



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

John A. Scalice
Site Vice President, Watts Bar Nuclear Plant

AUG 08 1997

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

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket No. 50-390

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - REQUEST FOR ADDITIONAL
INFORMATION REGARDING THE WATTS BAR NUCLEAR PLANT, UNIT 1 FIRST
10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN AND ASSOCIATED
REQUESTS FOR RELIEF (TAC NO. M95440)

The purpose of this letter is to provide the response to NRC's
request for additional information dated June 20, 1997 concerning
the Inservice Inspection (ISI) Program.

Enclosure 1 provides responses to NRC's areas of review.
Enclosure 2 provides the planning and schedule for Categories
B-G-1 and B-G-2. Revised Relief Requests for ISPT-03 and ISPT-06
are included in Enclosure 3 and 4 respectively.

If you should have any questions, please contact P. L. Pace at
(423) 365-1824.

Sincerely,

J. A. Scalice

Enclosure
cc: See page 2

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U.S. Nuclear Regulatory Commission

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cc (Enclosure):

NRC Resident Inspector
Watts Bar Nuclear Plant
1260 Nuclear Plant Road
Spring City, Tennessee 37381

Mr. Robert E. Martin, Senior Project Manager
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852

U.S. Nuclear Regulatory Commission
Region II
Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30303

Michael T. Anderson
INEL Research Center
2151 North Boulevard
PO Box 1625
Idaho Falls, Idaho 83415-2209

ENCLOSURE 1

WATTS BAR NUCLEAR PLANT UNIT 1
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
INSERVICE INSPECTION PROGRAM

The following provides the response to NRC's request for additional information concerning TVA's Inservice Inspection (ISI) Program submitted May 9, 1996 and subsequent additional information dated November 25, 1996 and March 24, 1997.

NRC'S REVIEW 2.1

Previously the licensee noted that Examination Category B-G-1 and B-G-2, bolting examinations, would be coordinated with maintenance activities. If maintenance is not performed on components required to be examined, the bolting would be examined in place at the end of the interval.

Although later editions of the Code state that deferral is permissible, the NRC staff has not approved this change. The Code sampling philosophy is based on performing a percentage of examinations each period. By implementing the licensee's approach, it is possible for a large percent of the bolting examinations to be deferred to the end of an interval, this would not satisfy the periodic examination requirement. The Code requires that the bolting associated with Examination Category B-L-2 and B-M-2 components selected for examination, also be examined. The VT-1 visual examination may be performed when the bolting is removed for maintenance, repair, or volumetric examination. However, because the Code provides for the examination of bolting in place, a schedule of examinations each period is required. Confirm that the percentage requirements of Tables IWB-2412-1 and IWC-2412-1 will be satisfied.

RESPONSE

The percentage requirements of Tables IWB-2412-1 and IWC-2412-1 will be satisfied as implemented by the ISI Planning/Schedule Tables for Code Components in the ISI Program, 1-TRI-0-10, Appendices A and B.

The planning/schedule table containing Examination Category B-G-1 and Examination Category B-G-2 is enclosed in Enclosure 2 of this letter. The revised schedule for Item Nos. B6.180, B7.60 and B7.70 is shown as shaded.

NRC'S REVIEW 2.2

In Request for Relief ISPT-03, the licensee noted an addition to the corrective measures as follows:

"When the engineering evaluation determines that the bolted connection possesses sufficient structural integrity for continued operation, removal of the bolt may be deferred to the next system

ENCLOSURE 1

WATTS BAR NUCLEAR PLANT UNIT 1
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
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outage of sufficient duration to allow the system to be removed from service and depressurized."

Later editions of the Code have provided an alternative to the removal of all bolting at the leaking connection. The licensee's approach is very subjective; furthermore, deferral of bolt removal when degradation is occurring is unacceptable. Therefore, the licensee should consider withdrawing this part of the proposed alternative. Describe the action proposed regarding this concern.

