

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA TENNESSEE 37401

400 Chestnut Street Tower II

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March 5, 1984

WBRD-50-390/84-04

WBRD-50-391/84-04

U.S. Nuclear Regulatory Commission
Region II

Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

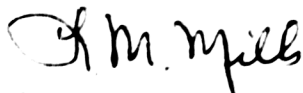
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - TEMPERATURE OF 1E MEDIUM VOLTAGE CABLES
IN CABLE TRAYS - WBRD-50-390/84-04, WBRD-50-391/84-04 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
Floyd Cantrell on January 18, 1984 in accordance with 10 CFR 50.55(e) as NCR WBN
EEB 8401. Our first interim report was submitted on February 15, 1984.
Enclosed is our final report. TVA no longer considers 10 CFR 50.55(e)
applicable to this deficiency.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY



L. M. Mills, Manager
Nuclear Licensing

Enclosure

cc: Mr. Richard C. DeYoung, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center (Enclosure)
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
TEMPERATURE OF 1E MEDIUM VOLTAGE CABLES IN CABLE TRAYS
NCR WBN EEB 8401
WBRD-50-390/84-04, WBRD-50-391/84-04
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

Documentation is not available to show that the Class 1E, 6900V cable will not exceed its maximum continuous copper temperature of 90°C when installed in cable trays and covered with a flame retardant coating. The deficiency is due to the fact that existing industry ampacity test conditions on the flame retardant coating do not exactly duplicate the test conditions for the TVA installation of spaced 6900V 3-phase circuits for cable sizes larger than 2/0 AWG. This condition was identified during the independent design review of the Watts Bar Nuclear Plant (WBN) auxiliary feedwater system by Black and Veatch (finding G901).

Safety Implications

TVA has completed a study of all class 1E medium voltage power cables installed in cable trays at WBN. Calculations have been performed on the cables in each tray segment, utilizing the specific tray loading and cable applications, using current Insulated Cable Engineering Association (ICEA) standards. The results of the study have shown that adequate ampacity exists for the affected cable installations after derating for the cable coating. Thus, the affected cable will not exceed the 90°C continuous temperature rating. Therefore, TVA no longer considers 10 CFR 50.55(e) applicable to this item.