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DEC 14 1993

U.S. Nuclear Regulatory Commission  
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Gentlemen:

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

WATTS BAR NUCLEAR PLANT (WBN) - UNIT 1 AND 2 - NRC INSPECTION REPORT NO.  
390, 391/93-70 REPLY TO NOTICES OF VIOLATION

The purpose of this letter is to provide a reply to Notices of Violation 390/93-70-01 and 390/93-70-02 cited in the subject inspection report dated November 12, 1993. The notice of violation 390/93-70-01 identifies the failure to properly inspect and document nonconforming conditions for six conduit supports. Notice of Violation 390/93-70-02 identifies the failure to follow procedures for documentation, installation, and inspection of regular and shallow embedment undercut concrete anchors. Enclosures 1 and 2 to this letter address the specific conditions described in the inspection report and the corrective actions taken by TVA. Enclosure 3 addresses the Staff's concern with Quality Control Inspections and Enclosure 4 contains a list of commitments made in this letter.

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

Very truly yours,

William J. Museler

Enclosures  
cc: See page 2

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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT UNIT 1  
RESPONSE TO NRC'S NOVEMBER 12, 1993 LETTER TO TVA  
NRC VIOLATION 390/93-70-01

DESCRIPTION OF VIOLATION 390/93-70-01

10 CFR 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.

Nuclear Quality Assurance Plan TVA-NQA-PLN89-A, Revision 3, Section 6.1, requires that quality-related activities shall be prescribed by documented procedures and instructions appropriate to the circumstances. Activities shall be accomplished in accordance with these procedures and instructions.

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

1. Site Standard Practice SSP-7.50, Controlling WBS Processes, Revision 8, Section 6.2, paragraph 6.2.1.G, requires nuclear quality assurance inspectors to verify fit-up attributes in accordance with work implementing documents and the nondestructive examination procedures manual.

On September 10, 1993, and September 13, 1993, procedure SSP-7.50 was not adhered to in that quality control inspectors failed to properly inspect and identify that the six electrical conduit supports listed below were not fabricated in accordance with work implementing documents:

D0885918-4-F26991A  
D0885918-5-F26991A  
D0885918-6-F26991A

D0885918-7-F26991A  
D0885918-8-F26991A  
D0885918-9-F26991A

2. Site Standard Practice SSP-3.06, Problem Evaluation Reports, Revision 11, paragraph 2.0, states it is the responsibility of all individuals to promptly identify and report all problems to the appropriate organization for evaluation and disposition. Further, paragraph 2.1 indicates that conditions that are not minor (having an impact on quality of work) require initiation of a problem evaluation report, within one working shift.

On September 20, 1993, procedure SSP-3.06 was not adhered to in that a problem evaluation report was not initiated within one working shift for the six nonconforming electrical conduit supports listed above.

3. Quality Assurance Instruction QAI-10.01, Quality Control Inspection Records, Revision 5, paragraph 2.1.2, states that the quality control inspector is responsible for documenting all inspection results on an inspection report and data sheets. Further, the quality control inspector

is responsible for documenting a brief description of unsatisfactory conditions on the plant instruction data sheet.

Quality Management Procedure QMP-110.1, Instruction Planning and Reporting, Revision 7, paragraph 6.3.6, states that an inspection report may be voided by writing VOID at the top of the form and describing the reason in the remarks column. The inspection report shall be approved by the quality control supervisor.

On September 20, 1993, procedure QAI-10.01 and QMP-110.01 were not adhered to in that for the six electrical conduit supports listed above the unsatisfactory condition was not documented by a quality control inspector and a description of the unsatisfactory condition was not documented on the plant instruction data sheet; and the inspection report was improperly voided and was not approved by the quality control supervisor.

#### TVA Response

TVA concurs with the violation.

#### REASON FOR THE VIOLATION

##### Example 1

This violation example occurred as a result of the quality control inspectors' failure to recognize that the subject supports did not meet the design requirements. The shop foreman and quality control inspector misinterpreted the drawing requirements for the conduit supports and then failed to self check their work. The work plan requested seven cantilever type electrical conduit supports be fabricated. The seven supports are depicted as 47A056-218 typical, however six of these were modified by a design change notice to omit attachment of the baseplate because they were to be welded to embedded plates. The supports were being prefabricated in the shop and sent to the field for installation. The personnel involved failed to recognize the change notice until the supports were delivered to the field.

