

August 22, 1988

Docket Nos. 50-348
and 50-364

DISTRIBUTION
See attached sheet

Mr. W. G. Hairston
Senior Vice President
Alabama Power Company
Post Office Box 2641
Birmingham, Alabama 35291-0400

Dear Mr. Hairston:

SUBJECT: ISSUANCE OF AMENDMENT NO. 79 TO FACILITY OPERATING LICENSE NO. NPF-2 AND AMENDMENT NO. 71 TO FACILITY OPERATING LICENSE NO. NPF-8 - JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2, REGARDING DELETION OF THE SURVEILLANCE SPECIMEN WITHDRAWAL SCHEDULE TABLE 4.4-5 (TAC NOS. 67109 AND 67110)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 79 to Facility Operating License No. NPF-2 and Amendment No. 71 to NPF-8 for the Joseph M. Farley Nuclear Plant, Units 1 and 2. The amendments consist of changes to the Technical Specifications in response to your submittal dated January 28, 1988, as supplemented May 20, 1988.

The amendments change the Technical Specifications to delete the Surveillance Specimen Withdrawal Schedule Table 4.4-5 from the Technical Specifications. Also, the portion of paragraph 4.4.10.1.2 relating to the reactor vessel material irradiation surveillance withdrawal table shall be removed from the Technical Specifications and relocated to the Final Safety Analysis Report. The program for surveillance of reactor vessel material would continue to be governed by 10 CFR Part 50, Appendix H.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's regular bi-weekly Federal Register notice.

Sincerely,

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PDR ADOCK 05000348
P PNU

151

Edward A. Reeves, Sr. Project Manager
Project Directorate II-1
Division of Reactor Projects I/II

Enclosures:

1. Amendment No. 79 to NPF-2
2. Amendment No. 71 to NPF-8
3. Safety Evaluation

cc w/enclosures:
See next page

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11

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|------|--|--------------|-----------|-----------|---|
| OFC | :LA:PD21:DRPR:PM:PD21:DRPR:D:PD21:DRPR | : EMB:DEST | : | : | : |
| NAME | :PAnderson | : EReeves:ch | : Adensam | : CYCheng | : |
| DATE | : 7/27/88 | : 7/28/88 | : 8/13/88 | : 8/1/88 | : |

Mr. W. G. Hairston, III
Alabama Power Company

Joseph M. Farley Nuclear Plant

cc:

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Ashford, Alabama 36312

AMENDMENT NO. 79 TO FACILITY OPERATING LICENSE NO. NPR-2 - FARLEY, UNIT 1
AMENDMENT NO. 71 TO FACILITY OPERATING LICENSE NO. NPF-8 - FARLEY, UNIT 2

Docket File

NRC PDR

Local PDR

PDII-1 Reading

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P. Anderson

E. Reeves (2)

OGC

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B. Elliot (9H15)

ACRS (10)

GPA/PA

ARM/LFMB

cc: Licensee/Applicant Service List

0F01
1/1



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

ALABAMA POWER COMPANY

DOCKET NO. 50-348

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 79
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 January 28, 1988, as supplemented May 20, 1988, 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, as amended, the provisions of the Act, and the 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. 79, 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 its date of issuance and shall be implemented within 30 days of receipt of the amendment.

FOR THE NUCLEAR REGULATORY COMMISSION

151

Elinor G. Adensam, Director
Project Directorate II-1
Division of Reactor Projects I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: August 22, 1988

Subject to Change

made check in 9C only 8/22/88

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|------|------------|--------------|-----------|-----------|--------------|---|---|
| OFC | :LA:PD21 | DRPR:PM:PD21 | DRPR: | OGC | :D:PD21:DRPR | : | : |
| NAME | :PAnderson | :EReeves:ch | :gm | :EAdensam | : | : | : |
| DATE | : 7/24/88 | : 7/28/88 | : 8/18/88 | : 8/22/88 | : | : | : |

ATTACHMENT TO LICENSE AMENDMENT NO. 79

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.

Remove Pages

3/4 4-27

3/4 4-28

B 3/4 4-8

Insert Pages

3/4 4-27

Deleted

B 3/4 4-8

REACTOR COOLANT SYSTEM

3/4.4.10 PRESSURE/TEMPERATURE LIMITS

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION
=====

3.4.10.1 The Reactor Coolant System (except the pressurizer) temperature and pressure shall be limited in accordance with the limit lines shown on Figures 3.4-2 and 3.4-3 during heatup, cooldown, criticality, and inservice leak and hydrostatic testing with:

- a. A maximum heatup of 100° F in any one hour period.
- b. A maximum cooldown of 100° F in any one hour period.
- c. A maximum temperature change of less than or equal to 10° F in any one hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.

APPLICABILITY: At all times.

