

ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
SUMP VALVES FAIL TO OPEN DURING
AUTOMATIC SWITCHOVER TESTING

NCR MEB 1012

FINAL REPORT

Description of Deficiency

During testing of the Sequoyah unit 1 automatic control circuitry which automatically opens emergency sump valves FCV 63-72 and FCV 63-73, these valves failed to open.

Subsequent investigation of the circuitry schematics revealed the circuitry design for performing this action was inadequate. Since the design of the Watts Bar automatic switchover circuitry is similar to the Sequoyah circuitry, the deficiency also affects Watts Bar Nuclear Plant.

Safety Implications

During the initial stages of emergency shutdown after a loss of coolant accident, water is used to remove heat from the core and maintain its temperature at a safe level. The water is initially obtained from the refueling water storage tank (RWST). This water is injected into the reactor vessel to replace the coolant lost as a result of the accident. The lost coolant is collected in the containment emergency sump. After the RWST supply is depleted, automatic switchover capability is available to isolate the RWST and open valves FCV 63-72 and FCV 63-73 to permit suction from the emergency sump. This suction from the emergency sump would then be cooled and injected back into the reactor vessel on a continuous basis to remove residual heat from the core. Had the deficiency gone uncorrected, the capability for automatically switching residual heat removal suction from the RWST to the emergency sump would be lost. However, procedures require that automatic switchover be verified by the operator. If switchover cannot be verified, it is then accomplished by manual actuation from the Main Control Room. This manual actuation capability was not affected by the deficiency. Thus the deficiency, had it gone uncorrected, would have affected plant safety only if both safety-related channels of manual switchover actuation capability for that unit had been lost simultaneously. This is considered a highly unlikely event.

Corrective Action

The automatic switchover schematics have been corrected. Redesigning of the control circuitry in accordance with these revised schematics will permit the correct sequencing of the automatic switchover to be accomplished. The adequacy of this corrective action will be tested and verified in future preoperational testing of the system before operation of the unit.

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