

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

August 31 1983
SEP 8 1:36

WBRD-50-390/82-44
WBRD-50-391/82-41

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 - USE OF INCORRECT RESPONSE SPECTRA
IN GILBERT/COMMONWEALTH PIPING ANALYSIS - WBRD-50-390/82-44,
WBRD-50-391/82-41 - FINAL REPORT FOR UNIT 1 AND FOURTH INTERIM REPORT FOR
UNIT 2

The subject deficiency was initially reported to NRC-OIE Inspector
P. J. Long on April 26, 1982 in accordance with 10 CFR 50.55(e) as NCR
WBN CEB 8207. Interim reports were submitted on May 27 and October 15,
1982 and April 22, 1983. Enclosed is our final report for unit 1 and
fourth interim report for unit 2. We expect to submit our next report on
or by May 24, 1984. TVA considers 10 CFR Part 21 applicable to this
deficiency.

If you have any questions, please get in touch with R. H. Shell at
PTS 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

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
USE OF INCORRECT RESPONSE SPECTRA IN GILBERT/COMMONWEALTH PIPING ANALYSIS
NCR WBN CEB 8207
WBRD-50-390/82-44, WBRD-50-391/82-41
10 CFR 50.55(e)
FINAL REPORT FOR UNIT 1 AND FOURTH INTERIM REPORT FOR UNIT 2

Description of Deficiency

Incorrect response spectra was used for the X-Y operating basis earthquake dynamic level case for piping analysis 060200-09-05 by Gilbert/Commonwealth, Oak Ridge, Tennessee. Spectra for elevation 725.0 feet (No.202) in the east-west direction should have been used instead of spectra for elevation 715.0 feet (No. 201). The application of spectra 201 may result in unconservative pipe stresses and support loads. Also, the anchor movements at points 123 and 148 were input incorrectly based on data supplied by Westinghouse letters WAT-D-1778 and WAT-D-2948. Points 123 and 148 are boron injection piping connections to the reactor coolant loops inside containment.

The discrepancy mentioned above was discovered during an analysis review. It has been determined that the analyst did not properly choose the applicable response spectra and dynamic movement data. Westinghouse supplied dynamic movement data which contained a diagram pertaining to the stated coordinate system. The designer omitted incorporating this Westinghouse-supplied coordinate information into the Westinghouse data tables.

Safety Implications

The safety-related piping and/or supports in zone 4 of the safety-injection system could have been stressed beyond their design limits, thus resulting in failure of the pipe. Failure of the safety-related piping would create a condition adverse to the safety of operation of the plant.

Corrective Action for Unit 1

Piping analysis 0600200-09-05 has been reanalyzed using the correct response spectra and anchor movements. All TVA Civil Engineering Support Branch (CEB) drawings associated with this discrepancy have been issued for unit 1. Watts Bar Design Project (WBP) has completed all unit 1 support drawing modifications, and it has been determined that no field hardware changes are required for unit 1. To prevent recurrence, a section of the WBN rigorous analysis handbook which delineates the proper procedures for choosing the applicable response spectra and dynamic movement data has been issued to TVA designers. This information has also been issued to Gilbert/Commonwealth.

Interim Progress for Unit 2

TVA is continuing the analytical work on unit 2 and will provide more information in our next report.