



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

NOV 20 2001

10 CFR 50.55a

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 - AMERICAN SOCIETY OF  
MECHANICAL ENGINEERS (ASME) SECTION XI, INSERVICE INSPECTION -  
REQUEST FOR RELIEF 1-RR-4**

In accordance with 10 CFR 50.55a(g)(5)(iii), TVA is requesting relief to use a temporary non-Code repair until the WBN Spring 2002 refueling outage. A through wall leak was discovered in a section of ASME Code Class 3 essential raw cooling water (ERCW) system piping. This six-inch nominal pipe size segment of piping is located between the ERCW Train B main discharge header and the Unit 1/Unit 2 interface isolation valve. This section of piping cannot be isolated without a plant shutdown to perform a Code repair. Due to the location of this leak, system operability is not affected.

TVA originally submitted a request for relief for this ERCW leak on September 26, 2001. This letter supersedes the September 26, 2001, letter. The decision to supersede that letter resulted following a teleconference call with NRC's WBN Project Manager, M. Padovan, and the reviewer, S. Sheng, on November 6, 2001. As a result of that discussion and to be consistent with NRC precedence, TVA has deleted the reference to Code Case N-513 and has referenced the equivalent technical flaw evaluation in Generic Letter 90-05, "Guidance for Performing Temporary Non-Code Repair of Code Class 1, 2, and 3 Piping."

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This relief request is submitted in accordance with the guidance of NRC Generic Letter 90-05. TVA evaluated the operability of the ERCW piping with regards to: (1) the structural integrity of the pipe, (2) the effects of spray on adjacent equipment, and (3) ERCW flow rate requirements. TVA's evaluation for operability indicates that the ERCW system will perform its design basis function and that the surrounding equipment is not adversely affected by spray. The structural integrity of the flawed piping was assessed and found acceptable.

The enclosure provides the justification for Request for Relief, 1-RR-4. Problem Evaluation Report 01-012757-000 documents this condition and tracks the corrective actions to ensure structural integrity is maintained and to ensure a code repair is performed during WBN Unit 1 Cycle 4 refueling outage. The WBN Code of Record is 1989 Edition (no addenda) of ASME Section XI.

No regulatory commitments are identified. If you have any questions concerning this request, please contact me at (423) 365-1824.

Sincerely,



P. L. Pace  
Manager, Site Licensing  
and Industry Affairs

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Enclosure

cc (Enclosure):

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## ENCLOSURE

### WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 FIRST 10-YEAR INTERVAL REQUEST FOR RELIEF 1-RR-4

#### SUMMARY:

A through-wall leak was discovered in a section of American Society Of Mechanical Engineers (ASME) ASME Code Class 3 essential raw cooling water (ERCW) system piping. The leak is in a six-inch nominal pipe size (NPS) segment of piping that is located between the ERCW Train B main discharge header and isolation valve, 0-ISV-067-528-B, which is considered a Unit 1/Unit 2 interface valve (locked closed). This section of piping cannot be isolated for repair without a plant shutdown. Due to the location of this leak, system operability is not affected. A flaw evaluation has been performed on the piping and was found acceptable.

A Code repair plan was developed in accordance with the site repair and replacement program which required isolating the affected piping from the 30-inch NPS main discharge header using a freeze plugging method to allow repair welding. The repair plan was attempted; however, the freeze plug isolation method failed, thus preventing the ASME Code repair by welding.

Because this segment of piping cannot be practically isolated without a plant shutdown to perform a Code repair, this request for relief is submitted in accordance with the guidance of NRC Generic Letter 90-05, "Guidance for Performing Temporary Non-Code Repair of Code Class 1, 2, and 3 Piping." This generic letter allows authorization for a temporary non-Code repair. Similar requests have been submitted to NRC for a temporary non-Code repair such as TVA's Sequoyah Nuclear Plant Unit 1 and 2 letter dated January 20, 1999, and an Oyster Creek request approved by NRC letter dated July 20, 2001. A Code repair or structural integrity replacement is scheduled to be implemented during the Unit 1 Cycle 4 (U1C4) refueling outage in the Spring of 2002. This request for relief is submitted in accordance with 10 CFR 50.55a(g)(5)(iii) to authorize use of this temporary non-Code repair until the WBN U1C4 Spring 2002 refueling outage.

