



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

JUN 15 1994

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

Gentlemen:

In the Matter of the Application of )  
Tennessee Valley Authority ) Docket Nos. 50-390  
50-391

WATTS BAR NUCLEAR PLANT (WBN) - UNITS 1 AND 2 - NRC INSPECTION REPORT NO.  
50-390, 391/94-32 - REPLY TO NOTICES OF VIOLATION

The purpose of this letter is to provide a reply to Notices of Violation 50-390/94-32-01, and 50-390, 391/94-32-03 cited in the subject inspection report dated May 16, 1994. Notice of Violation 50-390/94-32-01 identifies a failure to consider the excessive offset angle at a pipe clamp in the support calculation. Notice of Violation 50-390, 391/94-32-03 involves the failure to initiate a work document for removing the handwheel assembly from a motor operated valve.

Enclosures 1 and 2 to this letter address the specific conditions described in the inspection report and the corrective actions taken by TVA. The commitment made by this submittal is listed in Enclosure 3.

If you should have any questions, contact P. L. Pace at (615)-365-1824.

Sincerely,

Dwight E. Nunn  
Vice President  
New Plant Completion  
Watts Bar Nuclear Plant

Enclosures  
cc: See page 2

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cc (Enclosures):

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## ENCLOSURE 1

### WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 RESPONSE TO NRC'S JUNE 16, 1994, LETTER TO TVA NRC VIOLATION 50-390/94-32-01

#### Description of Violation 50-390/94-32-01

"10 CFR 50, Appendix B, Criterion III, Design Control, requires that measures be established to assure that applicable regulatory requirements are correctly translated into drawings. These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled.

TVA Nuclear Quality Assurance Plan TVA-NQA-PLN89-A, Revision 3, paragraph 7.2.1.C states that measures shall be established and implemented to ensure that design output documents appropriately identify engineering requirements that apply to plant activities.

Contrary to the above, as of March 24, 1994, design output documents, pipe support calculations, did not appropriately identify engineering requirements contained in Watts Bar Design Criteria (WB-DC). WB-DC-40-31.9, Criteria for Design of Piping Supports and Supplemental Steel in Category I Structures, Revision 17, requires consideration of the load component due to an offset angle in excess of the manufacturer's tolerance. This excessive offset angle was not considered in pipe support calculation 741RHRR063 for Category I pipe support 74-1RHR-R063. As a result, this support requires modification to reduce the excessive offset angle."

#### TVA Response

TVA concurs with the violation.

#### Reason for the Violation

Although TVA was not able to determine the specific cause of the violation, because the preparer and reviewer of the calculation are no longer at WBN, it is apparent that the violation occurred due to the failure to ensure that the intended design met the design output requirements. A design change notice drawing was approved specifying installation of a new pipe clamp with a 14 degree offset. The vendor load capacity data sheet for the clamp only allows for a plus or minus 5 degree offset. The preparer failed to address the excessive angle in preparing the associated pipe support calculation.

#### Corrective Steps That Have Been Taken and The Results Achieved

A subsequent Engineering review of the calculation has determined that the subject support could have been qualified with the excessive pipe clamp offset angle. However, TVA has initiated a design change notice to eliminate the excessive offset angle. The removal of the offset angle is documented in Revision 3 to the support calculation (741RHRR063).

TVA's submittal dated February 2, 1994, committed to eliminate or modify 199 pipe supports at WBN that utilize U-bolts. The support identified in this violation is typical of these pipe supports in that a U-bolt located on a fitting was changed to a pipe clamp (1992). TVA also committed in the February 2, 1994 submittal to specifically eliminate U-bolt support designs located on fittings in safety-related pipe. Fittings are the most susceptible location for the deficiency identified. TVA has performed a 100 percent re-review of 199 supports, which represent the population of U-bolt supports that were redesigned or replaced by other non-U-bolt supports addressed by the commitments. Of the 199 supports, two additional supports (67-1ERCW-R600 and 47A465-2-40) were found with an offset angle in excess of the manufacturer's tolerance. An Engineering review of these two supports determined that both supports were qualified. A technical justification was in place for 671ERCW-R600 (DCN F-30566A), and calculation 47A4652040 for support 47A465-2-40 was revised to include the offset angle.

In addition, a previous contractor (Bechtel) utilized a standard calculation sheet that specifically addressed binding and swing angle tolerances. This sheet was used during the review of large bore supports as part of the hanger analysis and update program (HAAUP) conducted at WBN. Deviations would have required an additional review.

