

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

August 11, 1982

WBRD-50-390/81-33
WBRD-50-391/81-32
WBRD-50-390/81-50
WBRD-50-391/81-48

U.S. Nuclear Regulatory Commission
Region II

Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - IMPROPER CLASSIFICATION OF ERCW
SYSTEM PIPING AND COMPONENTS - WBRD-50-390/81-33, WBRD-50-391/81-32,
WBRD-50-390/81-50, WBRD-50-391/81-48 - SEVENTH INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on March 24, 1981 in accordance with 10 CFR 50.55(e) as NCR WBN NEB 8106, concerning the seismic qualification for chillers/coolers and deficient piping of the HVAC system. A similar deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on May 7, 1981 in accordance with 10 CFR 50.55(e) as NCR 3116R R1, concerning improper classification of ERCW system piping. Interim reports were submitted on April 24, June 8, July 14, September 2, December 9, 1981 and February 17, 1982. Enclosed is additional information on these NCRs. We expect to submit our next report on NCR WBN NEB 8106 by October 19, 1982. The enclosed information constitutes a final report on NCR 3116R R1.

If you have any questions, please get in touch with R. H. Shell at FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY


L. M. Mills, Manager
Nuclear Licensing

Enclosure

cc: Mr. Richard C. DeYoung, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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ENCLOSURE
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
IMPROPER CLASSIFICATION OF ERCW SYSTEM PIPING AND COMPONENTS
NCR'S WBN NEB 8106 AND 3116R R1
WBRD-50-390/81-33, WBRD-50-391/81-32, WBRD-50-390/81-50, WBRD-50-391/81-48
10 CFR 50.55(e)
SEVENTH INTERIM REPORT

Description of Deficiency WBN NEB 8106

During the design review of the Watts Bar Essential Raw Cooling Water (ERCW) System, it was discovered that portions of the ERCW system (equipment coolers, air cooling units, etc.) may not have proper seismic specification. Watts Bar Design Criteria WB-DC-40-36.1, Revision 0, requires that these components be classified ANS Safety Class 2b and be Seismic Category I or I(L). These coolers were shown on TVA design drawings, 47W845 series, however, as TVA Class G, Seismic Category I(L). Seismic Category I(L) has two levels; one level ensures pressure boundary integrity; the other ensures structural integrity such that component failure will not damage primary safety equipment. Some of these air cooling units serve essential safety-related equipment (SIS, CSS pumps, etc.) required for accident mitigation. TVA Class G was used because it was incorrectly determined to represent the design requirements.

Interim Progress

The primary safety-related HVAC equipment was procured under contracts 77K35-83153-1, 77K35-83119-2, 76K35-83230-1, and 76K35-83190. This equipment was not procured to a specific TVA classification (A, B, C, etc.) as had been indicated on the TVA ERCW System flow diagrams.

This equipment was procured to the seismic Category I design requirement specified in WBN-DC-40-36.1 that was in effect at the time of purchase and met the highest commercial quality feasible at the time of procurement.

TVA has reviewed the contract files and found sufficient documentation to verify the equipment meets the requirements of 10CFR50, Appendix B, and is suitable for use in a TVA safety class C system.

The secondary safety-related HVAC equipment was procured under contracts 77K38-821351 and 76K38-83225. This equipment was not procured to a specific TVA classification (A, B, C, etc.) as had been indicated on the TVA ERCW System flow diagrams.

The equipment was procured to the seismic Category I(L) with pressure boundary design requirements specified in WBN-DC-40.36.1 that were in effect at the time of purchase and met the highest commercial quality feasible at the time of procurement.

TVA is continuing the evaluation of the contract files to determine if sufficient documentation exists to verify the equipment meets the requirements of 10CFR50, Appendix B, and is suitable for use in a TVA safety class C system.

Description of Deficiency 3116R R1

TVA piping drawings and flow diagrams originally showed piping and chillers/coolers for portions of the Essential Raw Cooling Water (ERCW) system as TVA class C (safety-related). The chillers/coolers were purchased without a specific TVA classification. Due to the chillers/coolers not having a specific TVA classification, TVA consequently defined the class boundaries improperly; as a result, the subject piping was given an incorrect classification on the flow diagrams.

Field Change Request M-3276 erroneously revised the HVAC piping and components on the flow diagrams from TVA class C to TVA class M (safety-related-limited requirements) between the first two isolation valves of the ERCW system chillers/coolers. The ERCW system piping was concurrently revised to show the class change at the flanged connections to the equipment.

Piping previously installed between the first two isolation valves of the chillers/coolers as class C was downgraded to class M. Also, any new piping was installed in accordance with the flow diagrams as class M piping; however, craft personnel were instructed to use class C material. Subsequently, an engineering change has been made to reclassify the piping between the isolation valve and flange as TVA class C for all the HVAC chillers/coolers.

Approximately 1200 feet of piping in the ERCW system was installed incorrectly (but in accordance with the flow diagrams in use at the time) as class M instead of class C and about 400 out of 900 welds were made during this installation without welder identification.

Safety Implications

Had this condition remained uncorrected, the installation of class M piping instead of class C piping would downgrade the ERCW system. This could result in multiple failures in a safety system, not considered in the plant safety analysis.

Corrective Action

The majority of the affected piping is being replaced because of piping changes to resolve the pipe corrosion problem reported in NCR WBN NEB 8017. TVA has subsequently decided to replace the remainder of the piping that was installed to TVA class M requirements with new piping installed to TVA class C requirements.

Flow diagrams and physical piping drawings have been revised to show the correct classification for the piping and equipment in accordance with the applicable design criteria.

In response to NRC-OIE Region II inspector concerns of the ERCW system being installed to specifications other than those in the FSAR Section 3.2, portions of the ERCW system are classified as TVA class G (seismic I(L) - limited requirements) and TVA class H (limited requirements). The FSAR section 3.2 does not reference TVA class G and H portions of the ERCW system. TVA class G and H sections are described in FSAR section 9.2.1.