

March 29, 2002

Mr. J. A. Scalice
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY NUCLEAR PLANT, UNIT 3 - ISSUANCE OF AMENDMENTS
REGARDING THE SAFETY LIMIT MINIMUM CRITICAL POWER RATIO
(TAC NO. MB3485) (TS 416)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment No. 234 to Facility Operating License No. DPR-68 for the Browns Ferry Nuclear Plant, Unit 3. The amendment is in response to your application dated November 1, 2001, as supplemented March 15, 2002. The amendment would revise the safety limit minimum critical power ratio value in Technical Specification 2.1.1.2.

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Kahtan N. Jabbour, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-296

Enclosures: 1. Amendment No. 234 to
License No. DPR-68
2. Safety Evaluation

cc w/enclosures: See next page

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TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-296

BROWNS FERRY NUCLEAR PLANT, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 234
License No. DPR-68

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Tennessee Valley Authority (the licensee) dated November 1, 2001, as supplemented March 15, 2002, 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. DPR-68 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 234, 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 from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Richard P. Correia, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: March 29, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 234

FACILITY OPERATING LICENSE NO. DPR-68

DOCKET NO. 50-296

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the areas of change.

REMOVE

2.0-1

INSERT

2.0-1

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 234 TO FACILITY OPERATING LICENSE NO. DPR-68

TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT, UNIT 3

DOCKET NO. 50-296

1.0 INTRODUCTION

By letter dated November 1, 2001 (Reference 1), as supplemented by a letter dated March 15, 2002 (Reference 2), the Tennessee Valley Authority (TVA or the licensee) submitted proposed changes to the Browns Ferry Nuclear Plant, Unit 3 (BFN-3) Technical Specifications (TS). The requested changes would revise the safety limit minimum critical power ratio (SLMCPR) values in TS 2.1.1.2 for Unit 3 Cycle 11 operation. The BFN-3 Cycle 11 core has 764 fuel assemblies, of which there are 284 fresh GE14 bundles, 288 once burned GE13 fuel bundles, and 192 twice burned GE13 fuel bundles. The March 15, 2002, letter provided clarifying information that did not change the scope of the original amendment request or the initial proposed no significant hazards consideration determination.

2. EVALUATION

The licensee's proposed revision of the TS is described below.

2.1 TS 2.1.1 Reactor Core Safety Limits

The licensee proposed to change the SLMCPR values for BFN-3 Cycle 11 operation from 1.10 to 1.08 for two recirculation loop operation and from 1.12 to 1.10 for single recirculation loop operation with the reactor vessel steam dome pressure greater than or equal to 785 psig and core flow greater than or equal to 10 percent of rated core flow.

The licensee described the approved methodologies used to calculate the SLMCPR value for the proposed TS change in the submittal. The Cycle 11 SLMCPR analysis was performed by Global Nuclear Fuel (GNF) using plant- and cycle-specific fuel and core parameters, and the U.S. Nuclear Regulatory Commission (NRC) approved methodologies including NEDC-32505P, Revision 1 (R-Factor Calculation Method for GE11, GE12 and GE13 Fuel), NEEDO-10958-A (GETAB), NEDC-32601P (Methodology and Uncertainties for Safety Limit MCPR Evaluations), NEDC-32694P (Power Distribution Uncertainties for Safety Limit MCPR Evaluation), and Amendment 25 to NEDE-24011-P-A (GESTAR II).

ENCLOSURE

The staff has reviewed: (1) the justification for the changes on the SLMCPR from 1.10 to 1.08 for two recirculation loop operation and from 1.12 to 1.10 for single recirculation loop operation using the approach stated in Amendment 25 to GESTAR II; (2) the issue relating to the staff's March 2001 audit on GNF data bases for GEXL14 correlation; and (3) the applicability of the previous approved methodologies to GE14 fuel.

