September 7, 1990

Docket Nos. 50-348
and 50-364

DISTRIBUTION
See attached sheet

Mr. W. G. Hairston, III
Senior Vice President
Alabama Power Company
40 Inverness Center Parkway
Post Office Box 1295
Birmingham, Alabama 35201

Dear Mr. Hairston:

SUBJECT: ISSUANCE OF AMENDMENT NO. 83 TO FACILITY OPERATING LICENSE NO. NPF-2 AND AMENDMENT NO. 76 TO FACILITY OPERATING LICENSE NO. NPF-8 REGARDING ROD CLUSTER CONTROL ASSEMBLY FULLY WITHDRAWN DEFINITION - JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2, (TAC NOS. 76988 AND 76989)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 83 to Facility Operating License No. NPF-2 and Amendment No. 76 to Facility Operating License No. 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 June 12, 1990.

The amendments change the Technical Specifications to redefine the fully withdrawn position of all rod cluster control assembly (RCCA) banks to minimize localized RCCA wear. Currently, the fully withdrawn position for the control and shutdown RCCA banks is defined as 228 steps above rod bottom. These amendments allow the control and shutdown RCCA banks to be designated as fully withdrawn between steps 225 and 231, inclusive. These changes are consistent with Westinghouse's recommendation to axially reposition the RCCAs up to three steps to distribute wear to other locations on the RCCA rodlets in order to extend rod life.

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:
Stephen T. Hoffman, Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 83 to NPF-2
2. Amendment No. 76 to NPF-8
3. Safety Evaluation

cc w/enclosures:
See next page

OFC	:LA:PD21:DRPR	:PM:PD21:DRPR	:D:PD21:DRPR	:	:	:
NAME	: PAnderson	: SHoffman:sw	: EAdensam	:	:	:
DATE	: 8/23/90	: 8/23/90	: 9/7/90	:	:	:

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DF01

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

Joseph M. Farley Nuclear Plant

cc:

Mr. R. P. McDonald
Executive Vice President
Nuclear Operations
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Birmingham, Alabama 35201

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Manager, Licensing
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Houston County Commission
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Atlanta, Georgia 30323

Chairman
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Dothan, Alabama 36301

Claude Earl Fox, M.D.
State Health Officer
State Department of Public Health
State Office Building
Montgomergy, Alabama 36130

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. 83
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 June 12, 1990, 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:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 83 , 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

Ronnie H. Lo/for

Elinor G. Adensam, 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 7, 1990

OFC	:LA:PD21:DRPR	:PM:PD21:DRPR	: OGC	:D:PD21:DRPR	:	:	:
NAME	: PAnderson	: SHoffman	: J. Hull	: EAdensam	:	:	:
DATE	: 8/23/90	: 8/23/90	: 8/27/90	: 9/7/90	:	:	:

OFFICIAL RECORD COPY

ATTACHMENT TO LICENSE AMENDMENT NO. 83

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	Insert Pages
3/4 1-19	3/4 1-19
3/4 1-20	3/4 1-20
3/4 1-22	3/4 1-22

REACTIVITY CONTROL SYSTEMS

ROD DROP TIME

LIMITING CONDITION FOR OPERATION

3.1.3.4 The individual full length (shutdown and control) rod drop time from the fully withdrawn position (225 to 231 steps, inclusive)* shall be less than or equal to 2.2 seconds from beginning of decay of stationary gripper coil voltage to dashpot entry with:

a. T_{avg} greater than or equal to 541°F, and

b. All reactor coolant pumps operating.

APPLICABILITY: MODES 1 and 2.

ACTION:

a. With the drop time of any full length rod determined to exceed the above limit, restore the rod drop time to within the above limit prior to proceeding to MODE 1 or 2.

b. With the rod drop times within limits but determined with 2 reactor coolant pumps operating, operation may proceed provided THERMAL POWER is restricted to less than or equal to 66% of RATED THERMAL POWER.

SURVEILLANCE REQUIREMENTS

4.1.3.4 The rod drop time of full length rods shall be demonstrated through measurement prior to reactor criticality:

a. For all rods following each removal of the reactor vessel head,

b. For specifically affected individual rods following any maintenance on or modification to the control rod drive system which could affect the drop time of those specific rods, and

c. At least once per 18 months.

