Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

MAR 29 1991

WBRD-50-390/90-10 10 CFR 50.55(e)
WBRD-50-391/90-10

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 - SECOND 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 (CAQR) WBP 900534. An Interim Report was submitted to NRC on January 28, 1991. Enclosed is TVA's Second Interim Report. TVA will submit a Final Report for CAQR WBP 900534 by May 31, 1991

If there are any questions, please telephone P. L. Pace at (615) 365-1824.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

Mark J. Burzynski

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Enclosure
cc: See page 2

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U.S. Nuclear Regulatory Commission

MAR 29 1991

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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

SECOND 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. Based on these industry test reports, 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 qualified to ASTM E 814 and ASTM E 119.

ENCLOSURE

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

SECOND INTERIM REPORT

TVA identified 34 fire barrier penetrations containing cable trays with more than 50 percent cable fill. Based on industry test reports, 21 of the 34 fire barrier penetration seals were determined to have fire ratings equivalent to the wall/floor barriers in which they are located. TVA is continuing an evaluation of the remaining 13 penetration seals.

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 is being replaced by Engineering Specification N3M-937. N3M-937 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 May 31, 1991.