ACTION:

With any of the above limits exceeded, restore the temperature and/or pressure to within the limit within 30 minutes; perform an engineering evaluation or inspection to determine the effects of the out-of-limit condition on the fracture toughness of the Reactor Pressure Vessel; determine that the Reactor Pressure Vessel remains acceptable for continued operation or be in at least HOT STANDBY within the next 6 hours and reduce the RCS T_{avg} and pressure to less than 200 F and 500 psig, respectively, within the following 30 hours.

SURVEILLANCE REQUIREMENTS
=====

4.4.10.1.1 The Reactor Coolant System temperature and pressure shall be determined to be within the limits at least once per hour during system heatup, cooldown, and inservice leak and hydrostatic testing operations.

4.4.10.1.2 The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, as required by 10CFR50, Appendix H.

REACTOR COOLANT SYSTEM

BASES

=====

Values of ΔRT_{ndt} determined in this manner may be used until the next results from the material surveillance program, evaluated according to ASTM E185-82, are available. Capsules will be removed in accordance with the requirements of ASTM E185-82 and 10 CFR 50, Appendix H. The surveillance specimen withdrawal schedule is shown in FSAR Section 5.4. The heatup and cooldown curves must be recalculated when the ΔRT_{ndt} determined from the surveillance capsule exceeds the calculated ΔRT_{ndt} for the equivalent capsule radiation exposure.

Allowable pressure-temperature relationships for various heatup and cooldown rates are calculated using methods derived from Appendix G in Section III of the ASME Boiler and Pressure Vessel Code as required by Appendix G to 10 CFR Part 50 and these methods are discussed in detail in WCAP-7924-A.

The general method for calculating heatup and cooldown limit curves is based upon the principles of the linear elastic fracture mechanics (LEFM) technology. In the calculation procedures a semi-elliptical surface defect with a depth of one-quarter of the wall thickness, T, and a length of $3/2T$ is assumed to exist at the inside of the vessel wall as well as at the outside of the vessel wall. The dimensions of this postulated crack, referred to in Appendix G of ASME Section III as the reference flaw, amply exceed the current capabilities of inservice inspection techniques. Therefore, the reactor operation limit curves developed for this reference crack are conservative and provide sufficient safety margins for protection against non-ductile failure. To assure that the radiation embrittlement effects are accounted for in the calculation of the limit curves, the most limiting value of the nil ductility reference temperature, RT_{ndt} , is used and this includes the radiation induced shift, ΔRT_{ndt} , corresponding to the end of the period for which heatup and cooldown curves are generated.

TABLE 4.4-5

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

ALABAMA POWER COMPANY

DOCKET NO. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 71
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 January 28, 1988, as supplemented May 20, 1988, 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 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. 71, are hereby incorporated in the license. Alabama Power Company 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 30 days of receipt of the amendment.

FOR THE NUCLEAR REGULATORY COMMISSION

151

Elinor G. Adensam, Director
Project Directorate II-1
Division of Reactor Projects I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: August 22, 1988

subject to change

change made 8/22

| | | | | | |
|------|-----------------------------|--------------|---------------|-----------|---|
| OFC | :LA:PD21:DRPR:PM:PD21:DRPR: | OGC | :D:PD21:DRPR: | : | : |
| NAME | :PAAnderson | :EReeves:ch: | :EAdensam | : | : |
| DATE | : 7/28/88 | : 7/28/88 | : 8/18/88 | : 8/22/88 | : |

ATTACHMENT TO LICENSE AMENDMENT NO. 71

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 Pages

3/4 4-27

3/4 4-28

B 3/4 4-8

Insert Pages

3/4 4-27

Deleted

B 3/4 4-8

REACTOR COOLANT SYSTEM

3/4.4.10 PRESSURE/TEMPERATURE LIMITS

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION

=====

3.4.10.1 The Reactor Coolant System (except the pressurizer) temperature and pressure shall be limited in accordance with the limit lines shown on Figures 3.4-2 and 3.4-3 during heatup, cooldown, criticality, and inservice leak and hydrostatic testing with:

- a. A maximum heatup of 100° F in any one hour period.
- b. A maximum cooldown of 100° F in any one hour period.
- c. A maximum temperature change of less than or equal to 10° F in any one hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.

APPLICABILITY: At all times.

ACTION:

With any of the above limits exceeded, restore the temperature and/or pressure to within the limit within 30 minutes; perform an engineering evaluation or inspection to determine the effects of the out-of-limit condition on the fracture toughness of the Reactor Pressure Vessel; determine that the Reactor Pressure Vessel remains acceptable for continued operation or be in at least HOT STANDBY within the next 6 hours and reduce the RCS T_{avg} and pressure to less than 200 F and 500 psig, respectively, within the following 30 hours.

SURVEILLANCE REQUIREMENTS

=====

4.4.10.1.1 The Reactor Coolant System temperature and pressure shall be determined to be within the limits at least once per hour during system heatup, cooldown, and inservice leak and hydrostatic testing operations.

