

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

05 MAR 7 P 11:34
March 4, 1985

WB RD-50-390/84-53
WB RD-50-391/84-47

U.S. Nuclear Regulatory Commission
Region II
Attn: 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 - STEEL CONTAINMENT VESSEL RESPONSE
SPECTRA - WB RD-50-390/84-53 AND WB RD-50-391/84-47 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
A. Ignatonis on November 28, 1984 in accordance with 10 CFR 50.55(e)
as NCR GEN OEB 8407. This was followed by our interim report dated
December 28, 1984. Enclosed is our final report. Please note that TVA no
longer considers this nonconformance a condition adverse to the safe
operation of the plant and consequently, will delete this condition as a
10 CFR 50.55(e) item from our records.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. A. Hufham
for J. W. Hufham, Manager
Licensing and Regulations

Enclosure

cc (Enclosure):

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

Records Center
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
STEEL CONTAINMENT VESSEL RESPONSE SPECTRA
NCR WBN CEB 8407
WBRD-50-390/84-53 AND WBRD-50-391/84-47
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

In the period from May to September 1979, design basis accident (DBA) analyses were performed on the Watts Bar Nuclear Plant (WBN) steel containment vessel (SCV) to determine response spectra for piping analysis. The axisymmetric shell analysis program called SUPERSHELL was used to generate the response. Because this program only gives displacement time histories as a function of azimuth, a postprocessor program was written to double differentiate the displacement functions to get accelerations. Recently, while attempting to regenerate the acceleration functions on the computer, an error in the differentiation program was discovered. This error resulted in incorrect DBA response spectra for these structures.

Safety Implications

TVA has generated containment vessel response spectra for 1-percent damping (used for heating, ventilating, and air-conditioning (HVAC) penetrations and miscellaneous attachments) and variable damping (used for piping analysis) using corrected time histories. (The damping used for the piping analysis varied as follows: 0-10 Hz, 5-percent damping; 10-20 Hz, varying linearly from 5-percent damping to 2-percent damping; 20 Hz and above, 2-percent damping).

Comparison of the spectra for variable damping with the original spectra used in piping analyses showed that the original spectra envelop the variable damped spectra in all cases. Thus, piping analyses using the original spectra are conservative.

Comparisons of the revised spectra for 1-percent damping in the frequency ranges used for the analyses of HVAC penetrations and miscellaneous attachments with the original spectra showed that the original spectra envelop the revised spectra in these frequency ranges. Thus, HVAC and miscellaneous attachment analyses using the original spectra are conservative.

Consequently, designs based upon these analyses are conservative and may be used as-is. Therefore, no condition adverse to safety exists, and TVA no longer considers this item reportable under the provisions of 10 CFR 50.55(e).