#### CORRECTIVE STEPS THAT BEEN TAKEN AND RESULTS ACHIEVED

A memorandum was issued to personnel responsible for fabrication and modification activities stressing the importance to self check their work. The Quality Control organization initiated an action plan to evaluate their involvement in this incident, review the past performance of the responsible inspector, and to consider the extent of condition. As a result, additional training was given to quality control inspectors emphasizing the importance of assuring that applicable design change documents are reviewed for applicability to the activity being performed or inspected. A group of ten similar work plans involving over 100 supports were reviewed to provide adequate assurance that this condition was isolated. No additional examples of misfabricated supports were identified. In addition, interviews were conducted with quality control inspectors, craft, foreman, superintendents, and field engineers. None of the personnel interviewed could recall any conditions similar to this violation. Based on the review of work plans and personnel interviews, the extent of condition is believed to be limited to the subject supports.

## REASON FOR THE VIOLATION

### Example 2

This violation example occurred as a result of a misunderstanding by the personnel involved in the "in-process" work criteria. In-process work is understood to mean that portion of the work that has not been inspected and accepted. The personnel involved in the fabrication interpreted this to mean final acceptance of the support installation. The field foreman recognized immediately that the supports delivered were incorrectly fabricated and informed the shop foreman. The shop foreman requested that the subject supports be sent back to the shop for immediate correction. The field engineer made the necessary changes to the work plan data sheets to document the corrections to the supports, but did not recognize that PER a condition had been created.

## CORRECTIVE STEPS THAT BEEN TAKEN AND RESULTS ACHIEVED

A memorandum was issued to personnel responsible for fabrication and modification activities defining "in-process" work. "In-process" work was defined as work, or that portion of the work, that has not been inspected and accepted. Work that has been inspected and accepted can not be considered as "in-process."

Craftsmen that identify deficiencies after the quality control inspections have been completed can elect to generate a Significant Corrective Action Report (SCAR), a Problem Evaluation Report (PER), or notify the foreman/responsible engineer (RE). The foreman/RE will evaluate the deficiency to determine the appropriate method of disposition and resolution. Deficiencies will be promptly reported to the appropriate organization for evaluation and disposition.

TVA has conducted interviews with craft, foreman, and field engineers to determine the effectiveness of the memorandum and training. The results indicate that the foreman and field engineers are aware of the definition of "in-process" work and the procedure requirements for promptly generating a PER or SCAR. Interviews conducted with the craft indicate that they have an understanding of the definition of "in-process," though there is some uncertainty which nonconformance report may be generated. However, the results indicate that the craft will notify the foreman/responsible engineer of deficient conditions. This meets the requirements of SSP-7.53, "Modification Workplans," for resolving problems identified during the implementation of the workplan.

## REASON FOR THE VIOLATION

### Example 3

The supports that were not fabricated in accordance with design output drawings were returned to the fabrication shop and the welds and baseplates were removed. The responsible engineer deleted the reference to the inspection of the removed welds by lining through the recorded information, initial and dating. This is in accordance with the procedure for making changes to QA records. The field engineer did not interpret this action as voiding a quality control (QC) inspection report (IR) since additional inspection data remained on the record.

CORRECTIVE STEPS THAT BEEN TAKEN AND RESULTS ACHIEVED

Based on a review of potential scenarios, the actions identified by the subject violation are determined to be limited to personnel assigned to or receiving technical direction from the Welding Engineering Unit. In addition, these changes are limited to the NDE/Weld Attribute Sheet, Appendix F form, from QAI-10.01. The Appendix A form is retained by Quality Control and the Appendix G form identifies unsatisfactory conditions. A memorandum was issued from the Welding Engineering Unit Manager to all Welding Engineering Personnel stating that effective immediately, no deletions are to be made to the Appendix F form by personnel other than Quality Control.

No additional corrective actions are required since the inspection record has since been annotated with the reason for the change and the Quality Control Organization has approved the deletions.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATION

Examples 1, 2, and 3

No further steps are considered necessary.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Examples 1, 2, and 3

TVA is currently in full compliance.

ENCLOSURE 2

WATTS BAR NUCLEAR PLANT UNIT 1  
RESPONSE TO NRC'S NOVEMBER 12, 1993 LETTER TO TVA  
NRC VIOLATION 390/93-70-02

DESCRIPTION OF VIOLATION 390/93-70-02

10 CFR 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.

Nuclear Quality Assurance Plan TVA-NQA-PLN89-A, Revision 3, Section 6.1, requires that quality-related activities shall be prescribed by documented procedures and instructions appropriate to the circumstances. Activities shall be accomplished in accordance with these procedures and instructions.

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

1. Site Standard Practices SSP-7.53, Modification Workplans, Revision 9, Appendix A, indicates that the responsible engineer shall replace data sheets when procedure revisions have an impact on the data sheets when procedure revisions have an impact on the data applicable to the task.

