

October 11, 1996

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

SUBJECT: ISSUANCE OF AMENDMENT - JOSEPH M. FARLEY NUCLEAR PLANT,
UNIT 2 (TAC NO. M95217)

Dear Mr. Morey:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 116 to Facility Operating License No. NPF-8 for the Joseph M. Farley Nuclear Plant, Unit 2. The amendment changes the Technical Specifications (TS) for Unit 2 in response to your submittal dated April 22, 1996, as supplemented by letters dated May 3, July 15, August 7 and 30, and September 16, 1996.

The amendment changes reflect the implementation of a new F* criterion based on maintaining existing safety margins for steam generator tube structural integrity concurrent with allowances for nondestructive examination eddy current uncertainty.

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 No. 50-364

Enclosures:

- 1. Amendment No. 116 to NPF-8
- 2. Safety Evaluation

cc w/enclosures:
See next page

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DOCUMENT NAME: G:\FARLEY\M95217.AMD *See previous concurrence

OFFICE	PDII-2/LA <i>LC</i>	PDII-2/PA <i>LC</i>	EMCB*	OGC <i>WJH</i>	ADLR/R <i>WJH</i>
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DATE	9/24/96	9/24/96	9/24/96	9/25/96	10/11/96

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

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Sincerely,

A handwritten signature in black ink, 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

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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. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 116
License No. NPF-8

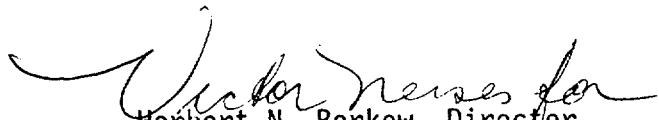
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Southern Nuclear Operating Company, Inc. (Southern Nuclear), dated April 22, 1996, as supplemented by letters dated May 3, July 15, August 7 and 30, and September 16, 1996, complies with the standards 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. 116, 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



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: October 11, 1996

ATTACHMENT TO LICENSE AMENDMENT NO. 116

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 4-12b
B 3/4 4-3b

Insert Pages

3/4 4-12b
B 3/4 4-3b

REACTOR COOLANT SYSTEM
SURVEILLANCE REQUIREMENTS (Continued)

10. Preservice Inspection means an inspection of the full length of each tube in each steam generator performed by eddy current techniques prior to service to establish a baseline condition of the tubing. This inspection shall be performed after the field hydrostatic test and prior to initial POWER OPERATION using the equipment and techniques expected to be used during subsequent inservice inspections.
11. F* Distance is the distance of the expanded portion of a tube which provides a sufficient length of undegraded tube expansion to resist pullout of the tube from the tubesheet. The F* distance is equal to 1.54 inches plus allowance for eddy current uncertainty measurement and is measured down from the top of the tube sheet or the bottom of the roll transition, whichever is lower in elevation. The allowance for eddy current uncertainty is documented in the steam generator eddy current inspection procedure.
12. F* Tube is a tube:
- a) with degradation equal to or greater than 40% below the F* distance, and
 - b) which has no indication of imperfections greater than or equal to 20% of nominal wall thickness within the F* distance, and
 - c) that remains inservice.
- If the above criteria cannot be met, then the L* tube criteria may be applied or the tube must be plugged or repaired.
13. L* Length_{##} is the length of the expanded portion of the tube into the tube sheet from the bottom of the rolled transition or the top of the tube sheet, whichever is lower, that has been determined to be 1.45 inches.
14. L* Tube_{##}: a) is a tube with degradation equal or greater than 40% below the L* length and not degraded within the L* length; b) the eddy current indication of degradation below the L* length must be determined to be the result of cracks with an orientation no greater than 15 degrees from axial; c) the L* criteria shall be limited to a maximum of 600 tube ends per steam generator; d) tubes qualifying as F* tubes are not classified as L* tubes; e) a minimum of 3.1 inches of the tube into the tubesheet from the top of tubesheet or bottom of the rolled transition, whichever is lower, shall be inspected using rotating pancake coil eddy current technique or an inspection method shown to give equivalent or better information on the orientation and length of axial cracks; f) a minimum aggregate of 2.07 inches of sound roll expansion; g) a maximum crack length of .39 inches; h) a maximum of 5 distinct indications with a single band of tube degradation; and i) that remains in service.

L* Criteria is applicable to Cycle 11 only.

REACTOR COOLANT SYSTEM
BASES

3. The tube plugging limit continues to apply to the portion of the tube in the entire upper joint region and in the lower roll expansion. As noted above, the sleeve plugging limit applies to these areas also.
4. The tube plugging limit continues to apply to that portion of the tube above the top of the upper joint.

b. Laser Welded

1. Indications of degradation in the length of the sleeve between the weld joints must be evaluated against the sleeve plugging limit.
2. Indication of tube degradation of any type including a complete break in the tube between the upper weld joint and the lower weld joint does not require that the tube be removed from service.
3. At the weld joint, degradation must be evaluated in both the sleeve and tube.
4. In a joint with more than one weld, the weld closest to the end of the sleeve represents the joint to be inspected and the limit of the sleeve inspection.
5. The tube plugging limit continues to apply to the portion of the tube above the upper weld joint and below the lower weld joint.