#### Corrective Steps That Will Be Taken To Avoid Further Violations

As discussed above, TVA has performed a 100 percent re-review of the U-bolt pipe support population (199) that was recently replaced or redesigned. These supports were replaced or redesigned by the same contractor that performed the calculation for pipe support 74-1RHR-R063. In addition, the lead civil engineer at WBN issued a memorandum to support designers describing the subject violation and emphasizing the need to self-check to ensure deviations to vendor design limits are properly evaluated and documented.

The review by Bechtel, the re-review conducted by TVA, and the fact that previous audits have not identified similar deficiency provides confidence that sufficient corrective steps have been taken.

#### Date When Full Compliance Will Be Achieved

TVA with issuance of the revised hanger design is in full compliance. The implementation of the hanger design will be completed upon turnover of the Residual Heat Removal System to the Plant.

## ENCLOSURE 2

### WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 RESPONSE TO NRC'S JUNE 16, 1994, LETTER TO TVA NRC VIOLATION 50-390, 391/94-32-03

#### Description of Violation 50-390, 391/94-32-03

\*10 CFR Part 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, requires that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures or drawings.

TVA Nuclear Quality Assurance Plan TVA-NQA-PLN89-A, Revision 3, paragraph 9.8.2.B, requires that maintenance be carried out in accordance with procedures or instructions to ensure quality at least equivalent to that specified in the approved design basis or approved alternatives.

Contrary to the above, on April 4, 1994, an NRC inspector identified that the handwheel assembly for safety-related valve actuator 2-MVOP-070-0003-B for the component cooling water flow control valve to the Unit 2 train B residual heat removal heat exchanger was removed without procedures or instructions authorizing this activity. This resulted in exposure of internal bearings to ongoing construction activities."

#### TVA Response

TVA concurs with the violation.

#### Reason for the Violation

Although TVA was not able to determine the individuals responsible for the violation, it is clear that the removal of the handwheel assembly was unauthorized. Required procedures or instructions were not followed to document the removal of the handwheel and adjacent bearing cover. The subject valve was the responsibility of Startup during the timeframe the event occurred. Since this valve forms a Unit 1/Unit 2 interface boundary, a work order was prepared in June of 1993 to de-terminate the associated power leads, rendering the valve inoperable. Although this activity did not include removal of the handwheel and bearing cover, an earlier version of a design change notice included this action as part of the de-termination.

In addition, in October of 1993, Maintenance personnel also found the handwheel and bearing cover removed and initiated a work request to reinstall the handwheel. Since the de-termination had not been completed, the System Test Engineer cancelled the work request knowing that there was a design change notice written to remove the valve and seal it with a full face gasket and a silicone casting to prevent future operation. However, the System Test Engineer was not aware that the internals of the housing were exposed at this time.

### Corrective Steps That Have Been Taken and The Results Achieved

The handwheel and adjacent bearing cover have been re-installed by Mechanical Maintenance personnel. A detailed inspection of the valve operator was not performed at this time since the valve is deactivated and is required to go through a complete cleaning and inspection process before Unit 2 completion. However, a work order was initiated to track the required cleaning of the internals in the event that the valve is restored for use in Unit 2.

Based on discussions with both Plant Completions management and Mechanical Maintenance management as part of the extent of condition review conducted for problem evaluation report (PER) WBFIR940036, it was concluded that this was an isolated case. To provide an additional level of assurance, a review of recent Quality Assurance evaluations of work activities was completed. There was no evidence of similar deficiencies being identified. In addition, Quality Control personnel inspected 36 Unit 1/Unit 2 interface boundaries to determine if any additional examples similar to this deficiency existed. All of the valves inspected were found to be in an acceptable configuration.

### Corrective Steps That Will Be Taken To Avoid Further Violations

Responsible personnel in both Startup Support and Mechanical Maintenance have been made aware of the subject violation and their responsibilities for ensuring that work activities are properly documented. In addition, the System Test Engineer has been counselled on the need to maintain greater surveillance over conditions within systems under his jurisdiction.

### Date When Full Compliance Will Be Achieved

TVA is currently in full compliance with procedures and instructions relating to the performance of maintenance activities.

**ENCLOSURE 3**

**WATTS BAR NUCLEAR PLANT UNITS 1 AND 2  
RESPONSE TO NRC'S JUNE 16, 1994, LETTER TO TVA  
NRC VIOLATION 50-390, 391/94-32-03**

**List of Commitments**

The implementation of the hanger design (74-1RHR-R63, DCN F-30556-A/AA-01) will be completed upon turnover of the Residual Heat Removal System to the Plant.