RESPONSE

The 1989 Edition of ASME Section XI requires the removal and visual inspection (VT-3) of all bolting at a bolted connection found leaking during the performance of a system pressure test. Beginning with the 1990 Addenda to the 1989 Edition of ASME Section XI, the Corrective Measures (IWA-5250) were revised to require the removal and visual inspection (VT-3) of the one bolt nearest the source of leakage for a bolted connection found leaking during the performance of a system pressure test. Although the 1990 Addenda does provide a relaxation of the Corrective Action requirement, experience at TVA's other operating nuclear power plants have shown that in some instances this relaxation is not sufficient to prevent unnecessary system unavailability.

TVA proposes in ISPT-03 to perform an evaluation of each bolted connection which is found to leak during a Section XI inservice pressure test to determine the ability of the connection to sustain its structural integrity until the next system outage. This evaluation considers the size, duration and cause of the leak, the visual evidence of corrosion with the connection assembled, the corrosive nature of the leaking fluid in relation to the materials in contact with the leaking fluid, experience with similar bolting material in similar environments, and the proximity of other safety-related equipment that could be affected by the leak. If the evaluation is inconclusive, or determines that the connection lacks sufficient strength to preserve its structural integrity until the next system outage, the bolt nearest, or most affected by the leak will be removed, VT-1 examined, and evaluated in accordance with IWB-3140, "Inservice Inspection Visual Examinations." This evaluation is to be documented in the record of test. If the removed bolting shows evidence of rejectable degradation or corrosion, the remaining bolts shall be removed, receive a VT-1 visual examination and be evaluated in accordance with IWB-3140. The evaluation criteria is based on objective information pertaining to the materials and fluid involved, and observation of the leak and condition of the connection.

Relief Request ISPT-03 is revised as shown in Enclosure 3 of this letter to clarify the nature of this evaluation.

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NRC'S REVIEW 2.3

In Request for Relief ISPT-03, the licensee stated:

"Should the engineering evaluation determine that sufficient integrity does not exist in the connection for continued operation, then the bolt most affected by the leakage will be removed and VT-3 examined."

Note 5 under Examination Category B-G-1 requires a VT-1 visual examination of bolting when leakage is detected when performing VT-2 visual examinations in accordance with the requirements of IWA-5250(a)(2). The licensee has proposed to perform a VT-3 visual as required by IWA-5250(a)(2). It has been noted that the Code is not consistent on the visual examination requirement for corrective action when leakage occurs at bolted connections. Based on the examination criteria and acceptance criteria associated with visual examinations, the Staff has determined that a VT-1 visual examination is most appropriate. Confirm that a VT-1 visual examination will be performed in lieu of the currently proposed VT-3 examination.

RESPONSE

Relief Request ISPT-03 is revised as shown in Enclosure 3 to reflect this change to require performance of a VT-1 examination in lieu of the VT-3 examination.

NRC REVIEW 2.4

In Request for Relief ISPT-06, the licensee has proposed an alternative to the Code-required removal of insulation on borated systems for VT-2 visual examination during pressure tests. This alternative is similar to Code Case N-533. However, the licensee has proposed the following alternative.

"The insulation of Code Class 1 and Class 2 bolted connections will be removed for VT-2 examinations at each refueling outage, when the systems are depressurized, at the frequency prescribed by the ASME Code."

The purpose of a VT-2 visual examination is to look for evidence of leakage so that, if leakage has occurred, corrective action may be taken. Because certain Class 2 systems are required for the safe shutdown of the plant (i.e., provide emergency shutdown features), it is technically prudent to monitor the integrity of their bolted connections in a similar manner to Class 1 systems. For Class 2 systems, the Code requires pressure tests on a periodic basis. The Staff has determined that because hydrostatic

ENCLOSURE 1

WATTS BAR NUCLEAR PLANT UNIT 1 RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION INSERVICE INSPECTION PROGRAM

pressure test requirements can be satisfied by pressure tests performed at normal operating pressure and because the subject VT-2 test can be performed during refueling outages by looking for evidence of leakage, the subject insulation removal frequency is not pressure-test dependent. Therefore, the requirement for insulation removal is the same for both Class 1 and 2 borated systems and licensees are required to remove insulation and perform VT-2 visual examinations of all bolted connections in Class 1 and 2 systems borated for control of reactivity during each refueling outage. Confirm that insulation removal will be performed for both Class 1 and 2 borated systems each refueling outage.