*The fully withdrawn position used for determining rod drop time shall be greater than or equal to the fully withdrawn position used during subsequent plant operation.

REACTIVITY CONTROL SYSTEMS

SHUTDOWN ROD INSERTION LIMIT

LIMITING CONDITION FOR OPERATION

3.1.3.5 All shutdown rods shall be fully withdrawn (225 to 231 steps, inclusive).

APPLICABILITY: MODES 1* and 2*#.

ACTION:

With a maximum of one shutdown rod not fully withdrawn, except for surveillance testing pursuant to Specification 4.1.3.1.2, within one hour either:

a. Fully withdraw the rod, or

b. Declare the rod to be inoperable and apply Specification 3.1.3.1.

SURVEILLANCE REQUIREMENTS

4.1.3.5 Each shutdown rod shall be determined to be fully withdrawn (225 to 231 steps, inclusive):

a. Within 15 minutes prior to withdrawal of any rods in control banks A, B, C or D during an approach to reactor criticality, and

b. At least once per 12 hours thereafter.

*See Special Test Exceptions 3.10.2 and 3.10.3.
#With K_{eff} greater than or equal to 1.0

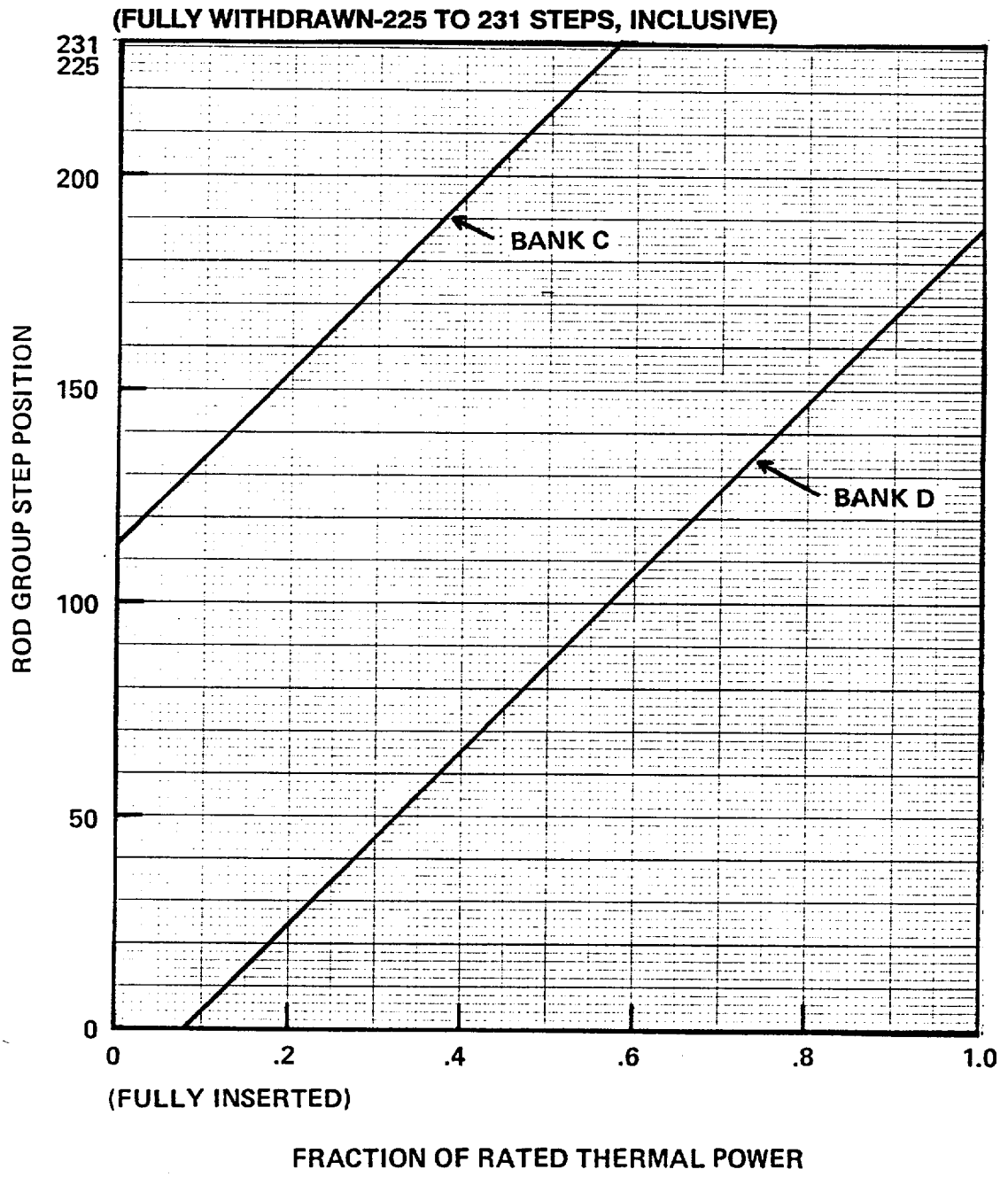

Figure 3.1-1 Rod Group Insertion Limits Versus Thermal Power Three Loop Operation

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. 76
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 June 12, 1990, 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. 76, 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

Ronnie H. Lo/for

Elinor G. Adensam, 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 7, 1990

OFC	:LA:PD21:DRPR	:PM:PD21:DRPR	:OGC	:D:PD21:DRPR	:	:
NAME	: PAnderson	: SHoffman	:	: EAdensam	:	:
DATE	: 8/23/90	: 8/23/90	: 8/27/90	: 9/6/90	:	:

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ATTACHMENT TO LICENSE AMENDMENT NO. 76

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	Insert Pages
3/4 1-19	3/4 1-19
3/4 1-20	3/4 1-20
3/4 1-22	3/4 1-22

REACTIVITY CONTROL SYSTEMS

ROD DROP TIME

LIMITING CONDITION FOR OPERATION

