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**OCT 20 1993**

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 ) 50-391

WATTS BAR NUCLEAR PLANT (WBN) - NRC INSPECTION REPORT NO. 390, 391/93-56 -  
REPLY TO NOTICE OF VIOLATION 390/93-56-01

The purpose of this letter is to provide a reply to Notice of Violation  
390/93-56-01 cited in the subject inspection report dated September 20, 1993.  
The violation identified six examples of failure to follow procedure.

Enclosure 1 addresses the conditions described in the inspection report and  
the corrective actions taken by TVA. Enclosure 2 provides the list of  
commitments made in this submittal.

Should there be any questions regarding this information, please telephone  
P. L. Pace at (615) 365-1824.

Very truly yours,

William J. Museler

Enclosure  
cc: See page 2

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cc (Enclosure):

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ENCLOSURE 1  
WATTS BAR NUCLEAR PLANT UNIT 1  
REPLY TO NRC'S SEPTEMBER 20, 1993 LETTER TO TVA  
NRC VIOLATION 390/93-56-01

DESCRIPTION OF VIOLATION

10 CFR 50, Appendix B, Criterion V, requires in part that activities affecting quality be prescribed by documented instructions or procedures and shall be accomplished in accordance with these instructions or procedures. Tennessee Valley Authority Nuclear Quality Assurance Plan TVA-NQA-PLN89-A, Revision 3, Section 6.1.1 requires that quality-related activities shall be prescribed by documented procedures and instructions and shall be accomplished in accordance with these procedures and instructions.

Contrary to the above, activities affecting quality were not accomplished in accordance with documented instructions or procedures:

EXAMPLES 1 AND 2

1. Modifications/Addition Instruction (MAI)-3.2, "Cable Pulling For Insulated Cables Rated Up To 15,000 Volts," Revision 9, Appendix G requires that the ends of abandoned cables which are not terminated be insulated with tape or sealed with a Raychem end sealing kit. Abandoned cables shall also be identified and tagged in accordance with design drawings.

On July 19, 1993, work activities associated with workplan D-12070-129 were not accomplished in accordance with MAI-3.2, in that cable 1-3V-68-5661-B was not abandoned as required. All of the cable conductor ends were not sealed or insulated as required for abandoned cables and all conductors were lifted at both ends.

2. Site Standard Practice (SSP)-7.53, "Modification Workplans," Revision 8, General Requirements for all workplans, requires that workplans contain installation requirements from approved design outputs. SSP-7.B., "Control of Modification Work After Transfer," Revision 3, Appendices H and J requires that old program workplans be closed and a Remaining Work List be prepared to identify work to be transferred to a new work implementing document.

On July 19, 1993, workplan D-03002-02 did not incorporate the above SSP requirements in that it required the abandonment of 1-3V-68-5641-A without this activity being identified in the approved design output document for D-03002-02 nor in the Remaining Work List for old program workplan K-P03002-A-1.

## TVA RESPONSE EXAMPLES 1 AND 2

### REASON FOR THE VIOLATION

#### EXAMPLE 1

This violation example occurred due to an inadequately performed search to locate cable 1V5661B. Cable 1V5661B was to be abandoned as required by workplan D-12070-129. The craftsmen assigned to this task attempted to locate the cable by inspecting only the area at the containment penetration end of the cable. The penetration end of the cable was not readily accessible since it was covered by other cables. After the craft's failed attempt to locate the cable, the field engineer assigned to this workplan did not follow-up to locate the cable by inspecting the area himself or inspecting the area at the other end of the cable. Design change notice (DCN) F-24375-A was written to delete the abandoned cable number from the computerized cable routing system (CCRS) and the instructions to abandon the cable were deleted from the workplan without further research.

#### EXAMPLE 2

TVA was not able to specifically determine why the work to abandon cable 1V5641A was performed under the workplan D-03002-02. An interview of the workplan writer failed to adequately reveal why the abandonment of cable 1V5641A was included in this workplan. Further review determined that neither DCN M-03002-A nor the remaining work list for workplan K-P03002A-1 mention cable 1V5641A or its abandoned cable number.

The cable was to have been abandoned by workplan D-12070-128, but had previously been abandoned by workplan D-03002-02. When workplan D-12070-128 was implemented, this cable could not be found because the field personnel were looking for the cable number 1V5641A instead of the abandoned cable number 1ABN2028A. When the cable was not found, a FDCN under workplan D-12070-128 was prepared to delete the abandoned number from the CCRS.

In the course of reviewing the issue identified in violation example 1, the abandoned cable number 1ABN2028A was found in the field. The FDCN was revised to reinstate the abandoned cable number in CCRS.

### CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

#### EXAMPLE 1

An investigation of this condition revealed the location of the other end of the cable. Attached to this cable end were three tags denoting workplans WPKM08078-A-1, WBP890302-1, and WP5993-1. Both ends of the cable were identified by the cable number. FDCN F-24375-A was revised to reinstate the abandoned cable number for this cable. Workplan D-12070-147 was prepared and worked to properly abandon this cable.