RESPONSE

Relief Request ISPT-06 was submitted as a proposed alternative for ASME Code Class 1 and 2 piping systems located inside containment for which system pressure testing could reasonably be performed at the end of an outage, as the systems were being returned to service. In response to this item, WBN has revised the relief request to be applicable to only Class 1 items. Removal of insulation from Class 2 pressure retaining bolted connections every refueling outage may, in a majority of insulated Class 2 systems, represent a significant increase in radiation exposure than would occur under the current requirements for pressure testing of Class 2 systems. Therefore, removal of insulation on Class 2 items, and examination during pressure testing, will be performed in accordance with ASME Section XI and is no longer covered by this relief request. Insulation is removed from Class 1 pressure retaining bolted connections each refueling outage, as proposed in the relief request.

Relief Request ISPT-06 has been revised, and included with this submittal as Enclosure 4, to apply only to Class 1 systems which is consistent with ASME Code Case N-533.

NRC REVIEW 2.5

In Request for Relief 1-ISI-2, the licensee discussed the burden associated with clamp removal for examination of integrally welded attachments. Because of the overall reduction in integral attachments being examined when implementing Code Case N-509, licensees are required to remove clamps, as applicable, to satisfy the examination requirements. It is unclear whether relief is being requested from clamp removal associated with integral attachment weld examinations. Describe the intent of the discussion on clamp removal.

ENCLOSURE 1

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RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
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RESPONSE

It is not TVA's intent to request relief from clamp removal for integral attachment weld examinations. The intent of the discussion on clamp removal, together with the subsequent paragraph in the Basis for Relief section of the Request for Relief, is the same as stated above, to show that by using Code Case N-509, the number of integral attachments being examined is reduced overall thus reducing the number of clamps required to be removed. This would have an overall reduction in cost and radiation exposure for examination of integral attachments.

ENCLOSURE 2

EXAMINATION CATEGORIES B-G-1 AND B-G-2 WITH REVISED ITEM NUMBERS B6.180, B7.60 AND B7.70

| EXAM CAT. | ITEM NO. | DESCRIPTION | EXAM METHOD | NUMBER OF COMPONENTS IN ITEM NUMBER | % TO BE EXAMINED DURING INTERVAL | NUMBER TO BE EXAMINED IN THE INTERVAL | FREQUENCY OF EXAMINATION OR DEFERRAL OF INSPECTION TO END OF INTERVAL | NUMBER TO BE EXAMINED IN THE FIRST PERIOD | NUMBER TO BE EXAMINED IN THE SECOND PERIOD | NUMBER TO BE EXAMINED IN THE THIRD PERIOD | ISI DRAWING NUMBER |
|--------------|----------|--|-------------|-------------------------------------|----------------------------------|---------------------------------------|---|---|--|---|--------------------|
| B-G-1 | | Pressure Retaining Bolting, Greater Than 2" In Diameter | | | | | | | | | |
| B-G-1 | B6.10 | RV Closure Head Nuts | MT | 54 | 100% | 54 | Deferral Not Permissible | 18 | 18 | 18 | ISI-0427- |
| B-G-1 | B6.20 | RV Closure Studs, in place | Volumetric | Included in Item No. B6.30 | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-1 | B6.30 | RV Closure Studs, when removed | MT & UT | 54 | 100% | 54 | Deferral Not Permissible | 18 | 18 | 18 | ISI-0427-C |
| B-G-1 | B6.40 | RV Threads in Flange | UT | 54 | 100% | 54 | Deferral Not Permissible | 18 | 18 | 18 | ISI-0427-C |
| B-G-1 | B6.50 | RV Closure Washers, Bushings Note: RV does not have bushings only washers | VT-1 | 54 | 100% | 54 | Deferral Not Permissible | 18 | 18 | 18 | ISI-0427-C |
| B-G-1 | B6.60 | Pressurizer Bolts and Studs | Volumetric | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-1 | B6.70 | Pressurizer Flange Surface, When Connection Disassembled | Visual | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-1 | B6.80 | Pressurizer Nuts, Bushings, and Washers | Visual | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-1 | B6.90 | SG Bolts and Studs | Volumetric | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-1 | B6.100 | SG Flange Surface, When Connection Disassembled | Visual | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-1 | B6.110 | SG Nuts, Bushings, and Washers | Visual | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |

ENCLOSURE 2

EXAMINATION CATEGORIES B-G-1 AND B-G-2 WITH REVISED ITEM NUMBERS B6.180, B7.60 AND B7.70

| EXAM CAT. | ITEM NO. | DESCRIPTION | EXAM METHOD | NUMBER OF COMPONENTS IN ITEM NUMBER | % TO BE EXAMINED DURING INTERVAL | NUMBER TO BE EXAMINED IN THE INTERVAL | FREQUENCY OF EXAMINATION OR DEFERRAL OF INSPECTION TO END OF INTERVAL | NUMBER TO BE EXAMINED IN THE FIRST PERIOD | NUMBER TO BE EXAMINED IN THE SECOND PERIOD | NUMBER TO BE EXAMINED IN THE THIRD PERIOD | ISI DRAWING NUMBER |
|-----------|----------|---|-------------|-------------------------------------|--|---------------------------------------|---|---|--|---|--------------------|
| B-G-1 | B6.120 | Heat Exchanger Bolts and Studs | Volumetric | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-1 | B6.130 | Heat Exchanger Flange Surfaces When Connection Disassembled | Visual | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-1 | B6.140 | Heat Exchanger Nuts, Bushings, and Washers | Visual | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-1 | B6.150 | Piping Bolts and Studs | Volumetric | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-1 | B6.160 | Piping Flange Surface, When Connection Disassembled | Visual | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-1 | B6.170 | Piping Nuts, Bushings, and Washers | Visual | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-1 | B6.180 | RCP Bolts & Studs | UT | 4 Pumps/24 bolts per pump | Pump(s) selected for examination under B-L-2 | 1 set of 24 bolts | Deferral Not Permissible | | 0 | 1 set of 24 bolts | ISI-0447-C |
| B-G-1 | B6.190 | RCP Flange Surface, when connection is disassembled | VT-1 | 4 Pumps/ 24 bolts per pump | Pump(s) selected for examination under B-L-2 | 24 bolts/pump | Deferral Not Permissible | Only if B-L-2 examination is performed | Only if B-L-2 examination is performed | Only if B-L-2 examination is performed | ISI-0447-C |
| B-G-1 | B6.200 | RCP Nuts, Bushings, and Washers | Visual | None | N/A | N/A | N/A | N/A | | | |
| B-G-1 | B6.210 | Valve Bolts & Studs | Visual | None | Pump(s) selected for examination under B-L-2 | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |

ENCLOSURE 2

EXAMINATION CATEGORIES B-G-1 AND B-G-2 WITH REVISED ITEM NUMBERS B6.180, B7.60 AND B7.70

| EXAM CAT. | ITEM NO. | DESCRIPTION | EXAM METHOD | NUMBER OF COMPONENTS IN ITEM NUMBER | % TO BE EXAMINED DURING INTERVAL | NUMBER TO BE EXAMINED IN THE INTERVAL | FREQUENCY OF EXAMINATION OR DEFERRAL OF INSPECTION TO END OF INTERVAL | NUMBER TO BE EXAMINED IN THE FIRST PERIOD | NUMBER TO BE EXAMINED IN THE SECOND PERIOD | NUMBER TO BE EXAMINED IN THE THIRD PERIOD | ISI DRAWING NUMBER |
|--------------|----------|--|-------------|--|--|---------------------------------------|---|---|--|---|--------------------|
| B-G-1 | B6.220 | Valve Flange Surface, when connection is disassembled | Visual | None | Valves selected for examination under B-M-2 | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-1 | B6.230 | Valve Nuts, Bushings, and Washers | Visual | None | Valves selected for examination under B-M-2 | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-2 | | Pressure Retaining Bolting, 2" and Less in Diameter | | | | | | | | | |
| B-G-2 | B7.10 | Reactor Vessel Bolts, Studs, and Nuts | Visual | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-2 | B7.20 | Pressurizer Bolts, Studs, and Nuts | VT-1 | One Manway/16 Bolts | 100% | One Manway/16 Bolts | Deferral Not Permissible | 0 | One Manway | 0 | CHM-2570-C |
| B-G-2 | B7.30 | SG Bolts, Studs, and Nuts | VT-1 | 4 Gen/2 Manways/16 Bolts each | 100% | 4 Gen/2 Manways/16 Bolts each | Deferral Not Permissible | 4 Manways | 2 Manways | 2 Manways | CHM-2660-C |
| B-G-2 | B7.40 | Heat Exchanger Bolts, Studs, and Nuts | Visual | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| B-G-2 | B7.50 | Piping Bolts, Studs, and Nuts | Surface | | | | | | | | |
| | B7.50 | CVCS | VT-1 | 4 Connections | 100% | 4 | Deferral Not Permissible | 1 | 1 | 2 | ISI-0050-C |
| | B7.50 | RCS | VT-1 | 5 Connections | 100% | 5 | Deferral Not Permissible | 1 | 2 | 2 | ISI-0365-C |
| | B7.50 | RHRS | VT-1 | None | 100% | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| | B7.50 | SIS | VT-1 | 4 Connections | 100% | 4 | Deferral Not Permissible | 1 | 1 | 2 | CHM-2758-C |
| B-G-2 | B7.60 | Pumps Bolts, Studs, and Nuts | VT-1 | 4 Pumps/2 Sets/1 set 12 bolts, 1 set 8 bolts | Pump(s) selected for examination under B-L-2 | 1 set 12 bolts and 1 set 8 bolts | Deferral Not Permissible | 0 | 0 | 1 set 12 bolts and 1 set 8 bolts | ISI-0447-C |

ENCLOSURE 2

EXAMINATION CATEGORIES B-G-1 AND B-G-2 WITH REVISED ITEM NUMBERS B6.180, B7.60 AND B7.70

| EXAM CAT. | ITEM NO. | DESCRIPTION | EXAM METHOD | NUMBER OF COMPONENTS IN ITEM NUMBER | % TO BE EXAMINED DURING INTERVAL | NUMBER TO BE EXAMINED IN THE INTERVAL | FREQUENCY OF EXAMINATION OR DEFERRAL OF INSPECTION TO END OF INTERVAL | NUMBER TO BE EXAMINED IN THE FIRST PERIOD | NUMBER TO BE EXAMINED IN THE SECOND PERIOD | NUMBER TO BE EXAMINED IN THE THIRD PERIOD | ISI DRAWING NUMBER |
|-----------|----------|--|-------------|---|--|---------------------------------------|---|---|---|---|--------------------|
| B-G-2 | B7.70 | Valves Bolts, Studs, and Nuts <= 2" diameter | | Reference Appendix E for grouping of valves and list of valves subject to Examination Category B-G-2. | | | | | | | |
| | B7.70 | CVCS | VT-1 | NONE | Valve(s) selected for examination under B-M-2 | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |
| | B7.70 | RCS | VT-1 | 1 Group/ 3 Valves | Valve(s) selected for examination under B-M-2 | At least 1 valve per group | Deferral Not Permissible | 0 | 0 | 1 valve in Group | ISI-0365-C |
| | B7.70 | RHRS | VT-1 | 4 Groups/ 8 Valves | Valve(s) selected for examination under B-M-2 | At least 1 valve per group | Deferral Not Permissible | 1 valve in 1 Group | 1 valve in 1 Group from groups not selected in 1 st period | 1 valve in 2 Groups from groups not selected in 1 st or 2 nd period | CHM-2636-C |
| | B7.70 | SIS | VT-1 | 3 Groups/ 18 Valves | Valve(s) selected for examination under B-M-2 | At least 1 valve per group | Deferral Not Permissible | 1 valve in 1 Group | 1 valve in 1 Group from groups not selected in 1 st period | 1 valve in 1 group from group not selected in 1 st or 2 nd period | CHM-2758-C |
| B-G-2 | B7.80 | CRD Housing Bolts, Studs, and Nuts | Visual | None | Bolts, studs, and nuts in CRD housing when dis-assembled | N/A | Deferral Not Permissible | N/A | N/A | N/A | N/A |

ENCLOSURE 3

REQUEST FOR RELIEF
ISPT - 03

Subject: Bolting examination subsequent to flange leakage occurring during a system pressure test.