3.1.3.4 The individual full length (shutdown and control) rod drop time from the fully withdrawn position (225 to 231 steps, inclusive)* shall be less than or equal to 2.2 seconds from beginning of decay of stationary gripper coil voltage to dashpot entry with:

a. T_{avg} greater than or equal to 541°F, and

b. All reactor coolant pumps operating.

APPLICABILITY: MODES 1 and 2.

ACTION:

a. With the drop time of any full length rod determined to exceed the above limit, restore the rod drop time to within the above limit prior to proceeding to MODE 1 or 2.

b. With the rod drop times within limits but determined with 2 reactor coolant pumps operating, operation may proceed provided THERMAL POWER is restricted to less than or equal to 66% of RATED THERMAL POWER.

SURVEILLANCE REQUIREMENTS

4.1.3.4 The rod drop time of full length rods shall be demonstrated through measurement prior to reactor criticality:

a. For all rods following each removal of the reactor vessel head,

b. For specifically affected individual rods following any maintenance on or modification to the control rod drive system which could affect the drop time of those specific rods, and

c. At least once per 18 months.

*The fully withdrawn position used for determining rod drop time shall be greater than or equal to the fully withdrawn position used during subsequent plant operation.

REACTIVITY CONTROL SYSTEMS

SHUTDOWN ROD INSERTION LIMIT

LIMITING CONDITION FOR OPERATION

3.1.3.5 All shutdown rods shall be fully withdrawn (225 to 231 steps, inclusive).

APPLICABILITY: MODES 1* and 2*#.

ACTION:

With a maximum of one shutdown rod not fully withdrawn, except for surveillance testing pursuant to Specification 4.1.3.1.2, within one hour either:

a. Fully withdraw the rod, or

b. Declare the rod to be inoperable and apply Specification 3.1.3.1.

SURVEILLANCE REQUIREMENTS

4.1.3.5 Each shutdown rod shall be determined to be fully withdrawn (225 to 231 steps, inclusive):

a. Within 15 minutes prior to withdrawal of any rods in control banks A, B, C or D during an approach to reactor criticality, and

b. At least once per 12 hours thereafter.