The above corrective actions for this issue are documented and tracked by Problem Evaluation Report (PER) WBP89030204.

## Example 2

Since cable 1V5641A was to have been abandoned as 1ABN2028A, an FDCN was prepared to delete 1ABN2028A from CCRS when the cable was not found during the implementation of workplan D-12070-128. When the abandoned cable was found, the FDCN was revised to reinstate the abandoned cable number. Workplan D-12070-147 was prepared to document the reabandonment of this cable.

The above corrective actions for this issue are documented and tracked by Problem Evaluation Report (PER) by WBPER930234.

## CORRECTIVE STEPS TAKEN TO AVOID FURTHER VIOLATIONS

The conditions described by examples 1 and 2 were reviewed and discussed with the individuals involved. No further action is deemed necessary by TVA.

## DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

TVA is currently in full compliance.

## EXAMPLES 3 THROUGH 6

3. MAI-3.3, "Cable Terminating, Splicing, and Testing For Cables Rated Up to 15,000 Volts," Revision 9, Section 6.2.2 requires that cable/wire lifts and lands be documented on Data Sheet 1.

On August 4, 1993, work activities were not accomplished in accordance with MAI-3.3, in that Data Sheet 1 (Cable/Wire Lift and Reland Data Sheet) was not used to document the lifting and relanding of several cables from workplans D-08672-13, D-08672-39, and D-08672-41.

4. MAI-3.3, "Cable Terminating, Splicing, and Testing For Cables Rated Up to 15,000 Volts," Revision 9, Appendix D requires that bolted connections be tightened to values based on the bolt sizes specified in Attachment 3, Table C. Attachment 3, Table C requires torquing of 3/8 inch and 1/2 inch carbon steel bolts to 172-246 and 403-576 inch-pounds, respectively.

On August 12, 1993, work activities were not accomplished in accordance with MAI-3.3, in that 3/8 inch carbon steel bolts were torqued to 160 inch-pounds as documented in workplans D-08672-36, D-08672-39, and D-08672-41 and 1/2 carbon steel bolts were torqued to 400 inch-pounds as documented in workplans D-08672-13, D-08672-36, and D-08672-41.

5. SSP-7.53, "Modification Workplans," Revision 8, Section 2.6 requires that plant features be installed per the work instructions and design controlled output documents or approved design change documents. Workplan special instruction 500 for D-08672 series workplans required the performance of transformer polarization index tests as a series of post-maintenance electrical tests.

On August 4, 1993, work activities were not accomplished in accordance with SSP-7.53 in that transformer polarization index tests were not performed following completion of modifications. This condition was identified for the following workplans involving Class 1E 480V shutdown transformers:

D-8672-10	D-8672-11	D-8672-12	D-8672-13
D-8672-14	D-8672-15	D-8672-16	D-8672-32
D-8672-33	D-8672-34	D-8672-35	D-8672-36

6. SSP-3.01, "Quality Assurance Program," Revision 6, Section 2.5 requires that Quality Control inspections be performed in accordance with the approved work instructions or referenced procedures.

On August 4 and August 12, 1993, work activities were not accomplished in accordance with SSP-3.01, in that Quality Control inspections did not identify non-conforming conditions during the documentation of lifting and relanding of cables and torquing of bolts for transformers. These non-conforming activities were associated with workplans D-08672-13, D-08672-36, D-8672-39, and D-08672-41.

#### TVA RESPONSE EXAMPLES 3 THROUGH 6

##### REASON FOR THE VIOLATION

###### EXAMPLE 3

This violation example occurred because the users of the MAI-3.3 procedure, although trained, had not frequently used this procedure. Workplans written to implement DCN D-08672 required lifting and relanding of transformer cables during the implementation to be in accordance with Modifications Addition Instruction MAI-3.3, "Cable Terminating, Splicing, and Testing For Cables Rated Up to 15,000 Volts." However, in the workplans identified in example 3, Appendix R-1, "Configuration Control Log For Wire Lifts," of Site Standard Practice SSP-6.02, "Maintenance Management System," was used instead to document the cable lifts and relands. Since the craft, although trained to both procedures, were more knowledgeable in the use of SSP-6.02, the involved personnel used this SSP and felt that a subsequent transfer of information from the SSP-6.02 configuration control log to the MAI-3.3 data sheet would be acceptable. This action resulted in the failure to follow procedure since the workplan instruction was not revised to address the use of the SSP configuration control log.

