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APR 25 1994

U.S. Nuclear Regulatory Commission
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Gentlemen:

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

WATTS BAR NUCLEAR PLANT (WBN) - UNITS 1 AND 2 - NRC INSPECTION REPORT NO. 390, 391/93-79 - REPLY TO NOTICES OF VIOLATION

The purpose of this letter is to provide a reply to Notices of Violation 390/93-79-01 and 390/93-79-02 cited in the subject inspection report dated March 4, 1994. Notice of Violation 390/93-79-01 identifies design input errors in the seismic qualification documentation. Notice of Violation 390/93-79-02 involves a discrepancy which was identified by the seismic walkdown activities but not documented in the WBN Corrective Action Program.

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 an additional concern identified by the inspectors. Enclosure 4 contains a list of commitments made in this letter.

A revised response date was discussed with the Region II staff on April 1, 1994.

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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cc (Enclosures):
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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
RESPONSE TO NRC'S MARCH 4, 1994 LETTER TO TVA
NRC VIOLATION 390/93-79-01

Description of Violation 390/93-79-01

10 CFR 50 Appendix B, Criterion III, Design Control, as implemented by the TVA Nuclear Quality Assurance Plan, TVA-NQA-PLN89-A, endorses ANSI N45.2.11, Quality Assurance Requirements for the Design of Nuclear Power Plants, 1974. Paragraph 3.0, Design Input Requirements, of ANSI N45.2.11-1974 requires that applicable design inputs such as design bases be identified, documented, reviewed and approved.

Contrary to the above, on January 10-28, 1994, examples were identified in which design inputs to equipment seismic qualification documents were not properly identified, documented and reviewed. These examples were as follows:

(1) Nuclear Seismic Analysis for Essential Raw Cooling Water Valve, 1-FCV-67-158A, Specification No. J1-824662, Revision A, used as a design input that the valve was classified as an inactive valve for the design basis earthquake (DBE). The correct input was that the valve was classified as an active valve for the DBE.

(2) Calculation WCG-ACQ-0450, Seismic Qualification of Demineralizer Tank, Revision 0, contained the following design input errors:

a. Sheet 21; Joint 18 dimension was given as 27 inches in the X-coordinate: the correct dimension was 18 inches.

b. Sheet 4 of FAPPS-2 computer model; inputs were given as 9.1 for AY and 3.67 for AZ; the correct values were 2.45 for AY and 6.11 for AZ.

c. The grating weight was not included in all load and load combination analyses.

d. Attachment B, sheet 6; the Y-coordinate global coefficient for dead weight was given as 0.0; the correct value was 1.0.

e. Attachment C, sheet 4; shape 152 flange thickness (TY) was given as 0.504 and web thickness (TW) was 0.75; the correct values were TY of 0.75 and TW of 0.504.

TVA Response

TVA concurs with the violation.

Reason for the Violation

Example 1 - The reason for this violation example is attributed to personnel error. A communications weakness between the Essential Raw Cooling Water (ERCW) system engineers, the Heating, Ventilation, and Air Conditioning (HVAC) system engineers, and the procurement engineers, and an improper understanding of the QA requirements on HVAC system components resulted in the improper component design classification and a misapplication or misinterpretation of design inputs.

Example 2 - The reason for the conditions cited in Example 2 can similarly be attributed to personnel error through inattention to detail. The Frame Analysis Program for Pipe Supports (FAPPS) computer code was used for the three Demineralizer Tank supports analyses. Although FAPPS can be utilized to perform the structural analyses of detailed support frames, it is primarily used in the analyses of pipe supports which are generally much simpler in configuration and contain a lesser number of members. The use of FAPPS for the structural analysis of these relatively complex equipment support framing with access grates contributed to these errors being introduced.

Corrective Steps that will be taken and the results to be achieved

Example 1 - Design basis calculation WBN-OSG4-182 and associated specifications and drawings will be revised to reflect the proper classification of valves 1, 2-TCV-67-158 as active.