As of October 15, 1993, SSP-7.53 was not adhered to in that installation data sheets for regular embedment undercut anchors contained in workplan D-05611-02 for support 1026-A206-10-4 were not properly updated with the correct torque and concrete free edge distance when a procedure revision had an impact on the data in that the data sheets specified a torque value of 300 foot pounds and a concrete free edge distance of 11 inches.

2. NEP-3.1, Calculations, Section 3.7, requires that when the basis for the support of a design cannot be adequately defined by a technical justification statement, then formal analysis, including preparation of a supporting calculation, is appropriate.

As of October 15, 1993, NEP-3.1 was not adhered to in that a detailed evaluation/analysis was not provided to support the adequacy of all previously installed regular undercut concrete expansion anchors installed with a minimum edge distance below the specified requirements of the current G-66 specification.

3. Modification Addition Instruction MAI-5.1C; Undercut Concrete Anchors, Revision 7, paragraph 6.2.13.6.B, requires that the shallow embedment undercut anchor bolts be snug tightened.

As of August 25, 1992, MAI-5.1C was not adhered to in that shallow embedment undercut concrete anchors for support 1067-A206-1226, required to be installed in the WP D-06129-03, were torqued to 300 foot pounds instead of being snug tightened.

4. Site Standard Practices SSP-3.01, Quality Assurance Program, Revision 7, paragraph 2.5E, states that inspections shall be performed in accordance with the approved work instruction or referenced procedures.

On August 25, 1992, SSP-3.01 was not adhered to in that quality control inspections were not performed in accordance with the referenced procedures in workplan D-06129-03 for support 1067-A206-1226. This resulted in a failure to detect improperly torqued shallow undercut anchor bolts.

#### TVA Response

TVA concurs with the violation.

#### Examples 1, 3, and 4

#### REASON FOR THE VIOLATION

##### Examples 1, 3, and 4

These violation examples occurred as a result of personnel error caused by inadequate training. In each instance, specific guidance as provided in the issued design documentation was not adhered to during the performance of field activities.

Site Standard Practice (SSP)-7.53, "Modification Workplans," Revision 9, Appendix A, states that the responsible engineer shall replace the data sheets when procedural revisions have an impact on the data applicable to the task. Despite this requirement, the installation data sheets for regular embedment undercut anchors contained in Workplan D-05611-02 were not properly updated with correct torque and concrete free edge distance values when a procedure revision was implemented.

Also, Modifications/Additions Instruction (MAI)-5.1C, "Undercut Concrete Anchors," Revision 7, paragraph 6.2.13.6.B, notes that shallow embedment undercut anchor bolts shall be snug tightened. The undercut anchor installations for support 1067-A206-1226 however, were not snug tightened but rather torqued to a limit of 300 foot pounds.

Site Standard Practice (SSP)-3.01, "Quality Assurance Program," Revision 7, paragraph 2.5E, indicates that inspections shall be performed in accordance with approved work instructions or referenced procedures. Subsequent quality control inspections for support 1067-A206-1226 were not performed in accordance with the referenced procedure in Workplan D-06129-03.

#### CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED

##### Examples 1 and 3

As an interim action, a memorandum was written to the mechanical and civil field engineers to stress the importance of ensuring that the data sheets are maintained per the current procedure (Example 1) and that tensioning and minimum

spacing requirements for anchorages are understood and followed (Example 3). This memorandum was followed by formal training in these subject areas. These actions are complete.

Additionally, with respect to Example 1, a review of workplans-in-progress is ongoing to ensure that the data sheets reflect the correct information outlined in the procedure. Also, a review of completed workplans is being performed to assure appropriate procedural references were incorporated in the workplans. With respect to Example 3, the affected anchorages are being evaluated for the acceptability of being torqued to 300 ft-lbs versus the specified requirement of snug tight. Problem Evaluation Report (PER) WBP930338 was issued to address this concern.

#### Example 4

Quality Control personnel were retrained to reemphasize that correct information is to be listed on the data sheets per procedural requirements.

### CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

#### Example 1

Field engineers in the electrical discipline will be issued a memorandum similar to that written for the mechanicals and civils, stressing the importance of ensuring that data sheets are updated per the current procedures. As indicated above, a review of previous workplans and workplans-in-progress is ongoing. In addition, measures are being taken to provide further controls for future workplans. Specifically, this is being accomplished by adding a review sheet to each workplan verifying that the data sheets are reviewed before the workplan is returned to work.

#### Example 3

As noted above, further directives (by memorandum and training) have been provided to the appropriate field engineering disciplines regarding anchorage tensioning and spacing.

#### Example 4

With respect to this specific condition, Quality Control personnel have been retrained to ensure that correct information is listed on the data sheets per the procedural requirements. In addition, TVA is considering generally broader procedural issues.

### DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

#### Examples 1, 3, and 4

The corrective actions for PER WBP930338 have a completion date of December 31, 1993. Other actions have been completed, or are ongoing activities, as noted.

Example 2

REASON FOR THE VIOLATION

This observation apparently resulted from a lack of clarity in the calculation. The evaluation performed to justify the acceptance of regular length undercut anchors, as specified in Nuclear Engineering Procedure (NEP)-3.1, Section 3.7 and included in an issued calculation, was not documented in sufficient detail.

CORRECTIVE STEPS AND STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATION

The subject calculation will be revised to clarify the basis for concluding that regular length anchors are acceptable. The civil discipline engineers will be issued a memorandum emphasizing the importance of documenting engineering evaluations in appropriate detail.

Finding Identification Report (FIR) WBFIR930179 has been issued to address this concern.

THE DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The final corrective action and implementation of the FIR will be completed by April 15, 1994.

ENCLOSURE 3

WATTS BAR NUCLEAR PLANT UNIT 1  
RESPONSE TO NRC'S NOVEMBER 12, 1993 LETTER TO TVA  
NRC CONCERNS

In regard to the NRC concerns about the effectiveness of QC inspections, TVA remains committed to maintaining the effectiveness of the WBN QC program and has taken actions to ensure that unacceptable hardware conditions are identified during QC inspections. To that end, the TVA Site Quality organization has, since construction restart in November 1991, implemented an overview inspection program which requires that at least five percent of QC inspections conducted on Modifications and Completion Group work be overviewed on an ongoing basis. These overviews take the form of actual independent reinspections of completed work and witnessing of inspections, primarily where reinspections cannot be conducted. The results of these overviews are reported to WBN Site Management on a weekly basis and the results evaluated by inspection discipline and individual inspector. An acceptable quality level of 98 percent has been established for these overviews. Overall, this quality level has been maintained and when results indicate less than desirable levels of performance in any inspection discipline or by individual inspector, corrective actions are taken. In addition, the QC contractor conducts an internal monitoring program to verify adequate performance of the inspectors.

TVA believes that the results of its overview inspection program demonstrate the overall effectiveness of the WBN QC inspection program. In addition, when specific problems are identified, such as those addressed in this inspection report or in TVA identified CAQs, a predefined series of additional actions and evaluations are available to ensure that these specific inspection program or inspector weaknesses can be corrected. These actions and evaluations include: evaluation of the inspector's past performance; extent of condition evaluation including additional reinspections of work; retraining or additional training; documented proficiency demonstration/retesting; and, if appropriate, personnel actions ranging from counseling to dismissal.

With regard to the situation identified in Example 1 of 390/93-70-01, it was determined that the inspector's past performance was satisfactory. This is based on the fact that since the inspector's arrival on site in 1992, nine monitoring activities of the inspector's work were performed by the QC contractor with no problems identified. In the same time frame, 167 TVA reinspection overviews of the inspector's work were conducted and only three minor documentation discrepancies identified. A sample of 10 items previously inspected by the subject inspector will be reinspected to ensure that no additional deviations exist. Also, as a result of the subject violation, additional training was provided to the inspector, along with the other inspectors, addressing the need to review design change information for applicability to the inspection activity. In addition, the importance of self-checking was re-emphasized. The specific inspector involved was also required to undergo a written examination that included questions related to the occurrence to demonstrate proficiency.

A review of TVA's corrective action document data base (TRO1) and an evaluation of the specific documents identified by the data base revealed other instances involving QC errors since construction restart. However, each instance was unique and collectively do not indicate a widespread problem with inspector errors. The results of TVA overview inspections described above also support this conclusion.

ENCLOSURE 4

WATTS BAR NUCLEAR PLANT UNIT 1  
RESPONSE TO NRC'S NOVEMBER 12, 1993 LETTER TO TVA  
NRC VIOLATION RESPONSE 93-70-02

LIST OF COMMITMENTS

390/93-70-01

1. A sample of 10 items previously inspected by the subject inspector will be reinspected to ensure that no additional deviations exist.

390/93-70-02

1. Field Engineers in the electrical discipline will be issued a memorandum similar to that written for the mechanical and civil field engineers, stressing the importance of ensuring that data sheets are updated per the current procedures.
2. A review of previous workplans and workplans-in-progress is ongoing to verify that data sheets are updated to applicable current procedures. This is accomplished by adding a review sheet to each workplan verifying that the data sheets are reviewed before the workplan is returned to work.
3. The calculation performed to justify the acceptance of regular length undercut anchors will be revised to clarify the basis for anchor bolt acceptability.
4. The civil discipline engineers will be issued a memorandum emphasizing the importance of document engineering evaluations in appropriate detail.