*See Special Test Exceptions 3.10.2 and 3.10.3.
#With K_{eff} greater than or equal to 1.0

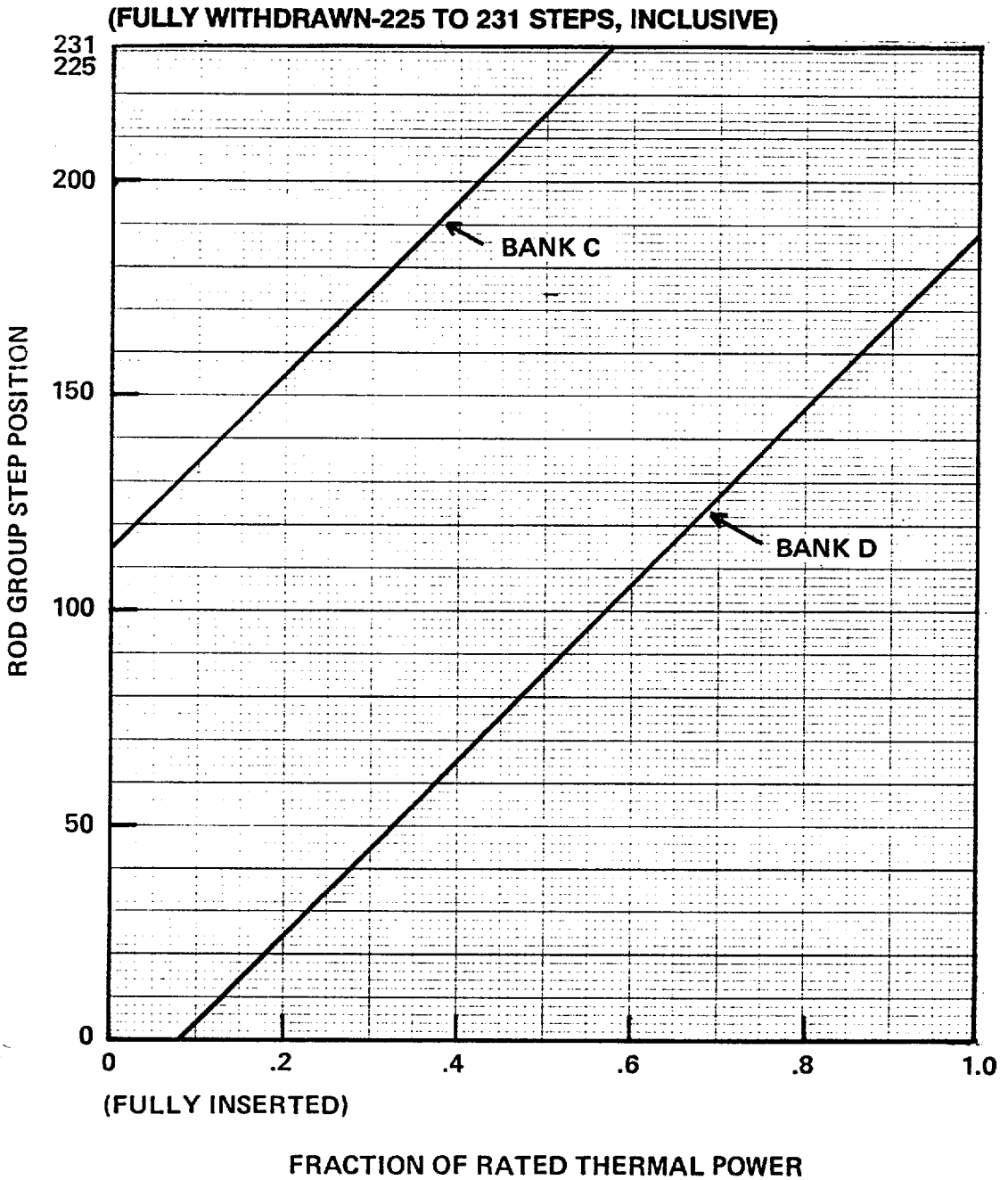

Figure 3.1-1 Rod Group Insertion Limits Versus Thermal Power Three Loop Operation

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 83 TO FACILITY OPERATING LICENSE NO. NPF-2

AND AMENDMENT NO. 76 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 June 12, 1990, Alabama Power Company (the licensee) submitted a request for changes to the Technical Specifications of the Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley). The amendments redefine the fully withdrawn position of all rod cluster control assembly (RCCA) banks to minimize localized RCCA wear. Currently, the fully withdrawn position for the control and shutdown RCCA banks is defined as 228 steps above rod bottom. The proposed changes will allow the control and shutdown RCCA banks to be designated as fully withdrawn between steps 225 and 231, inclusive. These changes are consistent with Westinghouse's recommendation to axially reposition the RCCAs up to three steps to distribute wear to other locations on the RCCA rodlets in order to extend rod life.

