TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

5B Lookout Place

JAN 28 1991

WBRD-50-390/90-10
WBRD-50-391/90-10

10 CFR 50.55(e)

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) UNITS 1 AND 2 - UNQUALIFIED CABLE PENETRATION SEALS - WBRD-50-390/90-10 AND WBRD-50-391/90-10 - INTERIM REPORT

The subject deficiency was initially reported to NRC Region II on December 27, 1990, in accordance with 10 CFR 50.55(e) as Condition Adverse to Quality Report WBP 900534. Enclosed is TVA's interim report. The final report will be submitted by March 29, 1991.

If there are any questions, please telephone T. L. Dean at (615) 365-8030.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

Mark J. Burzynski for
E. G. Wallace, Manager
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Enclosure
cc: See page 2





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U.S. Nuclear Regulatory Commission

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ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN)
UNQUALIFIED CABLE PENETRATIONS SEALS
CAQR WBP 900534
WBRD-50-390/90-10 AND WBRD-50-391/90-10

INTERIM REPORT

DESCRIPTION OF DEFICIENCY

During an evaluation of cable tray penetration seals through fire barriers, certain cable tray penetration configurations were determined not to be supported by test data. Cable tray penetration designs are based on a test that was performed by TVA. That test has been determined, in comparison to American Society for Testing Materials (ASTM) E 814 test methodology (by use of the area under the time-temperature curves method), to support only limited cable tray fill conditions. The fire rating of certain cable tray penetration seals can not be supported by TVA test data.

Condition Adverse to Quality Report (CAQR) WBP 900534 documents deficiencies found during this evaluation. The following cable tray penetration configurations were identified as not being supported by test data.

(1) Cable tray penetration seals with more than 39 percent cable fill in 1 1/2-hour fire-rated walls and floors thinner than 18 inches.

(2) Cable tray penetration seals with more than 39 percent cable fill in 3-hour fire-rated walls or floors, regardless of wall or floor thickness.

(3) In addition, the size of the Computer Room cable tray penetration pressure seal and fire stop exceeds the maximum dimensions of any of the tested configurations using similar materials. Therefore, this is an untested configuration.

SAFETY IMPLICATIONS

The failure of a Class 1E cable tray penetration fire seal during a fire would result in the loss of pressure integrity at the wall or floor fire boundary. The passage of hot gases, smoke, and fire into adjacent compartments or buildings could result in the loss of redundant Class 1E circuits and equipment.

INTERIM PROGRESS

TVA has evaluated additional industry test reports for cable tray penetration seals similar in design configuration to those used at TVA. Cable trays with 50 percent or less cable fill penetrating a fire barrier seal in either a 1 1/2- or 3-hour fire-rated wall or floor are considered qualified to ASTM E119.

TVA has identified approximately 34 fire barrier penetrations containing cable trays with more than 50 percent cable fill. These configurations are currently being evaluated. Industry test data supports that wall penetration openings with as high as 50 percent cable fill are acceptable. Corrective actions will be taken, as deemed necessary, to ensure each fire barrier penetration fire rating is qualified to the associated floor or wall rating.

The Computer Room cable tray penetration pressure seal and fire stop has been qualified based on a review of additional industry test reports. Test reports qualified a 16 square-foot penetration which envelopes the Computer Room 13.3 square-foot penetration.

Engineering Requirements Specification ER-WBN-MEB-013 and Design Criteria WB-DC-40-66 will be revised to address seal design qualification based on available test and supporting calculations.

TVA will provide a complete report regarding this issue by March 29, 1991.