The NRC staff has identified discrepancies in data bases while conducting an audit of GNF's GEXL correlation development for the Duane Arnold plant-specific power uprate application in March 2001. The details of the deficiencies are described in a letter to the Duane Arnold licensee dated June 4, 2001. Based on the findings of that audit, the NRC staff requested that the licensee provide a justification as to why the overall GEXL14 correlation uncertainty remains valid for Browns Ferry. In its March 15, 2002, response to the NRC staff's request for additional information (RAI), the licensee provided the results of additional analyses that indicated there is sufficient conservatism for BFN-3 Cycle 11 SLMCPR values to accommodate the penalty due to expected top-peaked power shape at the end of cycle during BNF-3 Cycle 11 operation. The NRC staff has reviewed the licensee's evaluation and finds it acceptable because the NRC-approved methodologies were used.

To address an audit issue about the applicability of the previously approved methodologies to GE14 fuel, GNF submitted two letters for the NRC staff's review: (1) FLN-2001-016, from Glen A. Watford to NRC, "Confirmation of 10x10 Fuel Design Applicability to Improved SLMCPR, Power Distribution and R-Factor Methodologies," dated September 24, 2001; and (2) FLN-2001-017, from Glen A. Watford to NRC, "Confirmation of Applicability of GEXL14 Correlation and Associated R-Factor Methodology for Calculating SLMCPR Values in Core Containing GE14 Fuel," dated October 1, 2001. The NRC staff has reviewed GNF's evaluation contained in the two letters and has found the approach, supplemented by the use of a higher interim GEXL14 correlation uncertainty discussed in the licensee's RAI response dated March 15, 2002, acceptable for this application because NRC-approved methodologies were used and further tests in the future have been planned and committed to by GNF to revise the GEXL correlation.

The NRC staff has reviewed the licensee's application dated November 1, 2001, and the licensee's March 15, 2002, response to the NRC staff's RAI, including the detailed summary results of the analysis for BFN-3 Cycle 11 operation in Table 1 of Enclosure 1 of the application and Table 1 of Enclosure 1 in the response to the RAI, to determine whether the proposed changes to BNF-3 Cycle 11 SLMCPR values were justified. Based on the results of the review, the staff finds that the SLMCPR analysis for BFN-3 Cycle 11 operation using the plant- and cycle-specific parameters in conjunction with the approved method is acceptable. The proposed Cycle 11 SLMCPR values will ensure that 99.9 percent of the fuel rods in the core will not experience boiling transition, which satisfies the requirements of General Design Criterion 10 of Appendix A to 10 CFR Part 50 regarding acceptable fuel design limits. The staff has also concluded that the justification for analyzing and determining the SLMCPR value of 1.08 for two recirculation loop operation and 1.10 for single recirculation loop operation is acceptable for BFN-3 Cycle 11 because NRC approved methodologies are used. Also, the analysis shows that SLMCPR values for BFN-3 Cycle 11 operation have sufficient conservatism to accommodate the penalty due to top-peaked power shape at the end of cycle.

3.0 SUMMARY

The NRC staff has reviewed TVA's request to revise the TS for BFN-3, Cycle 11 operation. Based on its review, the staff finds that the proposed changes are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Alabama State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 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 (67 FR 933). 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.

6.0 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.

7. REFERENCES

1. Letter (TVA-BFN-TS-416) from T. E. Abney to NRC, "Browns Ferry Nuclear Plant (BFN) - Unit 3 - Technical Specifications (TS) Change 416 - Revised Safety Limit Minimum Critical Power Ratio 9SLMCPR) (TAC No. MB0436)," November 1, 2001.
2. Letter (TVA-BFN-TS-416) from T. E. Abney to NRC, "Browns Ferry Nuclear Plant (BFN) - Unit 3 - Technical Specifications (TS) Change 416 - Revised Safety Limit Minimum Critical Power Ratio (SLMCPR) - Response to NRC Request for Additional Information (TAC No. MB3485), March 15, 2002.

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Date: March 29, 2002

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BROWNS FERRY NUCLEAR PLANT

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