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TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

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7 JAN 5 1987

DEC 29 1986

WBRD-50-390/86-60

WBRD-50-391/86-56

U.S. Nuclear Regulatory Commission
Region II
Attention: Dr. J. Nelson Grace, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Dr. Grace:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - DOORS IN FIRE RATED BARRIERS NOT LISTED FIRE DOORS - WBRD-50-390/86-60, WBRD-50-391/86-56 - FINAL REPORT

The subject deficiency was reported initially to NRC-Region II Inspector Morris Branch on July 23, 1986 in accordance with 10 CFR 50.55(e) as NCR W-422-P for unit 1. NCR WBN MEB 8680 subsequently was issued to document the deficiency for unit 2. Our interim report was submitted August 20, 1986. Enclosed is our final report.

If you have any questions, please get in touch with R. D. Schulz at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. A. Demer
R. Gridley, Director
Nuclear Safety and Licensing

Enclosure

cc (Enclosure):

Mr. James Taylor, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
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ENCLOSURE
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
DOORS IN FIRE-RATED BARRIERS NOT LISTED FIRE DOORS
WBRD-50-390/86-60 and WBRD-50-391/86-56
NCR W-422-P AND SCR WBN MEB 8680
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The secondary containment shield walls at Watts Bar Nuclear Plant (WBN) are designated 3-hour fire barriers. The following penetrations through the walls are not installed in an approved fire-rated configuration, nor have they been evaluated for equivalency.

1. Personnel locks on elevations (E1) 713 and 757 that provide access into primary containment (this includes the supplemental door provided in the opening for the E1 713 lock).
2. Double doors in the equipment hatch on E1 757 that provide access into primary containment.

Heavy equipment doors located in designated fire barriers were addressed in a fire protection program evaluation documented in a letter to NRC from L. M. Mills to E. Adensam, dated September 9, 1980. In a safety evaluation report (SER) dated June 1982 for WBN, NRC accepted these doors as adequate fire barrier seals. However, these personnel locks and double doors were not specifically addressed in TVA's letter. Subsequent fire door evaluations, including those conducted for WBN's compliance program for 10 CFR 50 Appendix R, did not address heavy equipment doors. The cause of this deficiency is that responsible design personnel had incorrectly assumed that these personnel locks and double doors were heavy equipment doors and, as such, were covered by TVA's letter and the SER approval.

Safety Implications for WBN Unit 1 (NCR W-422-P)

TVA has completed an evaluation of WBN's unit 1 personnel locks and determined that their use in a 3-hour rated fire barrier will not jeopardize the safe shutdown capability of the plant, as analyzed per 10 CFR 50 Appendix R requirements. Also, the location of the secondary containment fire barrier that extends through the E1 757.0 containment equipment hatch opening, as shown on TVA drawing 47W240-4, has been clarified. As a result, the drawing has been revised to clearly indicate that the fire barrier boundary does not extend through the double doors. Consequently, the nonrated fire barrier status of the double doors and of the personnel locks could not have adversely affected the ability to achieve and maintain a safe shutdown of the plant. Therefore, TVA no longer considers this item reportable under 10 CFR 50.55(e) for WBN unit 1.

Safety Implications for WBN Unit 2 (SCR WBN MEB 8680)

The location of the secondary containment fire barrier that extends through the EI 757.0 containment equipment hatch opening, as shown on TVA drawing 47W240-4, has been clarified. As a result, the drawing has been revised to clearly indicate that the fire barrier boundary does not extend through the double doors. The effects of nonrated personnel locks on the safe shutdown capability of WBN unit 2 is indeterminate since the 10 CFR 50 Appendix R cable separation analysis for unit 2 has not been completed. Therefore, TVA considers that this condition could have resulted in the propagation of fire through a designated fire barrier, which could have resulted in damage to redundant safe shutdown equipment or cables which could have been installed in the vicinity of the nonrated fire barrier penetrations, adversely affecting the safety of operations of the plant.

Corrective Action

TVA has conducted a review to identify any additional nonrated doors located in the secondary containment fire barrier. The bulkhead doors that provide access into the RHR sump valve rooms (EI 692.0) were the only additional nonrated doors identified. This problem has been resolved by relocating the 3-hour fire barrier from around the RHR sump valve room back to the curved containment wall. The curved containment fire wall is continuous in the vicinity of the RHR sump valve room and is adequate to maintain the 3-hour fire resistive rating. Relocating the fire barrier eliminates the need for the bulkhead doors to be fire rated.

TVA has revised the 47W240-series mechanical drawings which define the fire barriers, mechanical drawings 47W401-5 and -7, and architectural drawing 46W454-7 for WBN under Engineering Change Notice (ECN) 6450 for unit 2. These revisions were made to clearly indicate where the nonrated doors are located in the secondary containment fire barrier and the position of the revised fire barrier locations, and to add architectural door numbers to the doors in question. This will ensure that WBN's unit 2 Appendix R analysis will not take credit for these doors as fire barriers. Additionally, Mechanical Design Standard DS-M17.3.3, "Fire Barrier Standard," will be issued to prevent recurrence of similar problems. The intent of this standard is to provide a comprehensive design basis from which specific designs will be controlled. Fire barriers and through penetration fire-stop systems will be specifically addressed to ensure the maintenance of their design integrity and continuity. This standard will provide the necessary controls for meeting 10 CFR 50 Appendix R, Section III.G.2, Fire Barrier Requirements, and will be issued by February 1, 1987.

These actions will ensure that the subject deficiency will not result in a condition adverse to safe operations of the plant during or after completion of the 10 CFR 50 Appendix R, Safe Shutdown Analysis for WBN Unit 2.