

ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
REDUCED SIS FLOW AT LOW REACTOR COOLANT
SYSTEM LEVELS - NCR 1011

FINAL REPORT

Description of Deficiency

Blowdown testing of the Safety Injection System accumulators at Sequoyah revealed an injection piping flow resistance ($f L/D$ factor), as calculated from the test results, that varies with backpressure at the injection points to the reactor coolant system. The variation is apparently due to the backpressure effect on cavitation occurring downstream of the injection line orifice. Reduced backpressures (caused by low reactor coolant pressures) result in cavitation which reduces the expected injection flow rates. The flow may be reduced enough to invalidate injection water assumptions made in the LOCA analysis by Westinghouse. Because of the similarity of the Watts Bar design to the Sequoyah design, this deficiency also affects the Watts Bar Nuclear Plant.

Safety Implications

Had this deficiency remained uncorrected, the actual accumulator injection rates would not have been consistent with those assumed in the ECCS analysis for mitigation of the effects of a LOCA. This would have led to some uncertainty in the response of the plant under LOCA conditions.

Corrective Action

The Watts Bar SIS accumulators are being modified with the same orifice change as used and successfully tested at Sequoyah Nuclear Plant. Testing at Watts Bar will be completed in the normal preoperational testing program.

7904060336