

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401  
5115 157<sup>3</sup> Lookout Place

January 28, 1986

WBRD-50-390/85-59  
WBRD-50-391/85-55

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 UNITS 1 AND 2 - FLOODING IN CATEGORY I STRUCTURES  
OUTSIDE CONTAINMENT - WBRD-50-390/85-59, WBRD-50-391/85-55 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector  
Al Ignatonis on October 28, 1985 in accordance with 10 CFR 50.55(e) as SCR WBN  
WEB 8523. Our interim report was submitted on December 13, 1985. 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*  
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

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2  
FLOODING IN CATEGORY I STRUCTURES OUTSIDE CONTAINMENT  
WBRD-50-390/85-59, WBRD-50-391/85-55  
SCR WBN NEB 8523  
10 CFR 50.55(e)  
FINAL REPORT

Description of Deficiency

TVA's Watts Bar Nuclear Plant (WBN) Design Criteria WB-DC-40-31.50, "Evaluating the Effects of a Pipe Failure Inside and Outside Containment," section 4.4, requires evaluation of the environmental effects of high and moderate energy piping failures. The definition of environmental effects in WB-DC-40-31.50, section 2.4 includes flooding. Also, 10 CFR 50.49(e)(6) requires the environmental qualification program to be based on and include submergence if the equipment is subject to being submerged. However, TVA has now determined that there is inadequate documentation for WBN to conclude that there will be no unacceptable consequences as a result of flooding in a category 1 structure, outside containment, following high or moderate energy pipe failures. As such, it cannot be shown that the requirements of WB-DC-40-31.50 or 10 CFR 50.49(e)(6) have been met for affected equipment or structures.

This deficiency was discovered during a design review for a generic condition associated with significant condition report (SCR) SQN NEB 8513. TVA has determined that similar, but not identical, deficiencies exist at Sequoyah Nuclear Plant (SQN) (identified in SCR SQN NEB 8513 as noted above) and Browns Ferry Nuclear Plant (BFN) (SCR BFN NEB 8507). The subject deficiency does not apply to Bellefonte Nuclear Plant (BLN).

TVA has determined that this deficiency is due to a failure to properly assign and track this task within the responsible engineering organization. This occurrence is considered to be an isolated design oversight.

Safety Implications

As a result of this deficiency, it is possible that some components, systems or structures are not specifically designed nor qualified for anticipated water accumulations following a pipe failure. If not specifically designed/qualified for, or protected from submergence, it is possible that affected safety-related equipment could be rendered incapable of performing its intended design function following a pipe failure outside containment. In addition, some systems which are not required to function following these pipe failures, could possibly fail in a manner which could jeopardize the integrity of another system(s). This could, thereby, prevent the accomplishment of a required safety-related function.

Since specific consequences as a result of this deficiency are unknown at this time, TVA considers that had this condition remained uncorrected, it could have adversely affected the safety of operation of the plant.

Corrective Action

TVA will perform a documented evaluation of the effects of flooding due to high and moderate energy pipe failures outside containment in category I structures. This will verify that all essential equipment and structures are either unaffected by any postulated flooding, or are designed, specified, and/or qualified for the environment caused by such flooding. Any essential equipment that is identified as potentially being adversely affected by the flooding will be addressed by separate SCRs.

TVA will instruct affected engineers in the responsible engineering organization to ensure that all identified tasks are properly assigned and tracked by existing tracking mechanisms. Also, TVA's Environmental Qualification Project (EQP) has been formed to reevaluate environmental qualification efforts, and to correct any identified deficiencies. No further actions to prevent recurrence are considered necessary.

All corrective actions for this item will be completed by fuel loading for WBM units 1 and 2, respectively.