The system description for the ERCW system, N3-67-4002, Revision 0, correctly identifies the valves for the Shutdown Board Room Air Conditioning Units as active valves.

The Final Safety Analysis Report (FSAR) will be reviewed and revised as required to reflect this valve classification.

The existing valves (1, 2-TCV-67-158) will be evaluated and qualified as active.

Other HVAC coolers with similar procurement interfaces were reviewed in determining the extent of condition. Those associated with the Main Control Room air conditioner water chillers, and the Electric Board Room air conditioner water chillers are correctly classified as seismic Category I and active. The other TCVs for HVAC related equipment served by the ERCW System serve non-safety related chillers and coolers. TVA is reviewing other system interfaces between the cooling water systems (ERCW and Component Cooling Water) and the systems they serve, to determine if this same type of deficiency occurred elsewhere.

Example 2 - The three Demineralizer Tank support structures were reanalyzed with corrected input data. Results were evaluated and there was no change in the conclusions of the initial calculation.

The structural analysis of a relatively complex equipment support framing with access grating, utilizing the FAPPS computer code, was limited to the three Demineralizer Tank Supports. Consequently, the extent of condition is restricted to these three support analyses contained in calculation WCG-ACQ-450.

Corrective Steps that have been taken to avoid further violations

Example 1 - Subsequent to the original procurement of these valves, TVA upgraded the quality assurance program in the areas of procurement, identification and control of materials, fabrication, installation, inspection, testing, and the documentation of such activities for HVAC related activities.

To resolve the problem of inadequate communication between the ERCW and the HVAC system engineers, personnel from both disciplines participated in the development and implementation of the corrective action plan prepared to resolve this deficiency.

In addition, design control procedure, EAI-3.05, has been implemented to improve the design control process. A recent Design Change (DCN) M-12088-B, issued January 23, 1993, replaced similar valves on the Electric Board Room and Main Control Room air conditioning units with control valves which correctly meet the design requirements of the systems.

Example 2 - Civil and Applied Mechanics personnel who perform structural analyses and utilize computer codes, were retrained on the importance of calculation and modeling accuracy and attention to detail. The training was performed on February 23, March 1, and March 2, 1994.

Date when full compliance will be achieved

TVA is in compliance with design control requirements. Completion of the defined corrective actions is scheduled to be completed prior to Unit 1 fuel load.

ENCLOSURE 2

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
RESPONSE TO NRC'S MARCH 4, 1994 LETTER TO TVA
NRC VIOLATION 390/93-79-02

Description of Violation 390/93-79-02

10 CFR 50 Appendix B, Criterion V, Instructions, Procedures, and Drawings, as implemented by the TVA Nuclear Quality Assurance Plan, TVA-NQA-PLN89-A, requires that activities affecting quality shall be prescribed by documented procedures and activities shall be accomplished in accordance with these procedures.

The site procedure, Seismic Qualification Walkthrough, TI-2005, Revision 3, Appendix F1, prescribes that conditions adverse to quality identified by seismic walkdown activities be documented in accordance with SSP-3.04, Correction Action Program, Revision 12.

Contrary to the above, on January 10-28, 1994, examples were identified in which activities affecting quality were not accomplished in accordance with prescribed procedures. The seismic walkdowns of the Essential Raw Cooling Water intake structure identified conditions adverse to quality which were not documented in the Site Standard Practice (SSP)-3.04 corrective action program documents, as prescribed by procedure TI-2005. These conditions adverse to quality were initially documented on Appendix F, Discrepancy Identification Evaluation Forms, dated September 5, 1991 and August 11, 1992, for project ID WCG-ACQ-0474. The identified condition was excessive corrosion on safety-related instrument rack base and anchor bolts areas. The Appendix F discrepancy forms were closed without initiation of appropriate corrective action program documents to track resolution of the adverse condition.

TVA Response

TVA concurs with the violation example.

