Tank (RWST) and the reactor cold legs. The analysis was repeated with and without offsite power available. As in previous analyses, (WCAP-9226 January 1978), the case with offsite power available was found to be limiting. During the review, the NRC staff questioned the conservatism of the temperature transient, and the sensitivity of reactivity to cooling. The licensee satisfactorily addressed both concerns in its response to questions 1 and 2 in APCo's letter dated February 11, 1983.

The licensee's calculation demonstrated that a MSLB with zero boron concentration in the BIT could be accommodated without experiencing a departure from nucleate boiling (DNBR) equal or less than 1.3. This satisfies the acceptance criteria of the NRC staff SRP, which does not preclude fuel damage following a MSLB.

#### "Credible" Steam Line Break

The licensee also analyzed a transient involving a failed-open steam generator relief, safety or turbine bypass valve. Using conservative assumptions similar to the MSLB calculation, the analysis demonstrated compliance with the criteria of the NRC staff SRP.

#### Small Break Loss of Coolant Accident (LOCA)

Westinghouse emergency guidelines advise the operators of Westinghouse designed plants some circumstances exist in which the core boron concentration following a Small Break (SB) LOCA would be too low to allow transition to cold shutdown, even with 20,000 ppm boron in the BIT. We asked APCo to assess the impact on SBLOCA. In response to question 4 in APCo letter dated February 11, 1983 the licensee has satisfactorily demonstrated that the BIT is not required to mitigate the consequences of a SBLOCA.

#### Containment Analysis

A boron concentration reduction in the BIT would affect the containment pressure and temperature response for MSLB accident conditions through concomitant changes in the mass and energy release rates. The licensee has reanalyzed a spectrum of steam line breaks to determine the magnitude of the impact on containment pressure and temperature response. We evaluated the computer codes, input data and assumptions used in these calculations, and found them to be acceptable.

The results of the licensee's containment analysis show a maximum calculated pressure in the containment of about 46 psig, which is well below the containment design pressure of 54 psig. In addition, the results do not affect the temperature profile previously approved for equipment qualification. The temperature profile was based on LOCA environmental conditions in accordance with NRC staff guidelines.

#### Safety Summary

The principal purpose of maintaining a high boron concentration in the BIT is to mitigate the consequences of a MSLB. The licensee has performed an acceptably conservative analysis of a MSLB with zero boron concentration in the BIT. The analysis demonstrates that such a transient can be accommodated without experiencing a departure from nucleate boiling, thereby assuring fuel integrity. This result meets the acceptance criteria of the NRC staff SRP and is acceptable. Results of the licensee's containment analysis show that the maximum calculated pressure and temperature profile is within acceptable limits. The proposed Technical Specification changes are acceptable. Also, no major modifications to the plant are proposed, with the exception that the BIT recirculation system and the BIT heat tracing may be deenergized. This Safety Evaluation does not constitute approval for any plant modifications.

#### Environmental Consideration

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

#### Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated, does not create the possibility of an accident of a type different from any evaluated previously, and does not involve a significant reduction in a margin of safety, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: March 15, 1983

Principal Contributor:  
R. Barrett

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NOS. 50-348 AND 50-364ALABAMA POWER COMPANYNOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY  
OPERATING LICENSES

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 30 to Facility Operating License No. NPF-2 and Amendment No. 22 to Facility Operating License No. NPF-8 issued to Alabama Power Company (the licensee), which revised Technical Specifications for operation of the Joseph M. Farley Nuclear Plant, Unit Nos. 1 and 2 (the facilities) located in Houston County, Alabama. The amendments are effective as of the date of issuance.

The amendments delete Technical Specification Limiting Conditions for Operation and surveillance requirements for the boron injection tank and the heat tracing system.

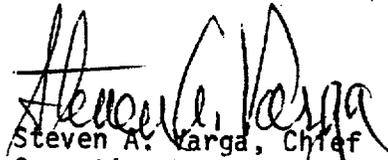
The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments. Prior public notice of these amendments was not required since these amendments do not involve a significant hazards consideration.

The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of these amendments.

For further details with respect to this action, see (1) the application for amendments dated December 30, 1982, as supplemented February 11 and March 4, 1983, (2) Amendment Nos. 30 and 22 to License Nos. NPF-2 and NPF-8, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. and at the George S. Houston Memorial Library, 212 W. Burdeshaw Street, Dothan, Alabama 36303. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 15th day of March, 1983.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Steven A. Varga, Chief  
Operating Reactors Branch #1  
Division of Licensing