## ENCLOSURE

### WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 FIRST 10-YEAR INTERVAL REQUEST FOR RELIEF 1-RR-4

UNIT: WBN Unit 1

SYSTEM: Essential Raw Cooling Water

COMPONENTS: Six-inch NPS, Schedule 40, Carbon Steel Pipe

ASME CODE CLASS: 3

FUNCTION: This section of ERCW piping provides for discharge from the Unit 2 component cooling system flood-mode connections to Train B ERCW main discharge header. This section of piping is between the discharge header and valve 0-ISV-067-528-B which is considered a Unit 1/Unit 2 interface valve (locked closed) and is an isolated stagnant portion of the system. This area is identified on drawing 1-47W845-2, coordinates G-3 (FSAR Figure 9.2-2), and the examination sketch (see attached copies).

#### IMPRACTICAL CODE REQUIREMENTS:

An ASME, Section XI, Code repair or replacement is required to be performed in accordance with ASME, Section XI, 1989 Edition, IWA-4000, "Repair Procedures," or IWA-7000, "Replacement," respectively, in order to restore the system's structural integrity back to its original design requirements.

#### BASIS FOR RELIEF:

On July 28, 2001, a through-wall leak was discovered in the ERCW system. The leak is located in a low energy six-inch NPS diameter carbon steel pipe between the ERCW Train B main discharge header and valve 0-ISV-067-528-B which cannot be isolated from the discharge header for repair. The design pressure and temperature for this section of piping is 35 pounds per square inch gauge (psig) and 130 degrees Fahrenheit (F). The water is stagnant in this section of the pipe. Problem Evaluation Report (PER) 01-012757-000 has been written to document and correct this condition.

The leakage from the piping was characterized as a steady stream approximately ¼-inch diameter. Since this is the last branch off the discharge header before leaving the

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Auxiliary Building, the leak does not affect system operability. Ultrasonic examinations were performed to determine structural integrity. As a stop gap measure to minimize spraying concerns, a clamp and rubber gasket were installed over the leak. At this time, no leakage is occurring.

A flaw evaluation was performed. The results of that evaluation determined an acceptable flaw length which ensures structural integrity. Acceptance criteria to maintain structural integrity has been developed to utilize in future evaluations. Based upon the above, TVA determined the structural integrity of the ERCW system is not impaired.

Initially, it was determined that a weld repair would be attempted. A Code repair plan was developed in accordance with the site repair and replacement program which required isolating the affected piping from the discharge header using a freeze plugging method to allow repair welding. The repair plan was attempted on August 30, 2001; however, the freeze plug isolation method failed, thus preventing repair welding.

The requirements for evaluating and accepting the flaw without repair or replacement are met for this leak. However, the ERCW water from the leak would be routed to the Auxiliary Building sump which requires processing as radioactive waste. This is considered unnecessary for ERCW system water. A determination was then made to request relief for authorization to use a temporary non-Code repair in accordance with the guidance of Generic Letter 90-05.

The guidance of Generic Letter 90-05 was used. The structural integrity of the flawed piping was assessed and found acceptable. The root cause for the piping degradation is considered to be due to microbiological induced corrosion (MIC). An ultrasonic examination was performed one pipe diameter upstream and downstream of the leak for use in evaluating structural

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integrity. Since the root cause is considered to be MIC, no additional areas were examined because MIC cannot be reliably predicted as to its location. The leakage has not caused any detrimental flooding or spraying onto any adjacent equipment. The amount of leakage does not affect the system flow requirements.

PROPOSED  
TEMPORARY  
NON-CODE  
REPAIR:

At this time, TVA plans to leave the piping as is with a temporary non-Code repair using a clamp with rubber gasketing. The flaw evaluation shows that this piping still has sufficient strength to perform its design function.

ALTERNATIVE  
REQUIREMENTS:

TVA is conducting weekly walkdowns to assess the operability and leakage through the temporary non-Code repair. Any changes will be evaluated which could affect operability or structural integrity. An ultrasonic examination will be performed every three months to assess the piping degradation rate. Based upon the weekly walkdowns and ultrasonic examinations, an engineering evaluation will be performed to determine if further remedial measures or corrective actions are needed. An ASME Section XI repair or replacement will be performed before the completion of the U1C4 refueling outage which is currently scheduled in the Spring 2002. These corrective actions are being tracked by PER 01-012757-000.

JUSTIFICATION  
FOR GRANTING  
OF RELIEF:

A Code repair while in operation is impractical based upon the inability to isolate the segment of ERCW piping containing the leak. Based on the flaw evaluation and the proposed alternative requirements, the temporary non-Code repair provides an acceptable level of quality and safety. The ERCW system Train B is considered operable, although degraded, and thus, is available for continued operation under the provision of Generic Letter 91-18,

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"Information to Licensees Regarding NRC Inspection Manual Section in Resolution of Degraded and Non-Conforming Conditions," dated October 8, 1997. Authorization to use the proposed alternative is requested per 10 CFR 50.55a(g)(5)(iii) until the repair or replacement is made in the Spring 2002 refueling outage.