Components: All bolting associated with Class 1, 2, and 3 bolted connections which receive a visual examination (VT-2) during the performance of system pressure testing.

Code

Requirements: If leakage occurs at a bolted connection, the bolting shall be removed, VT-3 visually examined for corrosion, and evaluated in accordance with IWA-3100. [IWA-5250(a)(2)].

Basis

For Relief: The 1989 Edition of Section XI requires that all bolting must be removed in the event of a leak at a bolted connection for the purpose of a VT-3 examination and evaluation. The 1990 Addenda to the 1989 Edition of Section XI and later editions recognize that the removal of all the bolting in the connection is unnecessary, if the bolt most affected by the leakage is examined and found to be acceptable by the VT-3 examination. Additionally, the removal of all bolting is unnecessary if the bolting utilized is of a material which is not susceptible to corrosion when in contact with the leaking fluid, such as stainless steel bolting in contact with either water or borated water. The requirement in the 1989 Edition could require placing the associated component or portion of piping out of service possibly resulting in plant shutdown, delaying plant startup, or placing the plant in an unsafe condition for continued operation. Operating experience at TVA's other nuclear plants has indicated that it is not always possible to remove a single bolt from a joint. Therefore, the requirement of the 1990 Addenda to the 1989 Edition, and later editions including the 1992 Edition, cannot always be met. In the case of bolting being removed from a valve bonnet joint or a pump casing joint, it is not always possible to remove the bolt without incurring damage [galled threads] to the component, thus necessitating an additional repair prior to return to service.

ASME Section XI system pressure tests are, as a rule, performed with the system in service. In particular, the Code Class 1 leakage test and several system inservice or functional tests for Code Class 2 systems that interface with the reactor coolant system are performed as the unit is returning to service following each refueling outage. Unnecessary delays for removal and evaluation of bolting at a leaking

ENCLOSURE 3

REQUEST FOR RELIEF
ISPT - 03

connection would delay return of the unit to service. Additionally, for systems that are normally in service in support of normal plant operation during testing, paragraph IWA-5250(a)(2) may require the system be taken out of service and depressurized to permit removal of one of the bolts for visual examination. For certain systems this could require the unit to be removed from production, dependent upon the existing plant and equipment status and the time necessary to remove and replace the bolting.

Although removal and inspection of a fastener is necessary to determine the full extent of corrosion to that particular fastener, this may not be necessary to evaluate the structural integrity of the bolted connection. The structural integrity of the bolted connection is dependent upon several factors, including the amount of leakage, the duration of leakage from inception to correction, the corrosiveness of the fluid, the bolting and flange materials, the number of bolts and the number of bolts exposed to the leak, and a visual evaluation of the connection for corrosion and material loss.

An engineering evaluation of the leak and the affected mechanical connection can determine whether sufficient strength exists in the connection to preserve its structural integrity until the next system outage without a reduction in component safety margin or whether removal of bolting for visual examination in compliance with paragraph IWA-5250(a)(2) must be performed at the present time.

The experience at other TVA nuclear plants, which have a combined total of over 40 years of nuclear unit operation, indicates that, although leaks and subsequent corrosion of fasteners do occur at bolted connections, no failures of fasteners has occurred prior to the detection of the leakage and its repair. This experience demonstrates that the connections have been designed with sufficient safety margin to prevent the failure of bolted connections prior to detection of leakage. In addition to the Section XI inservice pressure test program, WBN utilizes a Borated Water Corrosion Program and plant housekeeping procedures to identify and evaluate system leaks.

The requirement to immediately remove bolting from a mechanical connection when evidence of leakage is detected can create a hardship on the plant by requiring system and even plant shutdown. In view of past experience at TVA nuclear plants, the hardship

ENCLOSURE 3

REQUEST FOR RELIEF
ISPT - 03

invoked by this requirement is not commensurate with the increase in the level of quality or safety that is provided. It is the position of WBN that the requirement of the 1989 Edition of ASME Section XI to immediately remove bolting from a mechanical connection presents a hardship to the plant without providing a commensurate increase in the level of safety or quality. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), it is recommended that relief be granted.

