TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

5N 1578 Lookout Place

AUG 19 1986

WBRD-50-390/86-34
WBRD-50-391/86-31

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 - QUESTIONABLE QUALIFICATION OF INSTALLED TYPE N RAYCHEM MATERIALS - WBRD-50-390/86-34, WBRD-50-391/86-31 - FINAL REPORT

The subject deficiency was initially reported to NRC-Region II Inspector Bob Carroll on February 27, 1986, in accordance with 10 CFR 50.55(e) as NCR WBN 6623 for unit 1. NCR WBN 6774 documents this deficiency for unit 2. Our interim report was submitted on March 31, 1986. Enclosed is our final report. We no longer consider 10 CFR 50.55(e) applicable to this deficiency.

Delay in submittal of this report was discussed with Morris Branch on July 17, 1986.

If you have any questions, please get in touch with J. A. McDonald at (615) 365-8527.

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

Records Center
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
QUESTIONABLE QUALIFICATION OF INSTALLED TYPE N
RAYCHEM MATERIALS
WBRD-50-390/86-34, WBRD-50-391/86-31
NCR WBN 6623 AND WBN 6774
10CFR50.55(e)
FINAL REPORT

Description of Deficiency

TVA personnel have identified that cable splicing and terminations using Raychem heat shrinkable breakouts, caps, and sleeving completed before December 2, 1985 do not meet current installation requirements. These requirements are listed in the manufacturer's application guide for class 1E terminations and splices in harsh environment areas, and were incorporated into TVA's Standard Drawings and General Construction Specification G-38 on December 2, 1985. The cables spliced before that date using heat shrinkable tubing had different application ranges than those presently required in a loss of coolant accident/high energy line break (LOCA/HELB) area. For cable breakouts and end caps, the current requirement for use of an overall sleeve on the breakouts and end caps was not initiated at WBN until the above date when the requirement was shown on a revision to TVA standard drawing SD-E12.5.8.

In 1982, Raychem's design for their breakouts and end caps was changed. Also, the Raychem heat shrinkable sleeves for cable splicing were modified before December 1985 due to a manufacturing change with respect to application ranges for individual tubing sizes. The changes for these Raychem products were not incorporated into TVA's applicable design documents until December 1985. TVA considers this to be an isolated case resulting from changes in the personnel responsible for making distribution of the Raychem documents.

Safety Implications

TVA has established that:

1. Existing in-line splices or terminations that use an outer sleeve (WCSF-N) over the nuclear cable breakouts (NCB) are acceptable.

2. Low-voltage "V" type connections that use a nuclear end cap (NEC) over the NCB are acceptable.

3. Sealing the end of the multiconductor cable jacket where the individual conductors exit the cable jacket is not a safety-related requirement, but is considered to be a good construction practice. Multiconductor cables without a Raychem NCB, with an NCB, or with a NEC and a Raychem WCSF-U oversleeve are acceptable.

4. Protecting the end of unterminated cables with a Raychem NEC is not a safety-related requirement, but is considered to be a good construction practice. Unterminated cables without a NEC, with a NEC, or with a NEC and a Raychem WCSF-U oversleeve are acceptable.

The present application range tables are more liberal; therefore, the use of the previous tables is acceptable.

Existing installations are acceptable, as described above. TVA, therefore, no longer considers this deficiency to be reportable under 10 CFR 50.55(e).

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