

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401  
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JUN 25 1987

WBRD-50-390/87-13  
WBRD-50-391/87-14

10 CFR 50.55(e)

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Gentlemen:

WATTS BAR NUCLEAR PLANT (WBN) - UNITS 1 AND 2 - SLEEVE SEALING PROGRAM  
DEFICIENCIES - WBRD-50-390/87-13 AND WBRD-50-391/87-14 - INTERIM REPORT

The subject deficiency was initially reported to NRC-Region II Inspector  
Gordon Hunegs on May 27, 1987, in accordance with 10 CFR 50.55(e)  
as SCRs WBN WBP 8780 and WBN WBP 8781. Enclosed is our report. We  
expect to submit our next report on or about March 5, 1988.

If there are any questions, please telephone R. D. Schulz at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

*J. A. Womer*  
for R. Gridley, Director  
Nuclear Safety and Licensing

Enclosure  
cc: See page 2

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U.S. Nuclear Regulatory Commission

JUN 25 1987

cc (Enclosure):

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ENCLOSURE  
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2  
SLEEVE SEALING PROGRAM DEFICIENCIES  
SCRs WBN WBP 8780 AND WBN WBP 8781  
10 CFR 50.55(e)  
INTERIM REPORT

DESCRIPTION OF DEFICIENCY

Various deficiencies have been identified involving the sleeve sealing program for Seismic Category I buildings at Watts Bar Nuclear Plant (WBN). These deficiencies can be categorized as follows: lack of adequate documentation of seal materials; incorrect translation of test model into issued design details; and design drawing inadequacies. As a result of these deficiencies, TVA cannot demonstrate the ability of the sleeve seals in Seismic Category I buildings to perform their intended function. This could lead to sleeve seal components (i.e., RTV silicon foam, fabric boots, silicon caulk) being exposed to conditions under which they, and subsequently the seal as a whole, could fail. The sleeve seal would then not be an adequate barrier to fire, water, pressure, airborne contamination, etc.

Specific examples of these deficiencies are as follows:

- ° There is no assurance that the RTV silicon foam and fabric boot seals installed in the Shield Building wall will prevent entrance of water into the Shield Building under maximum flood conditions.
- ° The Shield Building wall is considered a pressure boundary to prevent contaminants from escaping into the atmosphere and a three-hour rated fire barrier. The design for the sleeve seals in the Shield Building wall requires that either a fabric boot seal or RTV silicon foam be used. The fabric boot specified is not fire rated, and RTV silicon foam used alone is not qualified as a pressure barrier.
- ° The crane wall inside containment is assumed to be sealed between elevations 702.78 and 716 to initially retain more water in the active containment sump during a loss of coolant accident (FSAR 6.3). The tested and approved configuration for this type seal application is two inches of silicon caulk installed in 1/2-inch layers over RTV foam. However, the seal detail for the crane wall specifies RTV foam with a 1/2-inch coating of silicon caulk. There is no assurance that the installed seals will prevent water from escaping outside the crane wall during the recirculation mode of emergency core cooling and/or containment spray.

SAFETY IMPLICATIONS

Sleeve seals are used at floor, wall, and ceiling penetrations to provide a barrier such as a water seal, fire stop, airborne contamination containment, etc. Failure of a sleeve seal may lead to the following conditions:

1. Spread of fire from one fire compartment to another.
2. Flooding of the annulus during maximum flood conditions.
3. Loss of water inventory during containment spray recirculation mode.
4. Unanalyzed release of radioactive contaminants to the environment.

Any of these conditions could adversely affect safe operation of the plant.

INTERIM PROGRESS

Specific corrective actions for this deficiency have not yet been determined. TVA's current approach is to assemble all functional requirements for sleeve seals, then review all design drawings to determine if functional requirements are currently being met. New sleeve seal designs would be provided where needed. TVA will provide a final report on this item to NRC on or about March 5, 1988.