

September 8, 1994

Docket Nos. 50-348
and 50-364

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

Dear Mr. Morey:

SUBJECT: ISSUANCE OF AMENDMENT NO. 110 TO FACILITY OPERATING LICENSE
NO. NPF-2 AND AMENDMENT NO. 101 TO FACILITY OPERATING LICENSE NO.
NPF-8 REGARDING FUEL RECONSTITUTION - JOSEPH M. FARLEY NUCLEAR
PLANT, UNITS 1 AND 2 (TAC NOS. M88881 AND M88882)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 110 to Facility Operating License No. NPF-2 and Amendment No. 101 to Facility Operating License No. NPF-8 for the Joseph M. Farley Nuclear Plant, Units 1 and 2. The amendments change the Technical Specifications in response to your submittal dated February 16, 1994, as revised August 4, 1994.

The amendments change the fuel description in the TS to allow fuel reconstitution, to permit the use of ZIRLO™ clad fuel, and to remove unnecessary detailed descriptions of fuel and control rod assemblies.

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

Sincerely,
ORIGINAL SIGNED BY:

Byron L. Siegel, Senior Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 110 to NPF-2
2. Amendment No. 101 to NPF-8
3. Safety Evaluation

cc w/enclosures:
See next page

OFC	LA: PD2-1	PM: PD2-1	SRXB	RD: PD2-1	OGC
NAME	PAAnderson	BSiegel	RJones	DMatthews	S.HOM
DATE	08/18/94	08/18/94	08/18/94	08/17/94	08/29/94

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

September 8, 1994

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and 50-364

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

Sincerely,

A handwritten signature in cursive script, appearing to read "Byron L. Siegel".

Byron L. Siegel, Senior Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 110 to NPF-2
2. Amendment No. 101 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:

Mr. R. D. Hill, Jr.
General Manager - Farley Nuclear Plant
Southern Nuclear Operating Company
Post Office Box 470
Ashford, Alabama 36312

State Health Officer
Alabama Department of Public Health
434 Monroe Street
Montgomery, Alabama 36130-1701

Mr. B. L. Moore, Licensing Manager
Southern Nuclear Operating Company
Post Office Box 1295
Birmingham, Alabama 35201-1295

Chairman
Houston County Commission
Post Office Box 6406
Dothan, Alabama 36302

Mr. M. Stanford Blanton
Balch and Bingham Law Firm
Post Office Box 306
1710 Sixth Avenue North
Birmingham, Alabama 35201

Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
101 Marietta St., N.W., Ste. 2900
Atlanta, Georgia 30323

Mr. J. D. Woodard
Executive Vice President
Southern Nuclear Operating Company
P.O. Box 1295
Birmingham, Alabama 35201

Resident Inspector
U.S. Nuclear Regulatory Commission
7388 N. State Highway 95
Columbia, Alabama 36319



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

DOCKET NO. 50-348

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 110
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 February 16, 1994, as revised August 4, 1994, 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. 11⁰, 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 within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Brenda Mozafari
for David B. Matthews, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 8, 1994

ATTACHMENT TO LICENSE AMENDMENT NO.110
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

5-6

5-7

Insert Pages

5-6

5-7

DESIGN FEATURES

5.3 REACTOR CORE

FUEL ASSEMBLIES

5.3.1 The reactor shall contain 157 fuel assemblies. Each assembly shall consist of a matrix of zirconium alloy, zircaloy-4, or ZIRLO™ fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO₂) as fuel material.

Limited substitutions of zirconium alloy, zircaloy-4, ZIRLO™, or stainless steel filler rods for fuel rods, in accordance with NRC-approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC-approved codes and methods, and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in non-limiting core regions.

CONTROL ROD ASSEMBLIES

5.3.2 The reactor core shall contain 48 control rod assemblies. The control material shall be silver, indium and cadmium as approved by the NRC.

5.4 REACTOR COOLANT SYSTEM

DESIGN PRESSURE AND TEMPERATURE

5.4.1 The reactor coolant system is designed and shall be maintained:

- a. In accordance with the code requirements specified in Section 5.2 of the FSAR, with allowance for normal degradation pursuant to the applicable Surveillance Requirements,
- b. For a pressure of 2485 psig, and
- c. For a temperature of 650°F, except for the pressurizer which is 680°F.

