

June 9, 2000

Mr. J. A. Scalice  
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SUBJECT: RELIEF FROM ASME CODE REQUIREMENTS FOR CHECK VALVE  
INSERVICE TESTING REQUIREMENTS AT WATTS BAR NUCLEAR PLANT  
(TAC NO. MA8602)

Dear Mr. Scalice:

By letter dated March 29, 2000, the Tennessee Valley Authority (TVA) submitted a request for relief from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, inservice testing (IST) requirements for certain valves at Watts Bar Nuclear Plant Unit 1 under Title 10, *Code of Federal Regulations* (10 CFR), Section 50.55a(a)(3)(ii). The request addressed Item PV-13, Revision 1, wherein TVA requests relief from the ASME OM Standard, Part 10, Paragraph 4.3.2.4(c), IST Requirement. As an alternative to the requirement, the U.S. Nuclear Regulatory Commission (NRC) approved Relief Request PV-13 in NUREG-0847, Supplement No. 14, "Safety Evaluation Report Related to the Operation of Watts Bar Nuclear Plant, Units 1 and 2," dated December 1994. The approved alternative to full-flow check valve testing was consistent with Staff Position 2 in Attachment 1 to NRC Generic Letter 89-04, "Guidance on Developing Acceptable Inservice Testing Programs." In the March 29, 2000, submittal, TVA proposed to alter the stated time at which the valves are to be disassembled and inspected from "every refueling outage" to "once per fuel cycle" to allow "online" disassembly and inspection of these valves.

The staff has reviewed the information provided in TVA's March 29, 2000, letter. The staff's evaluation and conclusions are contained in the Enclosure. Based on the information provided in Relief Request PV-13, Revision 1, the staff concludes that compliance with the Code requirements would result in a hardship without a compensating increase in the level of quality and safety, and that TVA's proposed alternative will provide reasonable assurance of the components' operational readiness. Accordingly, the NRC staff authorizes the use of such alternatives pursuant to 10 CFR 50.55a(a)(3)(ii).

Sincerely,

**/RA/**

Richard P. Correia, Chief, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosure: Safety Evaluation

cc w/enclosure: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
OF RELIEF REQUESTS FROM ASME SECTION XI REQUIREMENTS  
CHECK VALVE INSERVICE TESTING  
FOR  
TENNESSEE VALLEY AUTHORITY  
WATTS BAR NUCLEAR PLANT  
DOCKET NUMBER 50-390

1.0 INTRODUCTION

Title 10 of the Code of Federal Regulations (10 CFR), Section 50.55a, requires that inservice testing (IST) of certain American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 pumps and valves be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code applicable Edition and Addenda, except where relief has been requested and granted or proposed alternatives have been authorized by the U.S. Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 50.55a(f)(6)(i), or (a)(3)(i), or (a)(3)(ii). In order to obtain authorization or relief, the licensee must demonstrate that (1) conformance is impractical for its facility; (2) the proposed alternative provides an acceptable level of quality and safety; or (3) compliance would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a, the Commission may grant relief from or authorize proposed alternatives to the ASME Code requirements upon making the necessary findings. The NRC staff's findings with respect to Tennessee Valley Authority's (TVA's or licensee's) proposed alternative are contained in this safety evaluation.

2.0 RELIEF REQUEST SUBMITTAL

The ASME Code of record for Watts Bar Nuclear Plant, Unit 1 (WBN) is the 1989 Edition. The first IST 10-year interval commenced with commercial operation of the plant on May 27, 1996. As an alternative to full-flow IST of check valves, the Code (OM Standard, Part 10, Paragraph 4.3.2.4(c)) allows disassembly "every refueling outage" to verify operability of check valves. As an alternative to the Code requirement for inspecting every valve, the NRC approved Relief Request PV-13 in NUREG-0847, Supplement No. 14, "Safety Evaluation Report Related to the Operation of Watts Bar Nuclear Plant, Units 1 and 2," dated December 1994. The approved alternative to full-flow check valve testing was consistent with Staff Position 2 in Attachment 1 to NRC Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs." By letter dated March 29, 2000, TVA submitted Relief Request PV-13, Revision 1, pursuant to 10 CFR 50.55a(a)(3)(ii), for use at WBN. In their request, TVA proposed to alter

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the stated time at which the valves are to be disassembled and inspected from “every refueling outage” to “once per fuel cycle” to allow “online” disassembly and inspection of the four check valves in the Containment Spray System. The function of these check valves is to open to allow the passage of flow from either the containment spray or the residual heat removal pumps to the containment spray or residual heat removal header. The TVA letter also indicated that the revision only applied to four of the six check valves covered by PV-13, Revision 0. The check valves covered by this request are 1-CKV-72-548-A, 1-CKV-72-549-B, 1-CKV-72-562-A, and 1-CKV-72-563-B. The other two valves addressed by PV-13, Revision 0, have not been included by TVA within the scope of PV-13, Revision 1. The requested relief would be valid for the remainder of the first 10-year IST interval.

