

TENNESSEE VALLEY AUTHORITY

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FEB 16 1988

WBRD-50-390/87-11
WBRD-50-391/87-11

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 TO COORDINATE SOLENOID
VALVE REPLACEMENT DOCUMENTS - WBRD-50-390/87-11 AND WBRD-50-391/87-11 -
FINAL REPORT

The subject deficiency was initially reported to NRC Region II Inspector
Ken Barr on March 24, 1987, in accordance with 10 CFR 50.55(e) as SCRs
WBN MEB 8715 and WBN MEB 8716. An interim report was submitted to NRC on
April 28, 1987. Enclosed is our final report.

If there are any questions, please telephone C. J. Riedl at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY


R. Gridley, Director
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Enclosure

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cc (Enclosure):

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
FAILURE TO COORDINATE SOLENOID VALVE
REPLACEMENT DOCUMENTS
WBRD-50-390/87-11 AND WBRD-50-391/87-11
SCRs WBN MEB 8715 and WBN MEB 8716
10 CFR 50.55(e)

FINAL REPORT

Description of Deficiency

An Engineering Change Notice (ECN) was issued in 1982 to replace Automatic Switch Company (ASCO) solenoid valves which were not environmentally qualified. The scope of the ECN erroneously excluded the civil and mechanical disciplines in the review cycle because of a lack of coordination between the involved organizations. As a result, the operational and seismic adequacy of the subject replacement solenoid valves is questionable.

The operability of the solenoid valves could be affected as the valves do not utilize spring closure but rely on gravity to seat the plunger. Vendor drawings indicate that installation is to be upright and within 45 degrees of vertical to ensure operation. If the configuration of the installations is other than that specified by the vendor, operation of the solenoid valves cannot be ensured.

The seismic adequacy of the solenoid valve installations is subject to question because a change in configuration and/or mass of the solenoid valves could render the seismic qualification invalid.

The root cause of this deficiency is the failure to perform appropriate inter-disciplinary reviews of the ECN before implementation.

Safety Implications

These solenoid valves control the air supply to the pneumatic operators on process valves and dampers. They are installed on various safety-related systems, such as Heating, Ventilation, and Air Conditioning; Control Air; Essential Raw Cooling Water; Component Cooling; and Radiation Monitoring. These safety-related systems are required to remain functional during upset and faulted plant conditions. Proper functioning of these systems is contingent upon proper and timely functioning of the valves contained therein. Failure of a control valve assembly would lead to inoperable process valves and dampers and subsequent failure of the associated system to perform its design function. This condition could adversely affect safe operation of the plant.

Corrective Action

The walkdown to determine the as-installed orientation of the unit 1 solenoid valve operators has been completed, and data sheets have been produced. These data sheets will be evaluated to determine the ASCO solenoid valves which do not conform to the vendor's orientation requirements. The control valve's seismic analysis will be reviewed to ensure that the replacement solenoid valve does not affect its seismic qualification. Hardware changes will be performed as required, and control valve and damper drawings will be revised to reflect the installed configurations.

Unit 2 installations have not yet been finalized. Correct installation of unit 2 solenoid valves will be ensured by the normal design and inspection process and the actions instituted to prevent recurrence of the subject deficiencies.

To prevent recurrence, TVA in mid-1985 modified the design control process (through issuance of OEP-11) to require that all engineering disciplines review and approve all design changes. Implementation of this process precludes the inappropriate omissions of required reviews by other engineering disciplines. This process requirement has been included in subsequent engineering procedures (currently NEP 6.1 R0) where applicable.

In the interim report on this deficiency, TVA stated its intention to perform a sampling of past ECNs to determine the scope of the failure to coordinate ECNs. However, TVA's trend analysis program on conditions adverse to quality (CAQs) has identified no adverse trends of this type. Therefore, TVA considers the subject deficiency to be an isolated occurrence and considers further sampling of ECNs to be unnecessary. Additionally, TVA considers that this indicates the recurrence control implemented in 1985 to be effective.

Corrective actions for units 1 and 2 will be completed before fuel load of the respective unit.