TVA

Office of Nuclear Power

PROJECT: WATTS BAR SYSTEM: 067Unit: 2WELD NO.: Piping

REPORT NO.:

BOP-R 544

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SYSTEMS ENGINEERING

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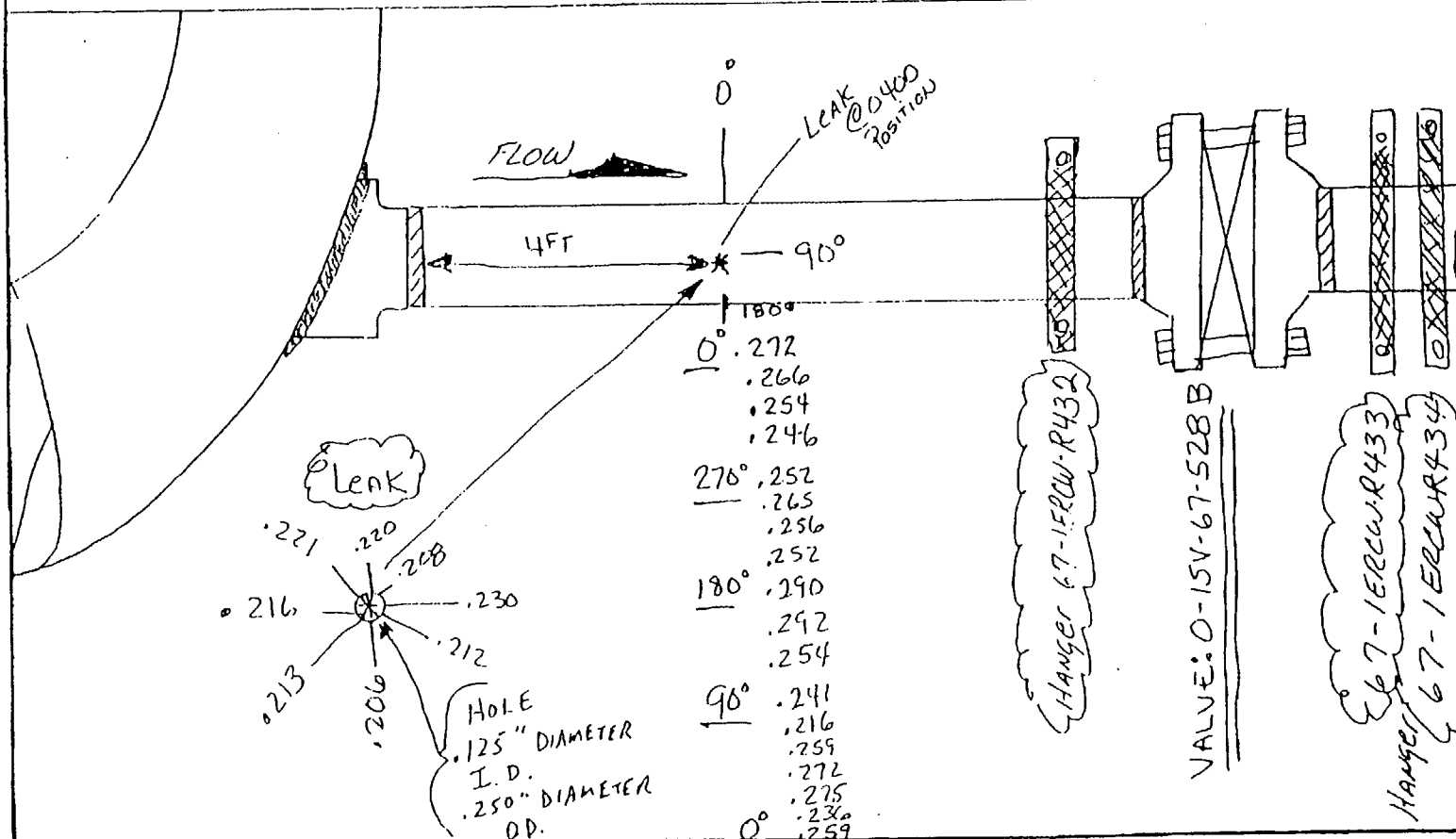
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FIGURE 92-2