



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

September 6, 1995

R. D. (Rick) Machon

Vice President, Browns Ferry Nuclear Plant

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

10 CFR 2  
Appendix C

Gentlemen:

In the Matter of )  
Tennessee Valley Authority )

Docket Nos. 50-259  
50-260  
50-296

**BROWNS FERRY NUCLEAR PLANT (BFN) - NRC INSPECTION REPORT  
50-259, 50-260, 50-296/95-38 - REPLY TO NOTICE OF VIOLATION  
(NOV)**

This letter provides our reply to the subject NOV transmitted by letter from Mark S. Lesser, NRC, to Oliver D. Kingsley, TVA, dated August 7, 1995. This NOV involved three examples of a failure to have appropriate procedures and/or drawings for activities affecting quality. TVA admits the violation.

The enclosure provides our response to the NOV. There are no commitments provided in this letter. If you have any questions regarding this reply, please contact Pedro Salas at (205) 729-2636.

Sincerely,

R. D. Machon  
Site Vice President

Enclosure

cc: See page 2

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U.S. Nuclear Regulatory Commission  
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September 6, 1995

Enclosure

cc (Enclosure):

Mr. Mark S. Lesser, Acting Branch Chief  
U.S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

NRC Resident Inspector  
Browns Ferry Nuclear Plant  
10833 Shaw Road  
Athens, Alabama 35611

Mr. J. F. Williams, Project Manager  
U.S. Nuclear Regulatory Commission  
One White Flint, North  
11555 Rockville Pike  
Rockville, Maryland 20852

ENCLOSURE

TENNESSEE VALLEY AUTHORITY  
BROWNS FERRY NUCLEAR PLANT (BFN)  
UNITS 1, 2, AND 3

INSPECTION REPORT NUMBER 50-259, 50-260, 50-296/95-38  
REPLY TO NOTICE OF VIOLATION (NOV)

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RESTATEMENT OF THE VIOLATION

10CFR50 Appendix B Criterion V requires in part 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.

Contrary to the above, activities affecting quality were not adequately prescribed by documented procedures or drawings for the following three examples:

1. Drawing 3-45E768-6 revision 11 was inaccurate in that contacts 1 and 2 for relay SSCRC were transposed and incorrectly numbered as contacts 2 and 1. This condition was identified on June 29, 1995.
2. Detail B2 of Design Change Authorization 0-47E243-2 contained a four inch spacing acceptance criteria for installation of fire barrier material, although Design Standard MS17.2.2, Detail A-12 required that the acceptance limit be six inches. This condition was identified on July 11, 1995.
3. Work packages associated with Design Change Notice T20662 did not prescribe inspection instructions for expired trowel grade fire barrier materials required by General Specification 98, revision notice 2, Appendix 7.3. This condition was identified on July 12, 1995.

This is a Severity Level IV Violation (Supplement I).

TVA'S REPLY TO THE VIOLATION, EXAMPLE 1

1. Reason For The Violation

This violation was caused by personnel error. Personnel failed to verify that changes to a drawing and procedure matched the installed wiring on the relay contacts. Contributing to this violation was a unique system wiring arrangement.

In October 1990, drawing 3-45E768-6 was revised. As part of this revision, relay contact 1 for Start Signal Cancel Relay C was inadvertently mislabeled as contact 2C. TVA cannot determine why this occurred.

In August 1994, TVA issued a potential drawing deviation because the contact numbers listed on drawing 3-45E768-6 for Emergency Equipment Cooling Water (EECW) pump B1 did not match the contact numbers for this type of relay (i.e., this type of relay does not have a contact numbered 2C). Subsequently, in April 1995 TVA revised drawing 3-45E768-6. However, instead of relabeling contact 2C as contact 1, this revision relabeled contacts 2 and 2C as contacts 1 and 2, respectively. This problem occurred because the responsible engineer performed an inadequate review of this change.

On June 29, 1995, just prior to performing a surveillance instruction (SI) to test the Residual Heat Removal System initiation logic, TVA identified an apparent discrepancy with the SI. Specifically, the SI specified that contacts 2 and 13 should be jumpered to prevent EECW pump B1 from autostarting. However, this contact layout differed from the contact layout for the other three EECW pumps tested in this SI (i.e., the other three EECW pumps had contacts 1 and 13 jumpered).

As a result, TVA personnel reviewed drawing 3-45E768-6 and, based on this drawing, determined that the SI was incorrect. Subsequently, to support the test, the system engineer processed an urgent change to the SI to require jumpering relay contacts 1 and 13, instead of jumpering contacts 2 and 13. However, when making this change to the procedure, the system engineer failed to review the actual field contact layout.