VOLUME

5.4.2 The total water and steam volume of the reactor coolant system is 9723 ± 100 cubic feet at a nominal T_{avg} of 525°F.

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.5-1.

DESIGN FEATURES

5.6 FUEL STORAGE

CRITICALITY

- 5.6.1.1 The spent fuel storage racks are designed and shall be maintained with:
- a. K_{eff} less than or equal to 0.95 when flooded with unborated water, which includes conservative allowances for uncertainties and biases.
 - b. A nominal 10.75 inch center-to-center distance between fuel assemblies placed in the storage racks.
 - c. A maximum nominal enrichment of:
 1. 4.25 weight percent U-235 for Westinghouse LOPAR fuel assemblies.
 2. 5.0 weight percent U-235 for Westinghouse OFA or VANTAGE-5 fuel assemblies. Westinghouse OFA and VANTAGE-5 fuel with maximum nominal enrichments greater than 3.9 weight percent U-235 shall contain sufficient integral burnable absorbers such that a maximum reference fuel assembly K_{∞} less than or equal to 1.455 at 68°F is maintained.
- 5.6.1.2 The new fuel pit storage racks are designed and shall be maintained with:
- a. K_{eff} less than or equal to 0.98, assuming aqueous foam moderation.
 - b. A nominal 21 inch center-to-center distance between new fuel assemblies placed in the storage racks.
 - c. A maximum nominal enrichment of:
 1. 4.25 weight percent U-235 for Westinghouse LOPAR fuel assemblies.
 2. 5.0 weight percent U-235 for Westinghouse OFA or VANTAGE-5 fuel assemblies. Westinghouse OFA and VANTAGE-5 fuel with maximum nominal enrichments greater than 3.9 weight percent U-235 shall contain sufficient integral burnable absorbers such that a maximum reference fuel assembly K_{∞} less than or equal to 1.455 at 68°F is maintained.

DRAINAGE

5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 149.

CAPACITY

5.6.3 The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1407 fuel assemblies.

5.7 COMPONENT CYCLIC OR TRANSIENT LIMIT

5.7.1 The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7-1.



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

DOCKET NO. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 101
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 February 16, 1994, as revised August 4, 1994, 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. 101, 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 within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for 
David B. Matthews, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 8, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 101

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

5-6

5-7

Insert Pages

5-6

5-7

DESIGN FEATURES

5.3 REACTOR CORE

FUEL ASSEMBLIES

5.3.1 The reactor shall contain 157 fuel assemblies. Each assembly shall consist of a matrix of zirconium alloy, zircaloy-4, or ZIRLO™ fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO₂) as fuel material.

Limited substitutions of zirconium alloy, zircaloy-4, ZIRLO™, or stainless steel filler rods for fuel rods, in accordance with NRC-approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC-approved codes and methods, and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in non-limiting core regions.

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- b. For a pressure of 2485 psig, and
- c. For a temperature of 650°F, except for the pressurizer which is 680°F.

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5.4.2 The total water and steam volume of the reactor coolant system is 9723 ± 100 cubic feet at a nominal T_{avg} of 525°F.

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5.5.1 The meteorological tower shall be located as shown on Figure 5.5-1.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 110 TO FACILITY OPERATING LICENSE NO. NPF-2
AND AMENDMENT NO. 101 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 letters dated February 16, 1994, as revised August 4, 1994, Southern Nuclear Operating Company, Inc. (SNC or the licensee), submitted a request for changes to the Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley), Technical Specifications (TS). The proposed changes requested in the February 16, 1994, letter revise Section 5.3.1, Fuel Assemblies, and Section 5.3.2, Control Rod Assemblies, to permit fuel reconstitution, to allow the use of ZIRLO™ clad fuel, and to remove unnecessary detailed descriptions of fuel and control rod assemblies. The August 4, 1994, letter reformed Section 5.6.1 and restored and relocated to Section 5.6.1 the maximum nominal fuel assembly enrichment deleted in the February 16, 1994, amendment request, but did not change the no significant hazards consideration as published in the Federal Register.