The RCCAs in Westinghouse pressurized water reactors were originally estimated to last for at least 15 years before the absorber cladding, a thin tube, would show excessive thinning as a result of sliding wear. In 1983, after 13 years of operation, the RCCAs were inspected at Point Beach Nuclear Plant, Unit 2. The result of this inspection showed that sliding wear was minor, but severe fretting wear had occurred on several tubes. Subsequent inspections at the Kewaunee and Haddam Neck plants, which had been in operation for more than 12 years, also showed fretting wear. The marks of fretting wear were about 1 inch in length and were found adjacent to the guide blocks that position the rods when the RCCAs are in their withdrawn position.

The fretting resulted from flow-induced vibratory contact between the rods and the guide blocks during long periods of steady-state power operation. Vibration is hydraulically induced by flow of the reactor coolant; therefore, it is a continuous process when the reactor coolant pumps are in operation.

2.0 EVALUATION

Currently, the fully withdrawn position for all of the Farley RCCAs is 228 steps above rod bottom with a tip-to-tip distance of 128 steps maintained between the control banks during overlap operation. To avoid the fretting wear at the same location, Westinghouse has recommended that the fully withdrawn parked position be changed periodically. In this way the wear will be spread over a greater surface area of the rodlet cladding.

The licensee proposed defining "fully withdrawn" to mean between 225 and 231 steps, inclusive, above reactor bottom for all RCCA banks. Between 228 and 231 steps, the RCCAs are withdrawn at least two steps above the active fuel. Thus with respect to core physics, the effects are equivalent. Also at 231 steps the RCCAs will remain inserted in the guide thimbles of the fuel assemblies and thus will allow for a smooth rod drop. The rod drop time assumed in the safety analysis will still be bounding. When the RCCAs are withdrawn to 225 steps, they will actually be inserted one step (0.63 inches) into the active fuel. Thus the key physics safety parameters were evaluated to determine if the change invalidated any safety analysis assumptions. The effect on the calculation performed to verify shutdown margin is minimal, a decrease of 0.03% delta-rho (change in reactivity). This effect can be accommodated by the available excess margin at end-of-life which is approximately 1.40% delta-rho. Other physics parameters such as core axial power distributions, differential and integral rod worth are affected only slightly. Sufficient margin exists in the safety analysis to account for these changes. The heat flux hot channel factor (F_Q) is expected to increase by less than 1% in the bottom of the core and the axial offset will be more negative by less than 1%. There is sufficient margin to bound these effects.

As part of the reload safety evaluation process, the fully withdrawn RCCA position which is selected for use throughout each cycle will be evaluated.

3.0 SUMMARY

The staff has reviewed and evalauated the licensee's request. Because the proposed change will remove or insert the RCCAs only slightly into or out of the active fuel region, the staff expects negligible effects from the proposed change as reported in the licensee's evaluation. Based on the above considerations, we find the proposed Technical Specification changes acceptable.

4.0 ENVIRONMENTAL CONSIDERATION

These amendments change a requirement with respect to installation or use of a facility component located within the restricted areas as defined in 10 CFR Part 20 and changes 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 these amendments involve 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.

5.0 CONCLUSION

The Commission made a proposed determination that this amendment involves no significant hazards consideration which was published in the Federal Register (55 FR 28472) on July 11, 1990, 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) 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: M. Chatterton

Dated: September 7, 1990

AMENDMENT NO. 83 TO FACILITY OPERATING LICENSE NO. NPR-2 - FARLEY, UNIT 1
AMENDMENT NO. 76 TO FACILITY OPERATING LICENSE NO. NPF-8 - FARLEY, UNIT 2

Docket File
NRC PDR
Local PDR
PDII-1 Reading
S. Varga (14E4)
G. Lainas
E. Adensam
P. Anderson
S. Hoffman(2)
OGC
D. Hagan (MNBB 3302)
E. Jordan (MNBB 3302)
G. Hill (4) (P1-137)
Wanda Jones (P-130A)
J. Calvo (11D3)
R. Jones (8E23)
ACRS (10)
GPA/PA
OC/LFMB

cc: Farley Service List