Alternative
Testing:

When evidence of leakage is discovered at a bolted connection during a Section XI inservice pressure test, the connection is evaluated for corrosion and structural integrity with consideration of the following factors, at a minimum:

- A. Size of leak
- B. Duration of leak
- C. The cause of the leak
- D. Bolting and flange material
- E. Visual evidence of corrosion with the connection assembled
- F. Corrosive properties of the fluid in relation to the bolting and flange material
- G. Experience with similar bolting material in similar environments
- H. Location of leak, including degradation of other components in the vicinity of the leakage
- I. History of leakage at this location.

When the evaluation of the above variables determines that the leaking condition has not degraded the fasteners and the bolted connection possesses sufficient strength to maintain the structural integrity of the joint, then no further action is necessary. However, reasonable attempts to stop the leakage shall be taken. If the evaluation of the above variables indicates the need for further evaluation, or, if no evaluation is performed, then the bolt most affected by the leakage will be removed and examined. The bolt will receive a visual VT-1 examination, and be evaluated in accordance with IWB-3140, "Inservice Inspection Visual Examinations." This visual VT-1 examination may be deferred to the next outage of sufficient duration if the evaluation supports continued service. When the removed bolting shows evidence of rejectable degradation, the remaining bolts shall be removed and receive a visual VT-1 examination and evaluation in accordance with IWB-3140.

ENCLOSURE 4

REVISED REQUEST FOR RELIEF
ISPT - 06

Subject: Removal of Code Class 1 Bolted Connection
Insulation for VT-2 Examinations

Components: All insulated Code Class 1 pressure retaining
bolted connections.

Code Requirement: For systems borated for the purpose of
controlling reactivity, insulation shall be
removed from the pressure retaining bolted
connections for visual examination VT-2.
(IWA-5242(a), 1989 Edition ASME Section XI).

In accordance with Table IWB-2500-1 Examination
Category B-P, the VT-2 examination for leakage of
Code Class 1 systems is conducted in conjunction
with a system leakage test performed each
refueling outage.

Basis For Relief: The leakage test of Code Class 1 components is
performed at the completion of each refueling
outage with the unit in hot standby and the
reactor coolant system at full temperature and
pressure. The Section XI Code Class 1 leakage
test is generally the final activity prior to
unit restart following the refueling outage.
Compliance with the Code requirements would
involve holding the unit in the hot standby mode
after completion of the VT-2 examination to allow
replacement of the thermal insulation and removal
of scaffolding. This situation places a hardship
on the plant for the following reasons:

- A. Entering containment to replace thermal
insulation and to remove scaffolding when the
unit is at full temperature jeopardizes the
safety of personnel due to heat stress and
the potential for burns resulting from
contact with hot components.
- B. Insulation replacement activities require
holding the unit in hot standby mode until
all work is completed and all personnel have
exited containment. These activities will
delay the return of the unit to production
for several hours.

The purpose of removing insulation from pressure
retaining bolting for visual examination is to
inspect for borated water leakage that could
cause corrosion of the bolting. Due to the

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deposits of boron crystals that remain where borated water leakage occurs, it is not necessary to actually see the fluid leakage in order to determine where leakage has occurred. Therefore, borated water leakage inspections can be effectively performed when the system is depressurized. For this reason the hardships resulting from Code compliance are not commensurate with the increase in safety or quality achieved. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), it is recommended that relief be granted.

Alternative
Testing:

The alternative test requirements of ASME Code Case N-533 will be performed for Code Class 1 pressure retaining bolted connections. The insulation will be removed and a VT-2 examination performed on bolted connections at each refueling outage when the systems are depressurized. This examination will be performed independent of the system pressure test. The insulation will not be removed from bolted connections during the system pressure test.

The Code Class 1 system pressure tests will be performed at the frequency prescribed by Table IWB-2500-1, Examination Category B-P.