TENNESSEE VALLEY AUTHORITY

5N 157B Lookout Place

April 16, 1986 APR 22 A9:28

WBRD-50-391/86-35

U.S. Nuclear Regulatory Commission
Region II
Attention: Dr. J. Nelson Grace, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Dr. Grace:

WATTS BAR NUCLEAR PLANT UNIT 2 - INABILITY TO MAINTAIN POST LOSS OF COOLANT ACCIDENT EMERGENCY CORE COOLING SYSTEM SUMP WATER LEVEL - WBRD-50-391/86-35 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector Bob Carroll on March 18, 1986 in accordance with 10 CFR 50.55(e) as SCR WBN MEB 8620. Enclosed is our final report.

If there are any questions, please get in touch with R. H. Shell at FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. L. Gridley
Manager of Licensing

Enclosure
cc: Mr. James Taylor, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center (Enclosure)
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

ENCLOSURE

WATTS BAR NUCLEAR PLANT UNIT 2
INABILITY TO MAINTAIN POST LOSS OF COOLANT ACCIDENT
EMERGENCY CORE COOLING SYSTEM SUMP WATER LEVEL
WBRD-50-391/86-35
SCR WBN MEB 8620
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The water level in the emergency core cooling system (ECCS) sump and inside the reactor building (RB) crane wall in the Watts Bar Nuclear Plant (WBN) containment must be maintained to elevation (el) 716' (13.2 ft head) after a loss of coolant accident (LOCA). This is to ensure an adequate supply of coolant and proper operation of the residual heat removal (RHR) pumps at the onset of and during post-LOCA recirculation cooling. Because of common connections through the RB floor drains inside the crane wall, the RB auxiliary floor and equipment drain (AFED) sump must also maintain the water level at this elevation.

As shown on TVA drawing 47W476-2 R14 for WBN, there are two 2" by 3" holes in each 8" diameter standpipe for level transmitters 2-77-LT-401 and -411 for the RB AFED sump. The holes were designed to allow venting of the standpipes to ensure accurate level indication. The standpipes extend outside of the RB AFED sump and the holes are located outside of the sump and below el 703'. Due to the elevation difference (716'-703') and the location of the subject holes outside of RB AFED sump, the ability to maintain the post-LOCA ECCS sump water level is jeopardized.

TVA has determined that this deficiency was caused by the designer's failure to recognize that the holes in the standpipes would violate the integrity of the RB AFED in regard to maintaining the required post-LOCA ECCS water level. This deficiency is considered to be an isolated design oversight.

Safety Implications

The subject holes result in a total of 24 in^2 of area for flow out of the RB AFED sump. As described above, this could jeopardize the ability to maintain the required post-LOCA ECCS sump water level. This could possibly result in vortexing through the ECCS sump and subsequent air entrainment and cavitation in the RHR pumps, thereby resulting in damage to the RHR pumps and a possible loss of recirculation cooling following a LOCA. Consequently, this could adversely affect the safety of operations of the plant.