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TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

JUN 20 1986

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WBRD-50-390/86-25
WBRD-50-391/86-21

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 - NON-QUALITY ASSURANCE DATA FOR CABLE WEIGHTS AND OUTSIDE DIAMETERS USED IN CALCULATIONS - WBRD-50-390/86-25, WBRD-50-391/86-21 - SECOND INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector Bob Carroll on January 21, 1986 in accordance with 10 CFR 50.55(e) as NCRs WBN EEB 8589 and EEB 8590. Our first interim report was submitted on February 20, 1986. Enclosed is our second interim report. We expect to submit our next report on or about October 14, 1986.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. L. Gridley, Director
Nuclear Safety and Licensing

Enclosure

cc (Enclosure):

Mr. James Taylor, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 NON-QUALITY ASSURANCE DATA FOR CABLE WEIGHTS AND OUTSIDE DIAMETERS USED IN CALCULATIONS

WBRD-50-390/86-25, WBRD-50-391/86-21

SCR WBN EEB 8589 (UNIT 1)

SCR WBN EEB 8590 (UNIT 2)

10 CFR 50.55(e)

SECOND INTERIM REPORT.

Description of Deficiency

As a result of a design review, it was determined that the sources of class 1E cable weights and outside diameters used in performing calculations were not documented in accordance with quality assurance requirements. Nonverified values were used for the calculations of conduit and cable tray seismic loadings and are presently being used for the calculations of conduit and cable tray cross-sectional area fill, calculations of cable minimum bend and training radius, and sidewall pressure calculations. Verified values are required for all of these calculations. The apparent cause of this deficiency was failure by the design organization to obtain verified design input data.

Safety Implications

Since cable weights and outside diameters were not available from verified sources, incorrect values may have been used in the calculations. If erroneous values were used to determine conduit and/or tray fill, a violation of cable minimum bend and training radius, potential overheating of power cables and/or seismic overloading could occur. Overheating of power cables could reduce the useful cable life resulting in possible open circuits or short circuiting due to insulation breakdown. Excessive physical loading could affect the seismic qualification of the cable trays. These conditions could adversely affect the safe operations of the plant.

Interim Progress

Samples of class 1E cable types (identified by TVA contract number) were sent to TVA's Singleton Materials Laboratory in order to establish an auditable listing of cable types with their respective outside jacket diameters and weights. The test result data received has been tabulated and incorporated into Engineering Design Standards, DS-E12.1.13 and DS-E12.1.14. The resident data used by the computer to calculate conduit and cable tray fill is currently being revised in accordance with the Design Standards. Conduit and cable tray fill will then be recalculated. If any overfilled conduit and cable tray segments are found, new calculations will be performed for conduit and cable tray support, seismic loading, and cable ampacity. TVA will evaluate the calculated results to determine the acceptability of the conduit and cable tray fill.

In order to prevent recurrence, Engineering Design Standards DS-E12.1.13 and DS-E12.1.14 have been issued with all of the established cable weights and outside diameters obtained from the samples sent to Singleton Materials Laboratory. Cable sidewall pressure, pulling tension, and seismicity calculations are being or will be performed using only data which is verified and documented in accordance with quality assurance requirements.

TVA is still investigating the root cause of this deficiency and further actions to prevent recurrence. Additional information and the results of this review will be provided to NRC in our next report on or about October 14, 1986.