F* tubes do not have to be plugged or repaired provided the remainder of the tube within the tubesheet that is above the F* distance is not degraded. The F* distance is equal to 1.54 inches plus allowance for eddy current uncertainty measurement and is measured down from the top of the tubesheet or the bottom of the roll transition, whichever is lower in elevation.

L* is similar to F*; however, bands of axial degradation are allowed as long as sufficient non-degraded tubing is available to ensure structural and leakage integrity. L* criterion is only applicable for Unit 2 Cycle 11. Provided below is the Unit 2 Cycle 11 specific L* criterion:



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 116 TO FACILITY OPERATING LICENSE NO. NPF-8

SOUTHERN NUCLEAR OPERATING COMPANY, INC., ET AL.

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

DOCKET NO. 50-364

1.0 INTRODUCTION

By letter dated April 22, 1996, as supplemented by letters dated May 3, July 15, August 7 and 30, and September 16, 1996, the Southern Nuclear Operating Company, Inc. (SNC), et al. (the licensee), submitted a request for changes to the Joseph M. Farley Nuclear Plant, Unit 2, Technical Specifications (TS). The requested changes reflect implementation of a new F* criterion based on maintaining existing safety margins for steam generator (SG) tube structural integrity concurrent with allowances for nondestructive examination eddy current uncertainty. The May 3, July 15, August 7 and 30, and September 16, 1996, letters provided clarifying information that did not change the April 22, 1996, application and the initial proposed no significant hazards consideration determination.

2.0 BACKGROUND

By letter dated May 4, 1987, Alabama Power Company (the licensee at that time) submitted a requested TS change that would allow plant operation with SG tube degradation in excess of the plugging or repair limits when the degradation is below the F* distance measured from the top of the tube-sheet or the bottom of the roll expansion, whichever is lower. The F* distance is defined as the length of continuous undegraded tube expansion in the tube-sheet such that tube pullout would not occur during normal or postulated accident loading conditions. The bases for this change is described in Westinghouse Electric Corporation Report WCAP 11306, Revision 2, "Tubesheet Region Plugging Criterion for the Alabama Power Company Farley Nuclear Station Unit 2 Steam Generators," April 1987. The staff approved this amendment request in a letter dated September 21, 1987.

3.0 EVALUATION

The TS F* distance of 1.79 inches was derived in WCAP 11306 and is equal to the length of undegraded hardroll expansion necessary to ensure structural and leakage integrity of an F* tube plus an allowance for eddy current measurement uncertainty. This distance is sufficient to resist tube pullout from the tubesheet under normal operating and faulted conditions. The F* distance is also adequate to ensure that primary-to-secondary leakage is negligible. This 1.79-inch F* distance is comprised of two components; a distance of 1.54 inches to assure structural and leakage integrity plus a nondestructive examination (NDE) uncertainty of 0.25 inch that is based on eddy current

bobbin technology. SNC stated in their submittal that eddy current technology has improved since 1987, and that the use of rotating pancake coil (RPC) probes can currently support an uncertainty measurement on the order of 0.1 inch. As a result, SNC has proposed a TS amendment that changes the definition of F^* to take into account the appropriate eddy current uncertainty based on the technology used.

The NRC staff has reviewed the licensee's proposed TS change and determined it to be acceptable based on the following:

1. There is no reduction in the margin of safety since the F^* distance of 1.54 inches calculated in WCAP 11306 is being retained and only the uncertainty associated with the type of eddy current equipment being utilized will change.
2. The eddy current uncertainty will be determined using standard NDE techniques qualified in accordance with industry guidelines. The licensee submitted a proposed methodology for determining the uncertainty by letter dated July 15, 1996, as supplemented by a letter dated August 7, 1996. The NRC staff has reviewed the licensee's proposed methodology and determined that the approach will consider the essential variables that govern the eddy current test technique in the development of the NDE uncertainty value. In addition, in its May 3, 1996, supplemental submittal, SNC revised the proposed TS to include a statement that the allowance for eddy current uncertainty will be documented in the SG eddy current inspection procedure.
3. The staff accepted the use of this F^* distance calculated in WCAP 11306, in its safety evaluation (SE) issued September 21, 1987, which approved the licensee's amendment that incorporated F^* into the TS. In that SE, the staff concluded that the safety margins and intent of Regulatory Guide 1.121 were satisfied and the F^* distance does not adversely impact any previously evaluated design basis accident. The currently proposed TS amendment does not change any of the conclusions contained in the September 21, 1987, SE and amendment since the F^* distance required to prevent tube pullout from the SG is not being changed.

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 the surveillance requirements. 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 (61 FR 25713 dated May 22, 1996). 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 Contributors: B. Siegel
P. Rush

Date: October 11, 1996