



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 228 TO FACILITY OPERATING LICENSE NO. DPR-33  
AMENDMENT NO. 243 TO FACILITY OPERATING LICENSE NO. DPR-52  
AMENDMENT NO. 203 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

On September 12, 1995, the U.S. Nuclear regulatory Commission (NRC) approved issuance of a revision to 10 CFR Part 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors" which was subsequently published in the Federal Register on September 26, 1995, and became effective on October 26, 1995. The NRC added Option B "Performance-Based Requirements" to allow licensees to voluntarily replace the prescriptive requirements of 10 CFR Part 50 Appendix J with testing requirements based on both overall performance and performance of individual components.

By letter dated December 8, 1995, and supplemented on January 10, 1996, the Tennessee Valley Authority, the licensee for Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3 proposed changes to the technical specifications to implement 10 CFR Part 50, Appendix J, Option B performance-based requirements. The licensee has established a "Primary Containment Leakage Rate Testing Program," and proposed adding this program to the technical specifications. The program references Regulatory Guide 1.163, "Performance-Based Containment Leak Test Program" which specifies a method acceptable to the NRC for complying with Option B.

The supplemental information provided on January 10, 1996 did not affect the staff's proposed finding of no significant hazards considerations.

2.0 BACKGROUND

Compliance with Appendix J provides assurance that the primary containment, including those systems and components which penetrate the primary containment, do not exceed the allowable leakage rate values specified in the technical specifications and bases. The allowable leakage rate is determined so that the leakage assumed on the safety analyses is not exceeded.

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On February 4, 1992, the NRC published a notice in the Federal Register (57 FR 4166) discussing a planned initiative to begin eliminating requirements marginal to safety which impose a significant regulatory burden. 10 CFR Part 50 Appendix J, "Primary Containment Leakage Testing for Water-Cooled Power Reactors" was considered for this initiative and the staff undertook a study of possible changes to this regulation. The study examined the previous performance history of domestic containments and examined the effect on risk of a revision to the requirements of Appendix J. The results of this study are reported in NUREG-1493, "Performance-Based Leak-Test Program."

Based on the results of this study, the staff developed a performance-based approach to containment leakage rate testing. On September 12, 1995, the NRC approved issuance of this revision to 10 CFR Part 50, Appendix J, which was subsequently published in the Federal Register on September 26, 1995, and became effective on October 26, 1995. The revision added Option B "Performance-Based Requirements" to Appendix J to allow licensees to voluntarily replace the prescriptive testing requirements of Appendix J with testing requirements based on both overall and individual component leakage rate performance.

Regulatory Guide 1.163, September 1995, "Performance-Based Containment Leak Test Program," was developed as a method acceptable to the NRC staff for implementing Option B. This regulatory guide states that the Nuclear Energy Institute (NEI) document NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J" provides methods acceptable to the NRC staff for complying with Option B with four exceptions which are described therein.

Option B requires that the regulatory guide or other implementation document used by a licensee to develop a performance-based leakage testing program must be included, by general reference, in the plant technical specifications.

Regulatory Guide 1.163 specifies an extension in Type A test frequency to at least one test in 10 years based upon two consecutive successful tests. Type B tests may be extended up to a maximum of 10 years based upon completion of two consecutive successful tests and Type C tests may be extended up to 5 years based on two consecutive successful tests.

By letter dated October 20, 1995, NEI proposed technical specifications implementing Option B. After some discussion, the staff and NEI agreed on a set of technical specifications which were transmitted to NEI in a letter dated November 2, 1995. These technical specifications are to serve as a model for licensees to develop plant-specific technical specifications in preparing amendment requests to implement Option B.

In order for a licensee to determine the performance of each component, factors that are indicative of, or affect, performance, such as an administrative leakage limit, must be established. The administrative limit is selected to be indicative of the potential onset of component degradation. Although these limits are subject to NRC inspection to assure that they are selected in a reasonable manner, they are not technical specification

requirements. Failure to meet an administrative limit requires the licensee to return to the minimum value of the test interval.

Option B requires that the licensee maintain records to show that the criteria for Type A, B, and C tests have been met. In addition, the licensee must maintain comparisons of the performance of the overall containment system and the individual components to show that the test intervals are adequate. These records are subject to NRC inspection.

### 3.0 EVALUATION

The licensee's December 8, 1995 and January 10, 1996 letters to the NRC proposed technical specifications changes to permit the use of Option B of the revised 10 CFR Part 50 Appendix J, establish a "Primary Containment Leakage Rate Testing Program," and proposes to add this program to the technical specifications. The program references Regulatory Guide 1.163, "Performance-Based Containment Leak Test Program" which specifies a method acceptable to the NRC for complying with Option B. Option B permits a licensee to choose Type A; or Type B and C; or Type A, B, and C; testing to be done on a performance basis. The licensee has elected to perform Type A, B, and C testing on a performance basis. This requires a change to existing technical specifications 4.7.A.2 Primary Containment and the addition of specification 6.8.4.3 which contains the Performance-Based Leakage Rate Program.

The technical specification changes proposed by the licensee are in compliance with the requirements of Option B and consistent with the guidance of Regulatory Guide 1.163 and the generic technical specifications of the November 2, 1995 letter and are therefore acceptable to the staff.

The licensee also proposes to add a note to surveillance requirement 4.7.A.2.g which states:

An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test.

This note is included in the BWR-4 Improved Standard Technical Specifications, NUREG-1433. The Bases for this note state that this note is reasonable since either air lock door is capable of providing a fission product barrier in the event of a design basis accident. The staff finds that the BFN design is consistent with the standard established by NUREG-1433, and that this change is acceptable for BFN Units 1, 2, and 3.

### 5.0 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.

### 6.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR

Part 20 and changes the surveillance requirements. 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 (61 FR 1637). 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.

#### 7.0 CONCLUSION

The Commission has concluded, based upon 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, and (2) such activities will be conducted in compliance with the Commission's regulations, and (3) issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Richard Lobel

Dated: February 22, 1996

Mr. Oliver D. Kingsley, Jr.  
Tennessee Valley Authority

BROWNS FERRY NUCLEAR PLANT

cc:

Mr. O. J. Zeringue, Sr. Vice President  
Nuclear Operations  
Tennessee Valley Authority  
3B Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. Pedro Salas  
Site Licensing Manager  
Browns Ferry Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Decatur, AL 35602

Dr. Mark O. Medford, Vice President  
Engineering & Technical Services  
Tennessee Valley Authority  
3B Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

TVA Representative  
Tennessee Valley Authority  
11921 Rockville Pike, Suite 402  
Rockville, MD 20852

Mr. D. E. Nunn, Vice President  
New Plant Completion  
Tennessee Valley Authority  
3B Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW., Suite 2900  
Atlanta, GA 30323

Mr. R. D. Machon, Site Vice President  
Browns Ferry Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Decatur, AL 35602

Mr. Leonard D. Wert  
Senior Resident Inspector  
Browns Ferry Nuclear Plant  
U.S. Nuclear Regulatory Commission  
10833 Shaw Road  
Athens, AL 35611

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

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

Mr. P. P. Carrier, Manager  
Corporate Licensing  
Tennessee Valley Authority  
4G Blue Ridge  
1101 Market Street  
Chattanooga, TN 37402-2801

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

Mr. T. D. Shriver  
Nuclear Assurance and Licensing  
Browns Ferry Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Decatur, AL 35602