

September 5, 2003

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, UNITS 1, 2 AND 3, RE: ISSUANCE OF  
AMENDMENTS (TAC NOS. MB7743, MB7744, AND MB7745) (TS 421)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment Nos. 247, 284, and 242 to Facility Operating Licenses Nos. DPR-33, DPR-52 and DPR-68 for the Browns Ferry Nuclear Plant (BFN), Units 1, 2, and 3, respectively. These amendments are in response to your application dated February 13, 2003, as supplemented April 14, 2003.

The amendments revise Technical Specification (TS) 4.2.1 "Fuel assemblies," to modify the fuel design description to encompass Framatome Advanced Nuclear Power fuel assemblies, and also to modify TS 4.3 "Fuel Storage," to remove nomenclature specific to Global Nuclear Fuels analysis methods. The licensee will revise the Updated Final Safety Analysis Report for BFN Units 1, 2, and 3, to reflect the above changes.

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 Nos. 50-259, 50-260 and 50-296

Enclosures: 1. Amendment No. 247 to  
License No. DPR-33  
2. Amendment No. 284 to  
License No. DPR-52  
3. Amendment No. 242 to  
License No. DPR-68  
4. Safety Evaluation

cc w/enclosures: See next page

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ADAMS Accession No. ML032520003

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\*\* See previous concurrence

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TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-259

BROWNS FERRY NUCLEAR PLANT UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 247  
License No. DPR-33

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Tennessee Valley Authority (the licensee) dated February 13, 2003, as supplemented April 14, 2003, 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-33 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 247, 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 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

Allen G. Howe, 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: September 5, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 247

FACILITY OPERATING LICENSE NO. DPR-33

DOCKET NO. 50-259

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

4.0-1

4.0-2

INSERT

4.0-1

4.0-2

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260

BROWNS FERRY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 284  
License No. DPR-52

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Tennessee Valley Authority (the licensee) dated February 13, 2003, as supplemented April 14, 2003, 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-52 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 284, 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 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION  
**/RA/**

Allen G. Howe, 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: September 5, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 284

FACILITY OPERATING LICENSE NO. DPR-52

DOCKET NO. 50-260

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

4.0-1

4.0-2

INSERT

4.0-1

4.0-2

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-296

BROWNS FERRY NUCLEAR PLANT, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 242  
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 February 13, 2003, as supplemented April 14, 2003, 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. 242, 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 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Allen G. Howe, 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: September 5, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 242

FACILITY OPERATING LICENSE NO. DPR-68

DOCKET NO. 50-296

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

4.0-1

4.0-2

INSERT

4.0-1

4.0-2

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 247 TO FACILITY OPERATING LICENSE NO. DPR-33  
AMENDMENT NO. 284 TO FACILITY OPERATING LICENSE NO. DPR-52  
AMENDMENT NO. 242 TO FACILITY OPERATING LICENSE NO. DPR-68  
TENNESSEE VALLEY AUTHORITY  
BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3  
DOCKET NOS. 50-259, 50-260, AND 50-296

## 1.0 INTRODUCTION

By letter dated February 13, 2003, (Reference 1, ADAMS Accession No. ML030500359), as supplemented by letter dated April 14, 2003 (Reference 2, ADAMS Accession No. ML031070254), the Tennessee Valley Authority (TVA or the licensee) submitted a request for changes to the Technical Specifications (TSs) for Browns Ferry Nuclear Plant (BFN), Units 1, 2, and 3. The request would revise: (1) TS 4.2.1, "Fuel Assemblies," to modify the fuel design description to encompass Framatome Advanced Nuclear Power (FANP) fuel assemblies, and (2) TS 4.3, "Fuel Storage," to remove nomenclature specific to Global Nuclear Fuels (GNF) analysis methods such as k-infinity. The licensee will revise the Updated Final Safety Analysis Report for BFN Units 1, 2, and 3, to reflect the above changes.

The proposed TS changes will make the fuel design description and storage compatible with the approved fuel designs and analysis methods for both GNF and FANP. Therefore, they would allow TVA to receive, store, and use the Framatome fuel assemblies at BFN, Units 1, 2, and 3. The April 14, 2003, letter provided clarifying information that did not change the scope of the original request or the initial proposed no significant hazards consideration determination.

