

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

APR 30 1987

WBRD-50-390/87-10

10 CFR 50.55(e)

WBRD-50-391/87-10

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Gentlemen:

WATTS BAR NUCLEAR PLANT - UNITS 1 AND 2 - FAILURE OF CATEGORY "C" DEVICES MAY  
ADVERSELY AFFECT CATEGORY "A" DEVICES - WBRD-50-390/87-10, WBRD-50-391/87-10 -  
INTERIM REPORT

The subject deficiency was initially reported to NRC-Region II Inspector  
Gordon Hunegs on April 2, 1987, in accordance with 10 CFR 50.55(e)  
as SCRs WBN EEB 8680 and EEB 8684. Enclosed is our interim report. We expect  
to submit our next report on or about February 20, 1988.

If there are any questions, please telephone R. D. Schulz at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

*R. Gridley*  
R. Gridley, Director  
Nuclear Safety and Licensing

Enclosure

cc: See page 2

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U.S. Nuclear Regulatory Commission

cc (Enclosure):

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ENCLOSURE  
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2  
FAILURE OF CATEGORY "C" DEVICES  
MAY ADVERSELY AFFECT CATEGORY "A" DEVICES  
WBRD-50-390/87-10 AND WBRD-50-391/87-10  
SCRs WBN EEB 8680 AND WBN EEB 8684  
10 CFR 50.55(e)  
INTERIM REPORT

DESCRIPTION OF DEFICIENCY

The subject significant condition reports (SCRs) identify a condition in which failure of environmental qualification (EQ) category C electrical devices may result in EQ category A devices being unable to perform their safety functions. Category C devices are defined as equipment which will experience design basis accident (DBA) environments but are not required to function for mitigation of the DBA which created the adverse environment. Category A devices are defined as equipment which will experience DBA environments and must function for mitigation of the DBA which created the adverse environment. This condition is in violation of 10 CFR 50.49, which states that nonsafety-related equipment failure due to postulated environmental conditions should not prevent satisfactory performance of safety-related equipment.

Some specific examples of devices which would have adverse interaction due to DBA harsh environment are as follows:

- A ground fault in a category C handswitch resulting in the inability of several isolation valves (category A devices) to function for postaccident monitoring (reactor coolant, containment sump, and containment atmosphere sampling).
- A short circuit in a category C valve limit switch resulting in failure of a letdown containment isolation valve (category A device) to close.
- A short circuit in a category C valve limit switch resulting in the inability to open emergency gas treatment suction valve (category A device).

SAFETY IMPLICATIONS

Failure of category C devices due to a DBA harsh environment could result in failure of essential safety-related components which are required to perform for accident mitigation.

Loss of any of these functions could adversely affect the safe shutdown of the plant after a DBA which resulted in harsh environments.

INTERIM PROGRESS

All affected devices in units 1 and 2 have been identified by the Division of Nuclear Engineering calculation WBPE VAR 860 3005. This calculation provides a failure analysis of category C electrical devices, their effect on category A electrical devices, and the consequence to safety-related component operation. Corrective actions being considered include upgrade of applicable category C devices or installation of isolation devices to mitigate the effect on category A devices. TVA expects to submit the final report on or about February 20, 1988.