

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

February 20, 1986

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

50 FEB 24 P 1:22

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 - 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. Enclosed is our interim report. We expect to submit
our next report on or about June 17, 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
Manager of Licensing

Enclosure

cc (Enclosure):

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

Records Center
Institute of Nuclear Power Operations
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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)
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 operation of the plant.

Interim Progress

Samples of class 1E cable types (identified by TVA contract number) are being 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. As cables are tested, the data received is being tabulated and incorporated into an Engineering Design Standard, DS-E12.1.13, and issued for use. The acceptability of values originally used in conduit and cable tray fill and seismic calculations is to be substantiated utilizing this data. All future cable sidewall pressures and cable pulling tensions are to be calculated using this verified source.

In order to prevent recurrence, a revision to Engineering Design Standard-E12.1.13 will be 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/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 possible further actions to prevent occurrence of similar deficiencies.

TVA will provide the next report on this matter on or about June 17, 1986.