

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

83 OCT 6 ~~October 29~~, 1983

WBRD-50-390/82-01
WBRD-50-391/82-01

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 - EXCESSIVE MOVEMENT OF CONTAINMENT
PENETRATION BELLOWS - WBRD-50-390/82-01, WBRD-50-391/82-01 - FINAL REPORT**

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crienjak on December 4, 1981 in accordance with 10 CFR 50.55(e) as NCR WBN CEB 8119. Interim reports were submitted on January 8, March 16, August 4, and December 2, 1982 and May 16, 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
L. M. Mills, Manager
Nuclear Licensing

Enclosure
cc (Enclosure):

Mr. Richard C. DeYoung, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
EXCESSIVE MOVEMENT OF CONTAINMENT PENETRATION BELLOWS
NCR WBN CEB 8119
WBRD-50-390/82-01, WBRD-50-391/82-01
FINAL REPORT

Description of Deficiency

Analysis problem N3-63-7A contains four type XI containment penetrations (K-14 through K-17) which accommodate bellows. The allowable design lateral displacement for these bellows is 0.226 inch (i.e., as depicted on TVA drawing 47W331-1 and Tube Turn drawings P.79432-D60.1 and P.79432-D62.1). The allowable displacement has been exceeded by the piping which controls the movement of the bellows, and is reflected in the analysis. Additionally, incorrect maximum operating temperatures were input for the analysis of that portion of the piping running from the RHR pumps to and including the 3-inch miniflow line. Upon investigation of this deficiency, problem N3-74-1A was also discovered to have been analyzed with the incorrect maximum temperature. The miniflow piping runs adjacent to the bellows penetrations and was analyzed for a maximum temperature of 190 degrees Fahrenheit. Unconservative pipe stresses, movements, and support loads could occur.

The analysis errors described were not corrected due to improper checking. The analysis drawings and design calculations indicate that checking was not performed by an independent reviewer (i.e., the preparer and checker were listed as being the same individual).

Safety Implications

There is a possibility that the bellows for the RHR piping could exceed allowable lateral displacement thus violating the bellows' integrity and containment isolation.

Also, the condition of using incorrect maximum operating temperatures could result in safety-related piping systems not being qualified to ASME Code requirements. Should the piping for these systems fail during a seismic event, there would be adverse effects to the safe operations of the plant.

Corrective Action

The allowable displacement criteria of 0.226 inch for the bellows is no longer relevant. This conclusion is based on an investigation that was made into the leak tight requirements of the RHR sump valve rooms (NCR WBN NEB 8207 (WBRD-50-390/82-43, WBRD-50-391/82-40) delineates this investigation). Since leak tightness is not needed for this room, movements of the bellows may exceed 0.226 inch lateral displacement limitations.

Analysis problems N3-63-7A and N3-74-1A have been reanalyzed incorporating the correct operating temperatures. The reanalysis of these two problems indicates that field modifications will be required, and the work is being performed under engineering change notice (ECN) 3645 for units 1 and 2. This ECN covers all rework associated with problems reanalyzed for correct operating modes including the two problems here and those identified in NCR WBN CED 8215 (WBRD-50-390/82-52, WBRD-50-391/82-49). Corrective action will be completed by December 31, 1983.

The generic concerns and action to prevent recurrence associated with this item will be tracked under WBNCEB8215 which concerns use of correct operating modes (temperature levels, etc.). Since the question of allowable displacement is no longer a problem, and the use of correct operating modes is addressed under another NCR, we consider this matter closed.