

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

JUL 31 1989

WBRD-50-390/8653
WBRD-50-391/8651

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) Docket Nos. 50-390
Tennessee Valley Authority) 50-391

WATTS BAR NUCLEAR PLANT (WBN) UNITS 1 AND 2 - WBRD-50-390/86-53,
WBRD-50-391/86-51 - REVISED FINAL REPORT

The subject deficiency was initially reported to NRC Region II Inspector Gordon Hunegs on May 14, 1986, in accordance with 10 CFR 50.55(e) as Significant Condition Report (SCR) WBN EEB 8642. In our final report, submitted to NRC on June 12, 1986, TVA committed to reinspect and clean the diesel generator panels six months after completing the corrective action to ensure that the actions were effective. A revised report (interim) was submitted on September 25, 1987. Subsequently, a second interim report was submitted on May 4, 1988, stating that the deficiency appeared to be the result of misapplication of relays by the vendor and that 10 CFR 21 was applicable. Since that time, the vendor has informed TVA that misapplication is not the problem; therefore, we no longer consider 10 CFR 21 applicable to this deficiency. A root cause could not be established for the malfunction of the K2 and K3 relays. TVA has determined that the manual voltage controller is no longer required and, consequently, the K2 and K3 relays will be removed.

Enclosure 1 contains TVA's revised final report. Enclosure 2 provides the commitment made in this report.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

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Enclosures
cc: See page 2

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U.S. Nuclear Regulatory Commission

JUL 31 1989

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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
PROBLEMS WITH DIESEL GENERATOR RELAY CONTACTS
SCR WBN EEB 8642
10 CFR 50.55(e)

REVISED FINAL REPORT

Description of Deficiency

TVA identified a deficiency (WBN EEB 8642) involving erratic operation of the automatic and manual voltage regulators and field flashing circuits for the standby diesel generators (DGs) at WBN. A final report for this deficiency was submitted to the Nuclear Regulatory Commission (NRC) on June 12, 1986 (L44 860612 803). TVA traced the problem to the K2 and K3 relay circuits and determined the problem to be caused by a layer of dust preventing complete relay contact closure and, subsequently, preventing transfer of the voltage regulator synchronizing (K2 and K3 relays) and field flashing (LR relays) signals. The aforementioned final report stated that TVA had removed the dust from the affected relay circuits which resulted in the relay circuits operating properly and, to prevent recurrence, TVA would install sealed dust covers on the subject relays and improve the filtering system in the DG control panels. These actions were accomplished under Engineering Change Notice (ECN) 6366.

During a maintenance run of DG 2B-B on May 21, 1987, it was discovered that the K2 and K3 relays were again experiencing operating difficulties and causing erratic behavior of the automatic and manual voltage regulators. This was documented in significant Condition Adverse to Quality Report (CAQR) WBP870427. (The relays on DG 2B-B had performed properly during testing runs conducted on January 21, 1987 and March 25, 1987.)

TVA had previously stated in the second interim report dated May 4, 1988, that misapplication of the J11 series latching relays used for the K2 and K3 relay applications could be the problem. Since then, the vendor (Morrison-Knudson Company, Rocky Mount, North Carolina) has informed TVA that misapplication is not the problem.

Safety Implications

If left uncorrected, the subject condition could adversely affect the ability of DGs to accept loads upon a loss of preferred power. As such, this condition could adversely affect the safety of the plant.

Corrective Action

The corrective action for SCR WBN EEB 8642 will be to eliminate the K2 and K3 relays in all five diesel generator control circuits. The K2 and K3 relays served to switch between the manual and automatic voltage control regulator. The automatic voltage control regulator will now be used in all modes of operation. The manual voltage control regulator which was used on occasion in the test mode and had no safety function will be eliminated. This change is being done under Design Change Notice (DCN) P-03328 and is scheduled for completion by March 1990. Thus, the source of the erratic behavior is eliminated.

Action Required to Prevent Recurrence

This problem is considered an isolated occurrence. No other problems of this nature are known to exist now or in the past. A review of Class 1E equipment has not revealed any other applications for this type relay (LTE J11 Series).

ENCLOSURE 2

The following is the commitment made in this report:

1. The corrective action for SCR WBN EEB 8642 will be to eliminate the K2 and K3 relays in all five diesel generator control circuits before fuel load.