



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609

TVA-BFN-TS-356

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10 CFR 50.4  
10 CFR 50.12  
10 CFR 50.90  
10 CFR 50, Appendix J, Option A, Section II.H.4  
10 CFR 50, Appendix J, Option A, Section III.C.2.A  
10 CFR 50, Appendix J, Option A, Section III.C.3  
10 CFR 50, Appendix J, Option B  
10 CFR 100, Appendix A, Section VI(a)

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Gentlemen:

In the Matter of	)	Docket Nos. 50-259
Tennessee Valley Authority	)	50-260
		50-296

**BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2 AND 3 -  
TECHNICAL SPECIFICATION (TS) NO. 356 AND COST BENEFICIAL  
LICENSING ACTION (CBLA) 08 - INCREASE IN ALLOWABLE MAIN STEAM  
ISOLATION VALVE (MSIV) LEAKAGE RATE AND REQUEST FOR  
EXEMPTIONS FROM 10 CFR 50, APPENDIX J, OPTION A,  
SECTIONS II.H.4, III.C.2(A), AND III.C.3, 10 CFR 50,  
APPENDIX J, OPTION B, AND 10 CFR 100, APPENDIX A,  
SECTION VI(A)**

This letter provides for NRC Staff review and approval of the technical basis for implementation of the revised severe accident source term at BFN. TVA is a pilot plant in the collaborative efforts of NRC, the Nuclear Energy Institute (NEI), and the Electric Power Research Institute (EPRI) for implementation of the NRC research efforts documented in NUREG-1465, "Accident Source Terms for Light-Water Nuclear Power Plants."

#### BACKGROUND

On July 27, 1994, the NRC Staff invited the NEI to serve as the focal point for discussions with the nuclear industry involving the new source term at operating reactors to explore options for implementation of this new information.

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In response to this request, we initiated<sup>1</sup> a project to evaluate the feasibility of implementing NUREG-1465 at BFN to allow re-evaluation of mitigation systems for improved efficiency and safety. We considered the potential for plant changes based on release timing, iodine chemical form, gap release fraction, fuel release fractions, and containment removal mechanisms.

Our assessment agreed with the NRC conclusions: some features of the new source term could lead to relaxation of certain operational requirements, while others could lead to safety enhancements. Based on the potential benefits and the NRC commitment to work with the industry in implementing this new technology, we committed the financial resources to develop two closely related pilot applications: increase the allowable MSIV leakage rate, and removal of charcoal filters from Standby Gas Treatment (SGTS) and Control Room Emergency Ventilation Systems (CREVS). The benefits of these applications are described later in this letter.

Our plant specific technical analyses have been prepared by EPRI as a Tailored Collaboration project (i.e., co-funded by TVA and EPRI). This collaboration has allowed an optimum level of technology transfer between the development of EPRI's "Generic Framework for Application of Revised Source Term to Operating Plants," dated November 15, 1995, and our plant specific applications. Our applications will serve as examples of operating plant changes which can be justified. Our analyses have been designed to complement the generic framework document. This close relationship should help the NRC Staff in their review. As we indicated during meetings held between the NRC Staff and the NEI Source Term Task Force on June 1, 1995, and October 12, 1995, we are making our submittal before the end of 1995.

#### PROPOSED CHANGES

Utilizing the revised accident source term for light-water nuclear power plants contained in NUREG-1465, the proposed change increases the allowable leak rate specified in TSS from 11.5 standard cubic feet per hour (scf/hr) for any one MSIV to 100 scf/hr for any one MSIV with a total maximum pathway leakage rate of 250 scf/hr through all four main steam lines. If the leakage rate of 100 scf/hr for any one

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<sup>1</sup> TVA is a member of both NEI's Source Term Task Force and EPRI's Revised Source Term Project Utility Advisory Group.

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main steamline isolation valve or a total maximum pathway leakage rate of 250 sch/hr through all four main steam lines is exceeded, repairs and retest shall be performed to correct the condition.

To support the earliest possible staff review of this pilot use of the recently revised source term contained in NUREG-1465, TVA is pursuing a phased approach in the submittal of the information necessary to support the staff review and approval of this application. TVA is aggressively pursuing the design of a safety related system to control suppression pool pH after a design basis accident. Details regarding the methods and mechanisms for controlling suppression pool pH and confirmation of the implementation schedule for this system will be provided by February 15, 1996. TVA is also pursuing an evaluation of the seismic adequacy of the turbine building and the Unit 2 main steam piping and components downstream of the main steam isolation valves, including the need for manual operator actions to ensure an analyzed flow path, based on a walkdown of the Unit 3 components and a high level of confidence in the similarity between the units. The confirmatory Unit 2 walkdowns of these components will be completed during the Unit 2 Cycle 8 refueling outage, which is scheduled to begin on March 22, 1996. TVA requests the staff be prepared to approve the revised TS before April 5, 1996. However, the staff should note that the design and installation of a safety related system for control of suppression pool pH and the need for walkdowns and modifications of the piping and components downstream of the Unit 2 MSIVs represents a scheduler challenge that may delay the requested implementation date for this proposed Technical Specification and exemption requests until the Unit 3 Cycle 7 refueling outage, which is scheduled to begin March 21, 1997. TVA will inform the staff in the February 15, 1996 submittal regarding suppression pool pH control of TVA's ability to implement this system during the Unit 2 Cycle 8 outage.

The post-BFN design basis accident release of the revised source term through the MSIVs also incorporates plant safety improvements by implementing the guidance contained in NEDC-31858P, Revision 2, "BWROG Report for increasing MSIV Leakage Rate Limits and Elimination of Leakage Control Systems." As explicitly described in NEDC-31858P, implementation of this recently developed safety improvement requires TVA to request exemption from the requirements of 10 CFR 50, Appendix J, Option A, Sections II.H.4, III.C.2.A, and III.C.3, 10 CFR 50, Appendix J, Option B, and 10 CFR 100, Appendix A, Section VI(a), in accordance with the provisions of 10 CFR 50.12.

