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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST FOR THE IMPLEMENTATION

OF 10 CFR 50.55a REQUIREMENTS RELATED TO

REPAIR AND REPLACEMENT ACTIVITIES FOR CONTAINMENT

TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT, UNIT 1

DOCKET NOS. 50-390

INTRODUCTION

In Federal Register Notice No. 154, Volume 61, dated August 8, 1996, the U. S. Nuclear Regulatory Commission (NRC) amended its regulations to incorporate, by reference, the 1992 Edition of Subsections IWE and IWL of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (the Code)into 10 CFR 50.55a, "Code and Standards." Specifically, 10 CFR 50.55a(b)(2) and 10 CFR 50.55a(g)(6)(ii)(B) were added to the regulations. These Code subsections provide the requirements for inservice inspection (ISI) of Class CC (concrete) and Class MC (metallic) containments of light-water reactors. The effective date of the amended rule was September 9, 1996, and has accelerated implementation provisions such that licensees are to incorporate the requirements into their ISI program and complete the first containment inspection within five years of the effective date. In addition, any repair or replacement activity to be performed after the effective date must be in accordance with the respective requirements of Subsection IWE or IWL. However, a licensee may submit a request for relief from the implementation date of the amended rule.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) on the date 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b), subject to the limitations and modifications listed therein and subject to Commission approval.

Alternatives to Code requirements may be used by nuclear licensees when authorized by the Commission if the proposed alternatives to the requirements are shown to provide an acceptable level of quality and safety [10 CFR 50.55a(a)(3)(i)], or if compliance with the Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety [10 CFR 50.55a(a)(3)(ii)].

RELIEF REQUEST AND PROPOSED ALTERNATIVE

The Tennessee Valley Authority (TVA, the licensee), in a letter dated March 26, 1997 requested relief for its Watts Bar Nuclear Plant (WBN) for an interim period of one year (i.e., until September 9, 1997) from full compliance with the rule change as it is related to the implementation of repair or replacement (RR) activities in accordance with ASME Boiler and Pressure Vessel Code, Section XI, of the 1992 Edition with the 1992 Addenda for Class MC (metal containments). The licensee's request states as follows:

> On September 9, 1996, a rule change to 10 CFR 50.55a was made effective that required licensees to initiate an advanced program and schedule for the implementation of the requirements of ASME Section XI, Subsections IWE and IWL as modified within the rule. This rule change required licensees to apply the requirements of Subsections IWE and IWL to the inservice inspection and repairs and replacement activities associated with primary metal and concrete containment structures, their supports, and appurtenances.... The revised rule gave a required completion date of September 9, 2001, which allows five years to review the plant design, determine those attributes which are required to be included within the scope of the programs, create the necessary processes and procedures, and perform the required inspections. In parallel with this effort, Code based programs such as TVA's ASME Section XI Repair and Replacement Program would be revised to incorporate the ancillary program requirements.
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> On November 6, 1996, NRC issued a letter to the NEI clarifying the NRC's position on the applicability of the ASME Section XI rules and requirements for repairs and replacements associated with the recent rule change to 10 CFR 50.55a. The November 6, 1996 letter to NEI states that the requirements for repairs or replacements on containment structures must be applied starting September 9, 1996. TVA currently does not have the procedures and processes in place to fully comply with this interpretation.
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> It should be noted that any components within the scope of the rule are also within the scope of TVA's QA program. These components are generally categorized as TVA Safety Classification B. This corresponds to an ANS [American Nuclear Society] Safety Classification 2a. TVA's classifications impose strict Code and Quality Assurance requirements on work activities associated with these components.... The major differences between the current

TVA QA program based repair and replacement requirements for containment components and the ASME Section XI, Subsection IWE, based requirements, are the performance of the required preservice examinations following the repair or replacement, and the involvement of the Authorized Nuclear Inservice Inspector (ANII).

TVA is in the planning process of fully developing the necessary programs for implementation of the Subsection IWE rules. Currently, our preliminary schedule shows that we are plannning to have the necessary repair and replacement procedures in place by August 8, 1997. In addition, TVA program personnnel are planning to complete initial reviews of design drawings by September 9, 1997. Walkdowns of these items for verification are scheduled commencing with the next available unit outages after this initial design drawing review. Our current preliminary schedule inidcates that we will start our actual first period first interval examinations for compliance to the new rule on the next available outages at the specific sites, as currently scheduled. For WBN, the currently scheduled initial examination date is February 26, 1999, on Unit 1....

In summary, the above proposed processes provide for the restoration of the containment structures following repairs and replacements to conditions that meet at least the original construction requirements and provide for traceable documentation of the work performed. This interim process results in a level of quality and safety equivalent to that required under the 10 CFR 50.55a rule change.

EVALUATION

The licensee states that all improvements during the interim period of one year are to be performed in accordance with the scope of the current containment ISI and repair and replacement program, which is based on the 1989 Edition of the ASME Code. In addition, the licensee states that in an effort to comply with the stated NRC position that repair or replacement programs must be implemented starting September 9, 1996, it is implementing a group of interim program principles that will be used during the interim period until the appropriately integrated programs and procedures can be written, approved for use, and issued for implementation. These principles include provisions for ANII involvement in repair and replacement activities, documentation, inspection and nondestructive examination procedures, preservice/baseline inspections, containment pressure and leak rate testing, materials procurement, special requirements and processes, compliance with existing ASME Section XI RR guidelines and definitions, handling of emergent issues, and work planning. The staff finds that the interim program will provide a sufficient level of containment integrity during the period of relief between September 9, 1996 and September 9, 1997.

CONCLUSION

Based on the information provided, the staff determined that the licensee has presented an adequate justification for its proposed alternative to the requirements of 1992 Edition of the ASME Code, Section XI, Subsection IWE, until September 9, 1997. The staff determined that the proposed alternative use of the 1989 Edition of the ASME Code and the associated quality assurance requirements, as supplemented by the site specific quality assurance program would provide an acceptable level of quality and safety and, therefore, is authorized pursuant to 10 CFR 50.55a(a)(3)(i) until September 9, 1997.

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Date: August 14, 1997