



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

APR 30 1991

WBRD-50-390/90-09  
WBRD-50-391/90-09

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  
Tennessee Valley Authority )

) Docket Nos. 50-390  
50-391

WATTS BAR NUCLEAR PLANT (WBN) UNITS 1 AND 2 - CABLE DAMAGE AT  
TERMINATIONS - WBRD-50-390/90-09 AND WBRD-50-391/90-09 - FINAL REPORT

The subject deficiency was initially reported to NRC Region II  
on December 21, 1990, in accordance with 10 CFR 50.55(e) as Significant  
Corrective Action Reports WBP 900498SCA and WBP 900547SCA. Enclosed is  
TVA's final report.

Enclosure 2 provides a list of new commitments contained in this  
submittal.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

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Enclosures  
cc: See page 2

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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT (WBN)  
CABLE DAMAGE AT TERMINATIONS  
SCARs WBP 900498SCA AND WBP 900547SCA  
WBRD-50-390, 391/90-09  
10 CFR 50.55(e)  
FINAL REPORT

DESCRIPTION OF DEFICIENCY

During the high potential testing of low voltage cables at WBN, cables were inspected for damage at accessible panel/device openings and near terminations. Of the termination areas inspected, approximately eight percent exhibited insulation damage. Significant Corrective Action Reports (SCARs) WBP 900498SCA and WBP 900547SCA document an adverse trend noted in the area of cable damage at terminations. The deficiencies were found in both mild and harsh environments. The damage, typified by nicks, cuts, bulges, kinks, or abrasions, was found on the cable outer jacket, color coded jacket, and the insulation. The subject damage has been attributed to poor workmanship by the craft personnel. Additionally, a contributing factor was the failure by the quality control inspectors to follow procedures to identify the damage.

SAFETY IMPLICATIONS

A review of the identified deficiencies indicates that most of the subject damage has occurred in mild environments. This damage consists primarily (approximately 75 percent) of nicks and abrasions that do not penetrate to the conductor. Since these termination areas are located in mild environments, it is unlikely that these cables would experience circuit failure because they are not subjected to the conditions present in harsh environments that could precipitate insulation degradation. This justification would also apply to non-10 CFR 50.49 terminations in a harsh environment since the environment in which the equipment is required to operate (during nonaccident conditions) would not present a failure mechanism that would contribute to the loss of function of this equipment.

For those deficiencies located in a harsh environment, bare unprotected conductors at the termination points could become shorted due to moisture intrusion during a 10 CFR 50.49 event. This condition could prevent the associated electrically operated components from performing their safety functions, which could adversely affect the plant's ability to safely shut down.

CORRECTIVE ACTIONS

Based on the unlikely failure of the circuits associated with the mild environment and non-10 CFR 50.49 terminations areas, additional inspections of these locations are not required to resolve this deficiency. However, the damaged mild environment termination areas

documented in SCARs WBP 900498SCA and WBP 900547SCA will be repaired or replaced to prevent future reinvestigations of these concerns. As a further measure, General Engineering Specification G-38, Revision 10, "Installation, Modification, and Maintenance of Insulated Cables Rated Up to 15,000 Volts," requires that when work is being performed inside panels/devices in Category I structures, cable damage found in the immediate vicinity of the work being performed will be identified, documented, and repaired, as required. Therefore, additional cable terminations will be inspected for damage during ongoing construction activities.

For termination areas located on 10 CFR 50.49 equipment in harsh environments, TVA has initiated a program to inspect and repair those areas, as required. The corrective actions for damage to 10 CFR 50.49 harsh environment terminations is documented in SCAR WBP 900450SCA which was reported to NRC on November 1, 1990.

#### ACTIONS TO PREVENT RECURRENCE

The quality control inspectors will be retrained to the termination installation requirements of G-38. In addition, the craftsmen will be recertified to the current construction procedures for implementation of cable terminations to ensure future terminations will be installed correctly at WBN.

#### SCHEDULE FOR COMPLETION

Because this work is impacted by the stopwork order, a schedule will be provided to NRC 45 days following resumption of construction activities.

ENCLOSURE 2

LIST OF COMMITMENTS

1. TVA will repair or replace (as required) the damaged termination areas in mild environments identified on the subject Significant Condition Action Reports.
2. TVA will provide a schedule to NRC for completion of these corrective actions 45 days following resumption of construction activities.