Reason for the Violation

The reason for this violation example can be attributed to personnel error for depending on an existing program to correct the identified deficiency. The individuals involved in the disposition of the Appendix F discrepancy forms assumed the surface rust condition would be corrected under the regular housekeeping activities as prescribed and controlled by plant procedure SSP-12.07, "Housekeeping/Temporary Equipment Control."

The Corrective Steps that have or will be taken and the results achieved

Design Change Notice DCN-W-29163 has been issued to implement corrective actions. This DCN will correct the specific deficiency and effectively resolve this concern by raising the subject instrument rack above any likely water problems.

TVA performs monthly SSP-12.07 housekeeping walkdowns. Involved Modifications personnel have been sensitized to equipment/component damage and/or degradation and the requirements of using existing corrective action administrative programs to identify and correct discovered deficiencies through a one time retraining to SSP-12.07. The next Modifications walkdown is scheduled to be completed by May 31, 1994. SSP-12.07, Appendix A, defines the areas of responsibility of this walkdown. It covers the essential safety-related structures with the exception of areas already turned over to Operations. Those areas have had additional turnover walkdowns as described below.

The Corrective Steps that have or will be taken to avoid further violation

The seismic qualification walkthrough effort was completed in 1991, and the personnel involved in the disposition of the findings are no longer employed at the WBN site or at any other TVA facility. Therefore, as mentioned above, the retraining of Modifications personnel will bring an increased awareness of the need to identify and correct equipment damage and degradation.

The plant area turnover procedure SSP-7.57, "Area Turnover," currently requires an area, structure, and component walkdown to identify and disposition missing, loose, and damaged components per MAI-1.9, "Walkdown Verification for Modification System/Area Completion and Damaged, Loose or Missing Hardware," where the painting/coating damage is one of several inspection attributes. Thus, any identified surface damage would be effectively dispositioned prior to area turnover. Implementation of the area turnover walkthroughs provides assurance that any similar Appendix F disposition concerns are resolved.

After area turnover, the regular plant housekeeping procedure, SSP-12.07, which currently requires monthly housekeeping inspections, will prevent this or similar conditions from recurring.

Date When Full Compliance Will Be Achieved

Full compliance will be achieved by the implementation of the Design Change Notice DCN-W-29163, which will be completed by fuel load for Unit 1.

ENCLOSURE 3

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
RESPONSE TO NRC'S MARCH 4, 1994 LETTER TO TVA
NRC'S ADDITIONAL CONCERN

Description of Additional Concern

An additional concern identified by the inspectors was TVA's assumption that the 480 Volt switch gear panel interconnection mounting hardware was properly installed without a sample inspection to justify this assumption.

TVA Response

TVA will perform a sample inspection to verify existing bolts for connecting adjacent switch gear panels. This inspection will be performed when the 480 V Shutdown Boards are de-energized, or when the boards are down for maintenance prior to Fuel Load.

ENCLOSURE 4

LIST OF COMMITMENTS

1. Design basis calculation WBN-OSG4-182 and associated specifications and drawings, will be revised to reflect the proper classification of valves 1, 2-TCV-67-158 as active.

   The FSAR will be reviewed and revised as required to reflect this valve classification.

2. The existing valves 1, 2-TCV-67-158 will be evaluated and qualified as active .

3. Review other system interfaces between the cooling water systems (ERCW and Component Cooling Water) and the systems they serve, to determine if this same type of deficiency occurred elsewhere.

4. Design Change Notice DCN-W-29163 has been issued to implement corrective actions. This DCN will correct the specific deficiency and effectively resolve this concern by raising the subject instrument rack above any likely water problems.

Commitments 1 through 4 are scheduled to be completed prior to Unit 1 fuel load.

5. The next Modifications walkdown is scheduled to be completed by May 31, 1994. SSP-12.07, Appendix A, defines the areas of responsibility of this walkdown. It covers the essential safety-related structures with the exception of areas already turned over to Operations. Those areas have had additional turnover walkdowns.

6. TVA will perform a sample inspection to verify existing bolts for connecting adjacent switch gear panels when the 480 V Shutdown Boards are de-energized or when the boards are down for maintenance prior to Fuel Load.