Contributing to this violation was a unique system wiring arrangement. The auto start logic relay for EECW pump B1 was wired in reverse from the other EECW pumps. Unlike the contact layout for the other three EECW pumps being tested in the SI, the relay contacts for EECW pump B1 were wired as 2 and 1 instead of 1 and 2.

## **2. Corrective Actions Taken And Results Achieved**

TVA modified the field wiring for EECW pump B1 to match with the relay contact layout on drawing 3-45E768-6 and the other EECW pumps. TVA has taken appropriate corrective actions with the personnel involved in this event. Additionally, TVA has reviewed this event with appropriate personnel to ensure they understand the importance of performing proper verification of drawing/procedure changes.

3. Corrective Steps That [Have Been Or] Will Be Taken To Avoid Further Violations

No further corrective actions are necessary. Nevertheless, TVA plans to evaluate other safety equipment to determine if similar wiring differences exist.<sup>1</sup>

4. Date When Full Compliance Will Be Achieved

TVA is in full compliance.

TVA'S REPLY TO THE VIOLATION, EXAMPLE 2

1. Reason For The Violation

This example of the violation resulted from personnel error during the preparation and review of Drawing Change Authorization (DCA) 0-47E243-2 Revision 001. Specifically, Engineering personnel failed to recognize that requirements from TVA Mechanical Design Standard DS-M17.2.2 had to be satisfied when revising DCA 0-47E243-2. These individuals also overlooked the need to request a cross disciplinary review of the change prior to its approval.

2. Corrective Actions Taken And Results Achieved

TVA revised the drawing to depict the correct minimum overlap of six inches. TVA has taken appropriate corrective actions with the personnel involved in this event. The Site Engineering and Materials Manager also issued a memorandum to engineering personnel emphasizing the need for cross disciplinary reviews of design changes.

3. Corrective Steps That [Have Been Or] Will Be Taken To Avoid Further Violations

No further corrective actions are necessary.

4. Date When Full Compliance Will Be Achieved

TVA is in full compliance.

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<sup>1</sup>This action is not a regulatory commitment.

## TVA'S REPLY TO THE VIOLATION, EXAMPLE 3

### 1. Reason For The Violation

This example of the violation was caused by inadequate coordination of a change to a TVA general engineering specification compounded by an "immediately effective" implementation date of the change. Contributing to the violation was personnel error. It is important to note that at the time this violation was identified, the Thermo-Lag trowel grade material was within its original expiration date of July 31, 1995, and did not need a shelf life extension to allow its use.

On June 9, 1995, TVA's corporate engineering organization issued a Specification Revision Notice (SRN) to General Engineering Specification (G-Spec) G-98, "Installation, Modification, and Maintenance of Electrical Raceway Fire Barrier Systems." This SRN (SRN-G-98-R2-02) was written to facilitate installation of the Thermo-Lag trowel grade material at TVA's Watts Bar Nuclear Plant (WBN). The SRN revised G-98 by adding specific requirements and criteria for extending the shelf life of Thermo-Lag 330-1 trowel grade material.

While the SRN was well coordinated at WBN, it was not adequately coordinated at BFN. The SRN was transmitted to BFN by an internal memorandum dated June 10, 1995. Neither the BFN Site Engineering nor Site Quality organizations performed a preimplementation review of this change. Compounding the problem with inadequate coordination of the change was the required implementation date of the SRN for BFN. Specifically, because Thermo-Lag upgrades were ongoing at BFN at the time this SRN was issued, the SRN became immediately effective for BFN.

Contributing to this violation was personnel error. TVA Materials personnel incorrectly took direction from craft personnel and placed additional labels on the containers. These labels reflected the extended expiration date listed on the memorandum that transmitted the SRN. Materials personnel believed they were assisting craft personnel and that appropriate actions to extend the shelf life had already been taken.

### 2. Corrective Actions Taken And Results Achieved

TVA stopped work involving the use of Thermo-Lag 330-1 trowel grade material and placed the containers of trowel grade material being used in the field on hold. Subsequently and as noted above, TVA determined that the containers being used at the time of the violation were

acceptable for use without the shelf life extension. TVA revised the applicable work plans to include the requirements for extending the shelf life of the Thermo-Lag trowel grade material.

The personnel involved in this event received appropriate personnel corrective actions. TVA has strengthened its process for revising G-specs to ensure that proper reviews are performed for any changes to directly-implemented G-specs, and to ensure that impacted organizations have concurred with any immediately effective changes prior to implementation.

3. Corrective Steps That [Have Been Or] Will Be Taken To Avoid Further Violations

No further corrective actions are necessary.

4. Date When Full Compliance Will Be Achieved

TVA is in full compliance.