DMB

# TENNESSEE VALLEY AUTHORITY

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May 15, 1986

WBRD-50-390/85-54
WBRD-50-391/85-51

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 - IMPROPER USE OF CABLES INSIDE CONTAINMENT - WBRD-50-390/85-54, WBRD-50-391/85-51 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector Al Ignatonis on October 22, 1985 in accordance with 10 CFR 50.55(e) as NCR WBN 6302. Interim reports were submitted on November 25, 1985 and March 10, 1986. Enclosed is our final report.

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: Mr. James Taylor, Director (Enclosure)
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U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
IMPROPER USE OF CABLE INSIDE CONTAINMENT
WBRD-50-390/85-54, WBRD-50-391/85-51
NCR 6302
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

In 1979, TVA became concerned with the acceptability of silicone-rubber-insulated power and control cable provided by Anaconda-Continental Wire and Cable Corporation and designated for use in 1E circuits inside containment. The cable was purchased through contracts 74C7-85112 and 75C7-85861 and was acceptable to requirements effective at the time. However, with the advent of more definite accident requirements, questions were raised concerning the cables' ability to withstand the levels of radiation which could be present inside containment during a loss of coolant accident (LOCA). TVA identified the questionable qualification status of this type of cable through nonconformance report (NCR) EEB 79-6. Subsequently, measures were taken at the site to restrict the use of this cable by retagging the affected cable reels with class II labels (instead of class I).

NCR 6302 was written to identify that the labeling of the cable reels with class II labels was inadequate to prevent the cables' use in 1E circuits inside containment; that cable purchased through these two contracts had previously been found installed in class 1E circuits as identified in nonsignificant NCRs 2177R and 2316R; and that during housekeeping and storage inspections, 32 reels of this cable were found in the cable staging area, which had inconsistent identification (12 tagged as 1E, 18 tagged as class II, and 2 not tagged).

TVA has determined that the method employed to downgrade and control the use of this material was insufficient as the actions taken provided for the initial tagging of the material as "class II" while documentation at the site (bills of material, contract specification, etc.) continued to identify this material as class 1E. Over time, this resulted in reels of cable with missing identification tags being classified and retagged as class 1E.

Safety Implications

TVA does not assume that any cable that is required for safe shutdown of the plant but not environmentally qualified in accordance with 10 CFR 50.49 will be acceptable under accident conditions. As such, safe shutdown of the plant could be adversely affected due to the failure of such cable and the subsequent failure of safety-related components.

Corrective Actions

Since issuance of NCRs EEB 79-6 and 6302, the silicone rubber cable from contracts 74C7-85112 and 75C7-85861 has been retested by Wyle Laboratories for TVA and documented in Test Report 17733-1 Revision A. The testing performed exposed the cable to environmental parameters postulated for most applications inside containment at Sequoyah (SQN) and Watts Bar (WBN) Nuclear Plants. Evaluations performed for SQN (EQC Package SQNEQ-CABL-009) documented that the test was successful in demonstrating the acceptability of cables from the two Anaconda contracts for use inside containment at SQN. Due to the similarity of the environmental parameters of SQN and WBN, TVA now expects to establish full qualification of the cable from the subject contracts for use inside WBN's containment. However, as part of the overall WBN environmental qualification (EQ) program, a listing of installed class 1E cable will be developed and a specific EQ evaluation for each cable type and contract (including cable from the contracts identified by NCR 6302) will be performed. All 10 CFR 50.49 cables not having proper qualification for their installed application will be removed and replaced with qualified cable as part of the EQ program.

As an interim method to avoid a recurrence of this problem on future installation of safety-related cables, controls have been implemented for the use of cable which will be effective until essential criteria, procedures, and computer programs are revised and/or developed as part of the environmental qualification program to ensure compliance with 10 CFR 50.49 for the life of the plant. These controls require:

1. TVA site personnel to identify, as cable work is scheduled, those safety-related cables that are to be pulled/repulled. Transmission of this data is to go to the Division of Nuclear Engineering (DNE) by means of a two-way memorandum.

2. DNE will complete this two-way memorandum by listing the cable contract number to be used.

3. The field engineer will write the cable contract number to be used on the cable pull card and/or cable installation sheet. This information will be provided to the craft personnel as part of the cable pull package.

4. The quality control inspector will verify that cable from the specified contract number was used and will document the cable reel number and the contract number on the pull card and/or on the cable installation sheet.