4.4.10.1.2 The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, as required by 10CFR50, Appendix H.

TABLE 4.4-5

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REACTOR COOLANT SYSTEM

BASES

Values of ΔRT_{ndt} determined in this manner may be used until the next results from the material surveillance program, evaluated according to ASTM E185-82, are available. Capsules will be removed in accordance with the requirements of ASTM E185-82 and 10 CFR 50, Appendix H. The surveillance specimen withdrawal schedule is shown in FSAR Section 5.4. The heatup and cooldown curves must be recalculated when the ΔRT_{ndt} determined from the next surveillance capsule exceeds the calculated ΔRT_{ndt} for the equivalent capsule radiation exposure.

Allowable pressure-temperature relationships for various heatup and cooldown rates are calculated using methods derived from Appendix G in Section III of the ASME Boiler and Pressure Vessel Code as required by Appendix G to 10 CFR 50 and these methods are discussed in detail in WCAP-7924-A.

The general method for calculating heatup and cooldown limit curves is based upon the principles of the linear elastic fracture mechanics (LEFM) technology. In the calculation procedures a semi-elliptical surface defect with a depth of one-quarter of the wall thickness, T , and a length of $3/2T$ is assumed to exist at the inside of the vessel wall as well as at the outside of the vessel wall. The dimensions of this postulated crack, referred to in Appendix G of ASME Section III as the reference flaw, amply exceed the current capabilities of inservice inspection techniques. Therefore, the reactor operation limit curves developed for this reference crack are conservative and provide sufficient safety margins for protection against non-ductile failure. To assure that the radiation embrittlement effects are accounted for in the calculation of the limit curves, the most limiting value of the nil ductility reference temperature, RT_{ndt} , is used and this includes the radiation induced shift, ΔRT_{ndt} , corresponding to the end of the period for which heatup and cooldown curves are generated.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 79 TO FACILITY OPERATING LICENSE NO. NPF-2
AND AMENDMENT NO. 71 TO FACILITY OPERATING LICENSE NO. NPF-8

ALABAMA POWER COMPANY

JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-348 AND 50-364

1.0 INTRODUCTION

By letter dated January 28, 1988, as supplemented May 20, 1988, the Alabama Power Company submitted a request for changes to the Joseph M. Farley Nuclear Plant, Units 1 and 2, Technical Specifications.

The amendment deletes the Surveillance Specimen Withdrawal Schedule, Table 4.4-5 from the Technical Specifications (TS). Also, a portion of paragraph 4.4.10.1.2 relating to the reactor vessel material irradiation surveillance withdrawal table shall be removed and relocated to the Final Safety Analysis Report (FSAR). The program for surveillance of reactor vessel material would continue to be governed by 10 CFR Part 50, Appendix H.

2.0 EVALUATION

Technical Specification 3/4.4.1, "Pressure/Temperature Limits," contains a Limiting Condition for Operation for the Reactor Coolant System (RCS). Thus, the pressure and temperature changes in the RCS during heatup and cooldown are limited to be consistent with requirements of the ASME Code, Section III, Appendix G, 10 CFR Part 50. Changes to these limits are necessary since the fracture toughness properties of the ferritic materials in the reactor vessel change as a function of reactor operating lifetime (neutron fluence).

For this reason, a surveillance requirement, specifically TS Section 4.4.10.1.2, exists to require removal and examination of the reactor vessel material irradiation specimens. The specimen examination would be used to determine the changes in material properties in accordance with Appendix H, 10 CFR Part 50. Table 4.4-5 was the established list of specimens and the schedule for removal for each specimen.

The licensee initially proposed to delete TS Section 4.4.10.1.2 in its entirety. This deletion would have deleted Table 4.4-5 and the requirement for the removal, examination, and analysis of the test specimens. Also, the licensee proposed to add the specimen removal schedule to the next FSAR update. This action was completed in FSAR Revision 6, July

1988, Table 5.4-14. Following discussions with the NRC staff, the licensee revised the earlier proposal by letter dated May 20, 1988, based on our concerns.

We have reviewed the licensee's revised proposal. The proposal will retain the portion of the TS Section 4.4.10.1.2 requiring removal, examination, and determination of changes in material properties required by Appendix H, 10 CFR Part 50. The change is considered acceptable for the following reasons:

1. The previously approved surveillance table is now contained in a licensee controlled document, the FSAR.
2. Pursuant to 10 CFR Part 50, Appendix H, changes to this previously approved schedule would require NRC staff approval.
3. The TS surveillance requirement is maintained to require removal, examination, and determination of changes in material properties pursuant to 10 CFR Part 50, Appendix H.

3.0 ENVIRONMENTAL CONSIDERATION

These amendments change the surveillance requirements. The staff has determined that these amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released off site; and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration, and there has been no public comment on such finding. Accordingly, these 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 these amendments.

4.0 CONCLUSION

The Commission made a proposed determination that this amendment involves no significant hazards consideration which was published in the Federal Register (53 FR 22398) on June 15, 1988, and consulted with the State of Alabama. No public comments or requests for hearing were received, and the State of Alabama did not have any comments.

The Staff 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: E. Reeves

Dated: August 22, 1988