

March 11, 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, UNITS 2 AND 3 — ENVIRONMENTAL  
ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT FOR AN  
EXEMPTION FROM THE REQUIREMENTS OF 10 CFR PART 50 APPENDIX G  
(TAC NOS. MB2751 AND MB2752)

Dear Mr. Scalice:

Enclosed is a copy of the Environmental Assessment and Finding of No Significant Impact related to your application for exemption dated August 17, 2001, as supplemented on December 14, 2001, and February 6, 2002. The proposed exemption would allow Tennessee Valley Authority to apply the methodologies of the American Society of Mechanical Engineers (ASME) Code Case N-640, "Alternative Requirement Fracture Toughness for Development of P-T [Pressure-Temperature] Limit Curves for ASME B&PV [Boiler and Pressure Vessel] Code, Section XI, Division 1," for the reactor vessel circumferential welds at Browns Ferry Plant, Units 2 and 3.

The assessment is being forwarded to the Office of the Federal Register for publication.

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. 50-260 and 50-296

Enclosure: Environmental Assessment

cc w/encl: See next page

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UNITED STATES NUCLEAR REGULATORY COMMISSION

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260 AND 50-296

BROWNS FERRY PLANT, UNITS 2 AND 3

ENVIRONMENTAL ASSESSMENT AND FINDING OF

NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of an exemption from Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix G, for Facility Operating License Nos. DPR-52 and DPR-68, issued to Tennessee Valley Authority (TVA, the licensee), for operation of the Browns Ferry Plant, located in Limestone county Alabama. Therefore, as required by 10 CFR 51.21, the NRC is issuing this environmental assessment and finding of no significant impact.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

The proposed action would allow TVA to apply the methodologies of the American Society of Mechanical Engineers (ASME) Code Case N-640, "Alternative Requirement Fracture Toughness for Development of P-T [Pressure-Temperature] Limit Curves for ASME B&PV [Boiler and Pressure Vessel] Code, Section XI, Division 1," for the Browns Ferry Plant reactor vessel circumferential welds.

The proposed action is in accordance with the licensee's application dated August 17, 2001, as supplemented by letters dated December 14, 2001, and February 6, 2002.

The Need for the Proposed Action:

Appendix G of 10 CFR Part 50, requires that P-T limits be established for reactor pressure vessels during normal operating and hydrostatic pressure or leak-testing conditions. Specifically, 10 CFR Part 50, Appendix G, states that "The appropriate requirements on both

the pressure-temperature limits and the minimum permissible temperature must be met for all conditions.” Appendix G further specifies that the requirements for these limits are the ASME Code, Section XI, Appendix G, limits.

To address the provisions of amendments to the Technical Specifications P-T limits, the licensee requested in its submittals that the staff exempt Browns Ferry Units 2 and 3 from the application of the specific requirements of 10 CFR Part 50, Appendix G, and permit the use of ASME Code Case N-640. Code Case N-640 permits the use of an alternate reference fracture toughness for reactor vessel materials in determining P-T limits.

Application of the methodology specified in Appendix G to Section XI of the ASME Code for the development of facility P-T limits may not be necessary to meet the underlying purpose of the regulations, which is to protect the reactor coolant pressure boundary from brittle fracture. To satisfy this purpose, the staff had previously required the use of the conservative assumptions in Appendix G to 10 CFR Part 50, because the conservatism was initially necessary due to the limited knowledge of the fracture toughness of reactor pressure vessel (RPV) materials at that time. Since 1974, additional knowledge has been gained about RPV materials which demonstrates that the lower bound on fracture toughness resulting from the application of this ASME Code Case would greatly exceed the margin of safety required to protect the public and safety from potential RPV failures. Exemptions to employ an alternative to the methodology specified in Appendix G to Section XI of the ASME Code which result in the development of less conservative P-T limits may be granted by the NRC staff. The use of ASME Code Case N-640 represents one of these alternatives.

Licensees may request the use of alternative methodologies which continue to meet the underlying intent of the regulations for many reasons. Regarding Browns Ferry Plant, application of the specific requirements of Appendix G to Section XI of the ASME Code would result in the need for the licensee to maintain an unnecessarily high vessel temperature during

pressure testing which would have an adverse impact on personnel safety because of the corresponding higher temperatures which would exist inside containment as leakage walkdown inspections are conducted. Further, less restrictive P-T limit curves based on the application of ASME Code Case N-640 will enhance overall plant safety by minimizing challenges to operators during pressure testing, heatup, cooldown, and normal power operation. Thus, pursuant to 10 CFR 50.12(a)(2)(ii), the underlying purpose of the regulations will continue to be served.

Environmental Impacts of the Proposed Action:

The NRC staff has completed its evaluation of the proposed action and concludes, as set forth below, that there are no significant environmental impacts associated with the use of the alternative analysis methods to support the revision of the RPV P-T limits for the Browns Ferry Plant, Units 2 and 3.

The proposed action will not significantly increase the probability or consequences of accidents, no changes are being made in the types of effluents that may be released off site, and there is no significant increase in occupational or public radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential nonradiological impacts, the proposed action does not have a potential to affect any historic sites. It does not affect nonradiological plant effluents and has no other environmental impact. Therefore, there are no significant nonradiological environmental impacts associated with the proposed action.

Accordingly, the NRC concludes that there are no significant environmental impacts associated with the proposed action.

Environmental Impacts of the Alternatives to the Proposed Action:

As an alternative to the proposed action, the staff considered denial of the proposed action (i.e., the “no-action” alternative). Denial of the application would result in no change in

current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources:

The action does not involve the use of any different resource than those previously considered in the Final Environmental Statement for the Browns Ferry Plant, Units 2 and 3, dated April 1975.

Agencies and Persons Consulted:

On February 28, 2002, the staff consulted with the Alabama State official, Kirk Whatley, of the Office of Radiation Control, regarding the environmental impact of the proposed action. The State official had no comments.

FINDING OF NO SIGNIFICANT IMPACT

On the basis of the environmental assessment, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated August 17, 2001, as supplemented by letters dated December 14, 2001, and February 6, 2002. Documents may be examined, and/or copied for a fee, at the NRC's Public Document Room (PDR), located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible electronically from the Agencywide Documents Access and Management System (ADAMS) Public Electronic Reading Room on the internet at the NRC Web site, <http://www.nrc.gov/reading-rm/adams/html>. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS, should contact the NRC PDR Reference staff by telephone at 1-800-397-4209 or 301-415-4737, or by e-mail to [pdrr@nrc.gov](mailto:pdrr@nrc.gov).

Dated at Rockville, Maryland, this 11th day of March 2002.

FOR THE NUCLEAR REGULATORY COMMISSION

***/RA/***

Richard P. Correia, Chief, Section 2  
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**BROWNS FERRY NUCLEAR PLANT**

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