2.0 EVALUATION

In its February 16, 1994, submittal, SNC stated it is desirable to have the flexibility to reconstitute the fuel assemblies, either during or between fuel outages, if it is determined that a fuel rod is damaged or a probable source of future leakage due to a clad breach. Removal of leaking fuel rods, or those with a potential to leak, results in a reduction in both occupational radiation exposures and plant radiological releases. Section 5.3.1 of the proposed amendment states the conditions under which zirconium or stainless steel filler rods can be substituted for the fuel rods. The proposed TS requires an analysis to be performed using NRC-approved codes and methods and application of NRC-approved fuel rod configurations.

Generic Letter (GL) 90-02, Supplement 1, "Alternate Requirements for Fuel Assemblies in the Design Features Section of the Technical Specifications," dated July 31, 1992, provides guidance for reconstitution of a fuel assembly to replace damaged or leaking fuel rods. The staff has reviewed the SNC submittal and compared it to the guidance contained in GL 90-02, Supplement 1, and has determined that the SNC submittal is consistent with the guidance contained in GL 90-02.

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In addition, the wording proposed by SNC is almost identical to that contained in GL 90-02. On the basis of the above evaluation, the staff has determined that the proposed TS change to allow flexibility in the reconstitution of fuel assemblies is acceptable.

In the proposed amendment, SNC also requested a change to the TS that would state that the use of ZIRLO™ clad fuel rods in the reactor core is acceptable. As a basis for the approval request, SNC referenced WCAP-12610, the reference core design report for a fuel assembly design using ZIRLO™ clad fuel rods, which was approved by the staff in Safety Evaluations (SE) issued on July 1, 1991, and October 9, 1991. These SEs approved the use of the VANTAGE+ fuel design, i.e., ZIRLO™ clad fuel, described in WCAP-12610 and found it acceptable up to a rod-average burnup level of 60,000 MWD/MTU. Because the staff has previously approved the use of ZIRLO™ clad fuel rods, the inclusion of wording in the TS Design Features Section, which specifically identifies ZIRLO™ as a zirconium alloy that may be used as a fuel cladding, is acceptable.

Section 5.3 of the Farley TS contains a detailed description of the fuel and control rod assemblies. In order to provide flexibility to use various types of fuel that are similar in design to the initial core loading, SNC has proposed removal of unnecessary detailed descriptions of the fuel and control rod assemblies from Section 5.3 of the TS. SNC has stated that any modifications to the fuel or control rod assembly designs will continue to receive 10 CFR 50.59 evaluations and, if necessary, 10 CFR 50.46 evaluations and Updated Final Safety Analysis Report (UFSAR) revisions. The staff has reviewed the proposed changes and has determined, with one exception, that the changes to Section 5.3 are consistent with the Standard Technical Specifications for Westinghouse Plants as contained in NUREG-1431. The exception is the deletion of the maximum nominal fuel enrichments for the design fuel assemblies utilized as proposed in the February 16, 1994, submittal. Since fuel enrichments are included in the Improved Standard Technical Specifications, the staff notified SNC that deletion of the fuel assembly enrichments from the TS was unacceptable. By letter dated August 4, 1994, SNC revised its original submittal to retain this requirement. However, the nominal maximum fuel enrichments were relocated within the TS from Section 5.3, Reactor Core, to Section 5.6.1, Criticality. In addition Section 5.6.1 has been reformatted in a manner similar to the Standard Technical Specifications; however, the requirements currently in the TS have not been changed. Since the August 4, 1994, submittal only relocates a requirement and reformats other requirements currently in the TS, the conclusions of the Significant Hazards Evaluation submitted with the February 16, 1994, letter remain unchanged. On the basis of the above evaluation and the determination that SNC will still be required to perform 10 CFR 50.59 evaluations and UFSAR revisions, the staff has concluded that the proposed changes are 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 amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes 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 amendment involves 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 amendment involves no significant hazards consideration, and there has been no public comment on such finding (59 FR 12366). Accordingly, the amendment meets 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 amendment.

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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: B. Siegel

Date: September 8, 1994

AMENDMENT NO. 110 TO FACILITY OPERATING LICENSE NO. NPF-2 - FARLEY, UNIT 1
AMENDMENT NO. 101 TO FACILITY OPERATING LICENSE NO. NPF-8 - FARLEY, UNIT 2

DISTRIBUTION:

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NRC/Local PDRs
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ACRS (10)
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OC/LFDCB
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cc: Farley Service List