## 2.0 EVALUATION

### 2.1 REGULATORY EVALUATION

The licensee has chosen the option contained in Title 10 of the *Code of Federal regulations* (10 CFR), Section 50.68, "Criticality accident requirements," allowing them to meet the requirements of Section 50.68(b) in lieu of those of 10 CFR 70.24. This section sets forth requirements for k-effective. The U.S. Nuclear Regulatory Commission (NRC) staff review will ensure that the proposed revision to TSs 4.2.1 and 4.3 will continue to meet these regulatory requirements.

ENCLOSURE 4

## 2.2 TECHNICAL EVALUATION

BNF is in process of switching fuel vendors; its current (resident) fuel is fabricated by GNF. The new fuel type is fabricated by FANP, specifically, the new fuel (co-resident) will be the ATRIUM-10 fuel type. This fuel is currently approved for use in a number of plants in both the United States (e.g., La Salle, Susquehanna, River Bend and Grand Gulf) and Europe.

The ATRIUM-10 fuel design differs from the GNF fuel design in that the ATRIUM-10 fuel design utilizes an interior water channel to increase neutron moderation, while the GNF fuel design utilizes water rods in the interior of the assembly. As a result of this difference, the first TS change consists of modifying TS 4.2.1, "Fuel Assemblies," to reference the water channels, as well as the water rods, so that the TS description is applicable to both GNF and FANP fuels. At present, the BNF current TS 4.2.1 covers only fuel manufactured by GNF. The change to TS 4.2.1 is administrative in nature, in that it simply adds water channels to the fuel assembly description. Therefore, the staff finds the requested change acceptable. In addition, the staff is currently reviewing a licensee's request to add in TS 5.6.5, Core Operating Limits report (COLR), references to the FANP analytical methods that will be used for ATRIUM-10 fuel. The staff's approval of this request, along with meeting other requirements, would allow the licensee to load this fuel in the reactor.

The second TS change consists of deleting TS 4.3.1.1.a and TS 4.3.1.2.a. These TSs, which address fuel storage criticality design criteria for spent fuel pool and new fuel storage, specifically prescribe the use of in-core k-infinity design criteria. GNF criticality analysis methodology for fuel storage uses in-core k-infinity criteria. However, FANP criticality analyses do not use this approach. Therefore, the retention of this methodology in the TSs would introduce an incongruity with the FANP methodology, which uses an in-pool k-effective (on an assembly basis) criticality criteria equal to or less than 0.95. FANP determines the pool k-effective by using computer codes such as KENO, and includes cycle-specific factors such as fuel enrichments, gadolinia loadings, fuel types and the worst (most conservative) credible conditions.

Based on its review, the staff finds that the FANP methodology ensures conformance with 10 CFR 50.68(b) in that k-effective in the pool will remain unchanged. Therefore, the staff finds this change acceptable. In addition, the deletion of TSs 4.3.1.1.a and 4.3.1.2.a is acceptable because the remaining TS 4.3.1 provisions will continue to provide adequate requirements for the purpose of specifying fuel storage criticality requirements.

## 3.0 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.

## 4.0 ENVIRONMENTAL CONSIDERATION

The amendments change 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 amendments involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding (68 FR 15763). Accordingly, the 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 the amendments.

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

Principal Contributor: Anthony C. Attard, NRR

Date: September 5, 2003

Mr. J. A. Scalice  
Tennessee Valley Authority

BROWNS FERRY NUCLEAR PLANT

cc:

Mr. Karl W. Singer, Senior Vice President  
Nuclear Operations  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. Mark J. Burzynski, Manager  
Nuclear Licensing  
Tennessee Valley Authority  
4X Blue Ridge  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. James E. Maddox, Vice President  
Engineering & Technical Services  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. Timothy E. Abney, Manager  
Licensing and Industry Affairs  
Browns Ferry Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Decatur, AL 35609

Mr. Ashok S. Bhatnagar, Site Vice President  
Browns Ferry Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Decatur, AL 35609

Senior Resident Inspector  
U.S. Nuclear Regulatory Commission  
Browns Ferry Nuclear Plant  
P.O. Box 149  
Athens, AL 35611

General Counsel  
Tennessee Valley Authority  
ET 11A  
400 West Summit Hill Drive  
Knoxville, TN 37902

State Health Officer  
Alabama Dept. of Public Health  
RSA Tower - Administration  
Suite 1552  
P.O. Box 303017  
Montgomery, AL 36130-3017

Mr. Robert J. Adney, General Manager  
Nuclear Assurance  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Chairman  
Limestone County Commission  
310 West Washington Street  
Athens, AL 35611

Mr. Robert G. Jones, Plant Manager  
Browns Ferry Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Decatur, AL 35609