



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

**AUG 13 1994**

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

Gentlemen:

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

WATTS BAR NUCLEAR PLANT (WBN) - UNIT 1 - NRC INSPECTION REPORT NO.  
50-390, 391/94-38 - REVISED REPLY TO NOTICE OF VIOLATION

The purpose of this letter is to provide a revised response to Notice of Violation 390/94-38-02 cited in the subject Inspection Report dated June 6, 1994, as committed in TVA's original response to the violation in our letter of July 5, 1994. The notice of violation identifies a failure of a component test to identify a wiring error associated with a reactor coolant system resistance temperature detector (RTD). This response clarifies that suspect safety-related devices will be retested rather than sampled as proposed in TVA's original response. Enclosure 1 provides TVA's response to this violation. Enclosure 2 contains a list of commitments made in this letter.

If you should have any questions, contact Bruce S. Schofield at (615)-365-1857.

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 UNIT 1  
REVISED RESPONSE TO NRC'S JUNE 6, 1994, LETTER TO TVA  
NRC VIOLATION 390/94-38-02

DESCRIPTION OF VIOLATION

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," as implemented by TVA Nuclear Quality Assurance (NQA) Plan, TVA-NQA-PLN89A (Revision 3), Section 6.1, 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. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Startup Manual Procedure (SMP) 6.0, Component Test Program, Revision 12 (dated February 10, 1994), Section 2.1.3, Content Requirements for GTs, Paragraph 2.1.3.6, Detailed Instructions, states the following requirement:

"State the actions which must be accomplished to perform and document the test. The level of detail shall be sufficient to ensure that data meets the acceptance criteria and overall results demonstrate agreement with the test objective."

Contrary to the above, the component test of resistance temperature detector and temperature loop 1-TE-68-44B1-F conducted March 6, 1994, was inadequate in that it did not reveal that the leads to the detector had been mis-wired at TB10-A.

ADMISSION OR DENIAL OF VIOLATION

TVA agrees with the violation as stated.

REASON FOR THE VIOLATION

The violation resulted from the use of insufficiently detailed acceptance criteria within Generic Test Instruction GTIXXX-01, "Instrument Calibration," for testing of RTDs and thermocouples. TVA notes that the open circuit for RTD 1-TE-68-44B1-F was discovered during preoperational testing under Preoperational Test Instruction (PTI)-68-11, "RTD Cross Calibration," subsequent to the component test.

GTIXXX-01 is a generic test procedure utilized in the Startup and Test Component Test Program for instrument calibrations. As noted in the subject

inspection report, Startup personnel considered that RTD and thermocouple circuit continuity could be verified by comparing the circuit resistance (as measured at the rack termination point) with the resistance versus temperature characteristics of the device. While this application would detect open or short circuits, it would not identify transposed wiring between two different circuits, as occurred in the subject violation with RTDs 1-TE-68-44B1-F and 1-TE-68-44B2-F. Hence, such testing does not provide positive verification of the wiring and physical location of RTDs and other temperature sensing devices.

#### CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

The transposed wiring for RTDs 1-TE-68-44B1-F and 1-TE-68-44B2-F was corrected. These two RTDs were then retested on April 7, 1994, under GTIXXX-01 using the resistance comparison method to confirm that no open or short circuits existed.

In addition, each of the 28 Reactor Coolant System (RCS) wide and narrow range RTDs (seven for each RCS loop), including 1-TE-68-44B1-F and 1-TE-68-44B2-F, were tested using Generic Test Instruction, GTEXXX-02, "Scheme Verification," to verify correct physical location and correct wiring from the RTD to the rack terminations.

#### CORRECTIVE STEPS TAKEN OR PLANNED TO AVOID FURTHER VIOLATION

The violation is limited to temperature sensing devices for which there are approximately 1100 safety and non-safety-related components. Other primary sensing elements such as pressure, level, and flow are tested from the sensing element itself. Startup and Test personnel performed a review of test deficiencies (TDNs) issued against preoperational, acceptance, and special performance tests between January 1 and May 4, 1994. These tests are performed subsequent to component test activities and represent mechanical and electrical tests for both safety and non-safety-related systems. This review did not identify any examples of a failed device which went undetected during its prior component test.

Generic Test Instruction, GTIXXX-01, was revised to require testing of RTDs and thermocouples from the end device to provide positive verification of the component physical location and wiring. Where this is impractical, the test engineer is required to document the method utilized to verify the wiring and physical location. A similar revision was made to Instrument Maintenance Instruction IMI-200, which is utilized by the Plant organization to perform component tests or provides the methodology for component testing when planning work orders.

TVA will perform a retest of all safety-related temperature sensing devices where the initial component test did not provide positive verification of the component's physical location and circuit configuration. The specific components requiring retest will be identified in the Startup Component Test

Matrix and consist of less than 220 devices, 65 of which are the reactor incore thermocouples. Although TVA does not anticipate the retests will result in similar configuration errors, test deficiencies identified will be resolved in accordance with WBN's Corrective Action Program. For nonsafety-related devices, the combination of previous functional testing and subsequent system level testing and plant grooming/equipment operation prior to fuel load, provides reasonable assurance that the non-safety-related temperature components will operate correctly or that deficiencies, if any, would be identified.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

With respect to the specific violation, TVA is currently in compliance. The additional testing will be completed by February 15, 1995, in support of the WBN Hot Functional Re-Test milestone.

ENCLOSURE 2

SUMMARY OF COMMITMENTS

The specific components requiring retest will be identified in the Startup Component Test Matrix and the testing completed by February 15, 1995, in support of the WBN Hot Functional Re-Test milestone.