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TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

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June 25, 1984

WBRD-50-391/83-52
BLRD-50-438/83-46
BLRD-50-439/83-41

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Mr. O'Reilly:

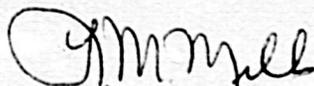
WATTS BAR NUCLEAR PLANT UNIT 2 - CALCULATION OF SUPPORT DESIGN LOADS IN TPIPE -
WBRD-50-391/83-52 - THIRD INTERIM REPORT FOR WATTS BAR UNIT 2

The subject deficiency was initially reported to NRC-OIE Inspector P. E. Fredrickson on July 14, 1983 in accordance with 10 CFR 50.55(e) as NCR GEN CEB 8304. Our first interim report was submitted on September 23, 1983. Our final report for Watts Bar (WBN) unit 1 and second interim report for WBN unit 2 and Bellefonte (BLN) units 1 and 2 was submitted on December 20, 1983. Enclosed is our third interim report for WPN unit 2. We expect to submit our next reports on or about December 21, 1984 and April 19, 1985 for BLN units 1 and 2 and WBN unit 2 respectively.

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
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ENCLOSURE
WATTS BAR NUCLEAR PLANT UNIT 2
CALCULATION OF SUPPORT DESIGN LOADS IN TPIPE
NCR GEN CEB 8304
WBRD-50-391/83-52
10 CFR 50.55(e)
THIRD INTERIM REPORT FOR WBN UNIT 2

Description of Deficiency

When a piping analysis problem requires evaluation of preloading of springs, bellows pressure loading, and/or cold springing, more than one primary sustained load must be considered. The TPIPE special postprocessor was not designed to process more than one primary stress load case in the normal condition. Therefore, TPIPE does not calculate support design loads correctly in the special postprocessor when more than one primary sustained load case (load group 1) is used in the normal condition. Support loads, bellows loads, and preloaded springs were incorrectly combined with dead loads as normal condition primary stress load cases. Consequently, support loads may have been combined unconservatively, although the pipe stresses were calculated correctly.

Interim Progress WBN Unit 2

A hand procedure has been developed which will allow the analyst to recompute the design loads for supports near localized phenomena such as cold spring, preload, and bellows load. Loads were extracted from previously analyzed problems and recombined by the analyst using the hand procedure.

All WBN Unit 2 problems and support load tables affected by this deficiency have been completed and all affected supports will be redesigned.

To prevent recurrence of this deficiency, written instructions were provided to all affected design analysts for handling specialized load cases such as bellows loads, preloading of springs, and for cold springing. The special hand procedure discussed above was incorporated into the Watts Bar Rigorous Analysis Handbook on November 30, 1983.