###### EXAMPLE 4

This violation example occurred due to a misidentification of the bolting material. MAI-3.3, "Cable Terminating, Splicing, and Testing For Cables Rated Up to 15,000 Volts," Revision 9, Appendix D requires that bolted connections be tightened to values based on the bolt sizes specified in Attachment 3, Table C. Attachment 3, Table C requires torquing of 3/8 inch and 1/2 inch carbon steel bolts to 172-246 and 403-576 inch-pounds, respectively. The bolting material used under the D-8672 series workplans was a combination of carbon steel plated with cadmium and gold color-anodized carbon steel.

However, the involved personnel, including the Quality Control inspector, misidentified the material at the time of installation as silicon bronze and used the corresponding silicon bronze value from Table C of MAI-3.3 which resulted in the bolted connections being undertorqued.

#### EXAMPLE 5

This violation example occurred due to a poorly written workplan step. Workplan special instruction 500 for the D-08672 series workplans referenced an ENSR (contractor) retrofill test procedure which recommended the performance of a transformer polarization index test. However, the step also required TVA's Customer Group to perform a standard set of tests from their field test manual which did not include the polarization index test. Since the requirement to perform a polarization index test recommended by the ENSR procedure was not recognized when the Customer Group performed their testing, no such tests were performed for the transformers.

#### EXAMPLE 6

This violation example occurred due to personnel error. Workplan D-08672 series required QC verification during the cable lifts/relands and the bolt torquing activities discussed in examples 3 and 4 above. In example 3, the involved quality control inspector witnessed the cable lifts/relands performed by maintenance personnel using a maintenance procedure without checking the workplan requirements. In example 4, the involved QC inspector and the craft misidentified the bolting material which caused the undertorqued bolting condition. In example 5, the involved QC inspector signed off the step indicating testing was completed without recognizing the polarization index test had not been performed.

#### CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

An extent of condition review under SCAR WBSA930159 of the D-08672 series workplans was performed to address the issues identified by these violation examples and to determine if other problems exist. These workplans will be revised to address the conditions identified by this extent of condition review.

#### EXAMPLE 3

The workplan step involving cable lifts and relands will be revised to properly document the work which has already been performed and to address any remaining work yet to be performed.

#### EXAMPLE 4

As documented in the subject inspection report, work orders were issued to correct the undertorqued conditions involving the affected 480V shutdown board and 480V pressurizer heater transformers.

Quality Assurance Assessment No. NA-WB-93-0090 was performed to determine the methodology for identifying and selecting torque values and to evaluate current torquing practices for possible weaknesses and areas for improvement. This assessment determined that, in general, procedural guidance for the selection and implementation of torque values is adequate. Personnel interviews indicate that the craftsmen, foremen, and work planners are familiar with the requirements for torque value selection and identification, and respond appropriately when torque values are unavailable or the material is not readily recognizable.

In order to validate that appropriate torque values have been used, work orders have been written to inspect a sample of 58 instances of torquing electrical connections. To date, 36 sets of connections have been evaluated with no problems. Work order completion is tracked by PER WBP930235.

#### EXAMPLE 5

As documented in the subject inspection report, Nuclear Engineering reviewed the transformer test results and concluded that although the polarization index tests were not performed, other test which were performed provided an adequate basis for transformer acceptability. This evaluation was documented by FDCN 26528-A.

#### EXAMPLE 6

The involved Quality Control inspector was counselled in regards to compliance with work implementing instructions and to the necessity to complete work document entries immediately upon completion of inspection.

#### CORRECTIVE STEPS TAKEN TO AVOID FURTHER VIOLATIONS

##### EXAMPLES 3, 4, 5, 6

Maintenance personnel will continue to be trained through established general employee training and in-department procedure training in a manner which will emphasize management expectations for attention to detail, self checking, and procedure adherence.

To keep employees focused on the importance of self-checking, the plant manager has issued a series of memorandums listing industry events directly linked to personnel error. Within the October memorandum, the focus remains the same; however, the events described are those which occurred at WBN.

The workplan step involving the polarization index test which was poorly written will be revised to clarify the testing requirements.

Additional training has been performed for Quality Control inspectors to provide instruction that inspections of maintenance and modification activities be performed in strict compliance with applicable work implementing documents and the associated data sheets. This training also addressed proper methods for the identification of bolting material.

The corrective actions for examples 3 through 6 are documented and tracked by Problem Evaluation Report (PER) WBP930235, Significant Corrective Action Report (SCAR) WBSA930159, and Finding Identification Report (FIR) WBFIR930143.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

TVA will be in full compliance by December 15, 1993.

ENCLOSURE 2

LIST OF COMMITMENTS

1. An extent of condition review under SCAR WBSA930159 of the D-08672 series workplans was performed to address the issues identified by these violation examples and to determine if other problems exist. These workplans will be revised to address the conditions identified by this extent of condition review.
2. The workplan step involving cable lifts and relands will be revised to properly document the work which has already been performed and to address the remaining work yet to be performed.
3. The workplan step involving the polarization index test which was poorly written will be revised to clarify the testing requirements.

TVA will complete these actions by December 15, 1993.