TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

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January 11, 1984

WBRD-50-390/83-38
WBRD-50-391/83-38

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - HPFP PIPING WATER DANGER TO SHUTDOWN BOARD TRANSFORMERS AFTER EARTHQUAKE - WBRD-50-390/83-38, WBRD-50-391/83-38 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector Linda Watson on June 16, 1983 in accordance with 10 CFR 50.55(e) as NCR WBN WBP 8309. Our first interim report was submitted on July 18, 1983. A final report for unit 1 and second interim report for unit 2 was submitted on September 28, 1983.

Since the submittal of our final report dated September 28, 1983, it was discovered that the unit 2 shutdown board transformers must be energized for unit 1 operation, and thus the fire protection piping in the unit 2 area must be qualified. TVA, therefore, returned this item to interim status. Our third interim report was submitted on December 9, 1983. Enclosed is our final report.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Licensing

Enclosure
cc: Mr. Richard C. DeYoung, 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
HPFP PIPING WATER DANGER
TO SHUTDOWN BOARD TRANSFORMERS AFTER EARTHQUAKE
NCR WBN WBP 8309
WBRD-50-390/83-38, WBRD-50-391/83-38
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

Piping for the High Pressure Fire Protection System routed above the shutdown board transformers on elevation 772 of the Auxiliary Building and shown on TVA drawing series 47W491-3 has been supported for position retention only. The piping should be seismically supported to preserve pressure boundary integrity to preclude spraying water on the shutdown boards transformers. The transformers are located between column lines A1 and A3; U and Q for Unit 1 and A13 and A15; U and Q for Unit 2.

The root cause of this nonconformance report (NCR) is that there were no drawings maintained by Watts Bar Design Project (WBP) which indicated the locations of all equipment that required protection from water spray. Therefore, the piping engineers could not ascertain the correct support requirements for noncritical piping in any given area. Conversely, the electrical engineers could not identify the areas of potential water spray in order to specify either spray-proof enclosures, or physical barriers (spray shields) for IEEE class 1E equipment to be located in these areas.

Safety Implications

During a seismic event the referenced portion of the fire protection piping, which is normally dry, could become a wet system since the deluge valve serving this portion is not seismically qualified. The piping, supported only for position retention, could break and spray water on the shutdown board transformers. The operability of these transformers would thus be jeopardized. The transformers are not qualified to remain operable in a spray environment. Therefore, this condition, if it remained uncorrected, could have jeopardized the safe operation of the plant.

Corrective Action

The issue of identifying all areas with water spray potential to safety-related equipment has been addressed by NCR WBN SWP 8265 (WBRD-50-390,391/83-05). To resolve NCR WBN SWP 8265, engineering change notices (ECN) 3837 and 4282 have been written. The work on ECN 3937 is complete. Drawings have been prepared to show all areas of the WBN Category I structures containing piping supported for position retention only. A walkdown inspection of all IEEE Class 1E components located in these areas was conducted to determine the best method to protect those components requiring protection from water spray. The final report for this inspection will be attached to the Pipe Rupture Evaluation Final Report. (Referenced in NCR WBN SWP 8265.)

The specific problem identified by NCR WBN WBP 8309 is addressed by ECN 4038 which requires that fire protection piping in the vicinity of the shutdown board room transformers on both units 1 and 2 be supported for both position retention and pressure boundary integrity. The piping stress analysis has been completed and the support design will be completed by January 26, 1984. Fabrication and installation of the supports will be completed by March 1, 1984.

The action required to prevent recurrence of this type of deficiency is as follows (reference NCR WBN SWP 8265):

1. Issue additional sheets to the 47W200 series equipment drawings beginning with sheet 100 to identify all areas of Category 1 structures containing noncritical piping not supported for Category 1(L) for pressure boundary integrity.

2. Identify all IEEE class 1E equipment located within the boundaries marked on the 47W200 series drawings in 1 above, and provide any water spray protection required.

3. Issue Watts Bar Design Project Engineering Procedure (WBP-EP-43.24) to ensure that the guidelines established by issued design criteria are known and followed by all design personnel involved in pipe stress analysis, support design, and identification of pipe support requirements.

All action required to prevent recurrence will be accomplished by January 26, 1984, as discussed in our final report on NCR WBN SWP 8265.