TENNESSEE VALLEY AUTHORITY
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OCT 28 1987

WBRD-50-390/87-19
WBRD-50-391/87-22

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 - FAILURE OF HIGH-VOLTAGE CABLE INSULATION ON DIESEL GENERATORS - WBRD-50-390/87-19 AND WBRD-50-391/87-22
INTERIM REPORT

The subject deficiency was initially reported to NRC Region II Inspector Steve Elrod on September 28, 1987, in accordance with 10 CFR 50.55(e) as CAQR WBT 870272. Enclosed is our interim report. We expect to submit our final report on or about May 29, 1988. We consider 10 CFR Part 21 applicable to this deficiency.

If there are any questions, please telephone R. D. Schulz at (615) 365-8524.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. Gridley, Director
Nuclear Licensing and
Regulatory Affairs

Enclosure
cc: See page 2

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U.S. Nuclear Regulatory Commission

OCT 28 1987

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ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNITS 1 AND 2
FAILURE OF HIGH-VOLTAGE CABLE INSULATION ON DIESEL GENERATORS
WBRD-50-390/87-19 AND WBRD-50-391/87-22
CAQR WBT 870272
10 CFR 50.55(e)

INTERIM REPORT

Description of Deficiency

This deficiency involves four of the five WBN standby diesel generators. The standby AC power system is arranged with four diesel generators in two redundant trains per unit and one standby diesel generator that can be manually substituted for any one of the other diesel generator units. During performance of Surveillance Instruction 8.1 on the diesel generators, the 2A-A diesel generator tripped on overcurrent. Upon investigation, it was found that the insulation on the high-voltage cable to the potential transformers in the 2A-A diesel generator exciter cubicle had deteriorated at the transformer termination causing the cable to short to ground. This fault caused a diesel generator trip. The same deficiency exists on the 1B-B diesel generator.

Diesel generators 1A-A, 2A-A, 1B-B, and 2B-B were manufactured by Morrison-Knudson Corporation, and all contain the same type of high-voltage cable insulation and have the potential for this deficiency. The fifth "spare" diesel generator was also supplied by Morrison-Knudson Corporation but contains a different type of insulation cable and termination.

This deficiency is attributed to a design deficiency by Morrison-Knudson, although the exact cause of this deficiency has not been determined. Inadequate cable insulation thickness and/or improper type of cable insulation material and/or lack of stress relief at the termination (none of the cables were pencilled) are suspected as the cause of the insulation failure and subsequent diesel generator trip.

No other diesel generators have been supplied to WBN by Morrison-Knudson.

Safety Implications

Inadequate insulation thickness, improper type of insulation material, or improper termination of high-voltage cable can cause insulation failure, creating a short. This can result in a diesel generator trip and make a portion of the onsite emergency power supply unavailable.

Since this deficiency could result in concurrent diesel failures, the potential exists for a loss of the ability to maintain essential safety-related load functions during a loss of offsite power. Therefore, safe operations of the plant could be adversely affected.

Corrective Action

TVA plans to replace the cable using proper insulation and/or proper terminations. TVA is working with the vendor to determine the exact cause of the insulation failure so that the new cable is not vulnerable to a similar failure. The final report, addressing the cause of the diesel generator insulation failure and corrective action, will be submitted on or about May 29, 1988.