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As described above, we are also preparing an application that supports removal of charcoal filters from SGTS and CREVS. Those changes are being submitted for NRC review in a separate submittal.

#### **SAFETY IMPROVEMENTS**

As described above, we consider that implementation of these applications will result in significant safety improvements. First, by putting in place a method of controlling pH in the suppression pool following an accident, BFN will be able to retain fission products in solution within the containment. We consider this to be an optimum way of managing fission products resulting from postulated design basis and severe accidents. The net result is an increase in the safety margin associated with onsite and offsite effluent releases.

Second, a more accurate modeling of design basis or severe accidents in operator training scenarios. Specifically, in terms of where and when effluents are released and distributed both within the plant and the potential offsite release paths.

#### **REGULATORY FRAMEWORK**

As is to be expected, the regulatory framework of rules and regulations may have to be adjusted in order to implement the new source term in operating reactors. We believe that our submittals will help NRC and NEI identify the regulatory issues that must be addressed by future licensees desiring to implement the new source term. However, under the existing regulatory provisions, we will require both license amendments and regulatory exemption requests to implement the new source term.

In accordance with the provisions of 10 CFR 50.4 and 50.90, TVA is submitting a request for an amendment (TS-356) to licenses DPR-33, DPR-52 and DPR-68 to change the TSs for Units 1, 2 and 3. TVA has determined that there are no significant hazards considerations associated with the proposed change to the Technical Specifications and that the change is exempt from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9). The BFN Plant Operations Review Committee has reviewed this proposed change and determined that operation of BFN Units 1, 2 and 3 in accordance with the proposed change will not endanger the



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health and safety of the public. Due to the phased approach for the submittal of the information necessary to support approval of this change, BFN Nuclear Safety Review Board (NSRB) review is proceeding in parallel with NRC review. NSRB approval will be obtained prior to the final submittal of the information necessary to support NRC approval of the proposed Technical Specification and exemption requests. In accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and enclosures to the Alabama State Department of Public Health.

Enclosure 1 to this letter provides the description and evaluation of the proposed change. This includes TVA's determination that the proposed change does not involve a significant hazards consideration, and is exempt from environmental review. Enclosure 2 contains copies of the appropriate Units 1, 2 and 3 TS pages marked-up to show the proposed change. Enclosure 3 forwards the revised Units 1, 2 and 3 TS pages that incorporate the proposed change.

The two exception requests required to implement the new source term allow the exclusion of the measured MSIV leakage from the combined local leak rate test results and the use of alternate methods for the seismic evaluation of the capability of the main steam piping and condensers to process MSIV leakage following a design basis event, coincident with a seismic event. TVA believes the request for these exemptions to be reasonable considering their prior plant-specific approval at other facilities, the efforts currently underway to approve this methodology for generic applications, and the desirability for pilot applications to be permitted to identify reasonable regulatory changes that are necessitated by the application of the revised accident source term to operating plants. TVA has determined that the granting of these exemptions will not endanger life or property or the common defense and security and is in the public interest because it reduces an unnecessary burden on TVA.

Enclosure 4 provides the specifics of TVA's exemption request for the exclusion of the measured MSIV leakage from the combined local leak rate test results. Enclosure 5 provides the specifics of TVA's exemption request for the use of alternate methods for evaluating the seismic capability of the main steam piping and condensers. Enclosure 6 contains a summary of commitments contained in this submittal.

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It should be noted that the proposed change to Surveillance Requirement 4.7.A.2.g conflicts with the change proposed by TS 364, "Implementation of 10 CFR 50, Appendix J, Option B, Performance Based Testing". If TS 364 is approved first, the proposed change to Surveillance Requirement 4.7.A.2.g contained in this TS is no longer required. If this TS change is approved first, the proposed change to Surveillance Requirement 4.7.A.2.g contained in TS 364 can be issued and need not be modified.

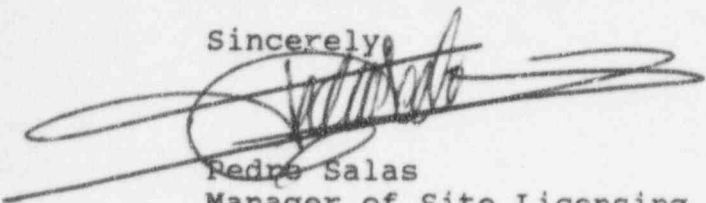
#### COST BENEFICIAL LICENSING ACTION

TVA has determined that this request represents a CBLA because the continued application of the current TID-14844 source term involves high cost and low safety benefit. TVA estimates that approval of this exemption could save approximately \$1,000,000 per year due to the significant cost savings associated with the potential reduction in critical path maintenance activities.

TVA will implement this Technical Specification on a per unit basis. TVA requests that the revised TS be made effective within 15 days of NRC approval and formal TVA notification that the seismic adequacy of the turbine building and downstream components has been demonstrated for each BFN unit.

If you have any questions about this change, please telephone me at (205) 729-2636.

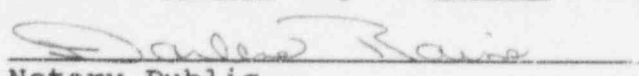
Sincerely,



Pedro Salas  
Manager of Site Licensing

Enclosures  
cc: See page 7

Subscribed and sworn to before me  
on this 22 day of December 1995.



Notary Public

My Commission Expires 4/13/99

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Enclosures

cc (Enclosures):

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