### 3.0 RELIEF REQUEST PV-13, REVISION 1

TVA requests relief from the requirements of the OM Standard, Part 10, Paragraph 4.3.2.4(c) for check valves 1-CKV-72-548-A, 1-CKV-72-549-B, 1-CKV-72-562-A, and 1-CKV-72-563-B. The IST requirement for valves in the 1989 Edition of the ASME B&PV Code, Section XI, Subsection IWW defers to the OM Standard, Part 10. Paragraph 4.3.2.4(c) of the OM Standard, Part 10, states that, “As an alternative to the testing in paragraphs (a) or (b), disassembly every refueling outage to verify operability of check valves may be used” [emphasis added]. Revision 1 to PV-13 requests only to alter the stated time at which the valves are to be disassembled and inspected from “during refueling outages” to “once per fuel cycle” to allow “online” disassembly and inspection of these valves.

### 3.1 LICENSEE’S BASIS FOR RELIEF

TVA determined that the OM Standard, Part 10, Paragraph 4.3.2.4(c), IST requirement to disassemble and inspect all four header check valves during each refueling outage imposes an excessive burden. The requirement to perform the IST disassembly and inspection activities during each refueling outage window impacts the scheduling of refueling outage activities and has the potential of extending the outage duration. The check valves are located in the containment dome. Obtaining access to perform the disassembly and inspection activities on these valves requires the construction of extensive scaffolding on top of the polar crane bridge. The presence of the scaffolding on the bridge restricts operation of the crane in support of other refueling-related activities.

### 3.2 PROPOSED ALTERNATIVE

The licensee’s proposed alternative is to use a sampling disassembly and inspection program for the IST of these four valves that is consistent with NRC GL 89-04, Attachment 1, Position 2, *except for the time of performance*. The licensee’s proposed alternative is to perform the sample valve disassembly and inspection IST activity *once per fuel cycle* in lieu of *every refueling outage*. This would require an online sample disassembly and inspection of a different one of the group’s four valves *once per fuel cycle*. Performance of the activity will occur at the outage interval, but not necessarily during the refueling outage period.

#### 4.0 EVALUATION

The licensee proposes an alternative to the requirement of the OM Standard, Part 10, Paragraph 4.3.2.4(c), pursuant to 10 CFR 50.55a(a)(3)(ii), which requires the licensee to demonstrate that compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The licensee's proposed alternative is consistent with staff's Position 2, outlined in NRC GL 89-04, except for the time of performance of the sample disassembly and inspection activity. In Position 2 of GL 89-04, the staff states, "Where the licensee determines that it is burdensome to disassemble and inspect all applicable valves each refueling outage, a sample disassembly and inspection plan for groups of identical valves in similar applications may be employed." Check valves 1-CKV-72-548-A, 1-CKV-549-B, 1-CKV-562-A, and 1-CKV-563-B, are located in the containment dome area. Access to the valves for disassembly and inspection activities at the elevation in that area, requires the construction of extensive scaffolding on top of the polar crane bridge. The scaffolding and associated activities on the polar crane bridge, seriously restrict the use of the crane in support of other ongoing refueling related activities. This restriction adversely impacts the scheduling of the refueling outage activities, because the use of the polar crane becomes a significant critical path issue, with a most-likely outcome of extending the outage duration. The staff finds that performing IST of the check valves during refueling outages results in a hardship without a compensating increase in the level of quality and safety because there is no technical reason the inspections must be performed during outage conditions. The Containment Spray System would only be used during a loss-of-coolant or steamline break accident. Therefore, from the standpoint of inspecting these valves, there are no plant-condition or system differences that would affect the safety or validity of these inspections that exist only during refueling outages. Stipulation of performing certain IST inspections only during refueling outages reflects only when those inspections have been historically performed and is not required for the protection of public health and safety.

The staff finds that TVA's proposed IST alternative to disassemble and inspect the group of identified valves on a sampling basis once per fuel cycle, as described in Relief Request PV-13, Revision 1, provides an adequate method to assure operational readiness of the valves for the reasons discussed in the previous paragraph.

#### 5.0 CONCLUSION:

Based on the NRC staff's review of the information provided in Relief Request PV-13, Revision 1, the staff concludes that compliance with the code requirements would result in a hardship without a compensating increase in the level of quality and safety, and that the licensee's proposed alternatives will provide reasonable assurance of operational readiness of the valves. Therefore, the proposed alternative, to disassemble and inspect the identified group of four valves on a sampling basis once per fuel cycle, is authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

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Date: June 9, 2000

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