

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

35 JAN 10 January 7, 1985

WBRD-50-390/84-48
WBRD-50-391/84-43

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 UNITS 1 AND 2 - SUPPORTS MAY BE DEGRADED BY USE OF
INSTALLATION TOLERANCES - WBRD-50-390/84-48, WBRD-50-391/84-43 - FINAL REPORT

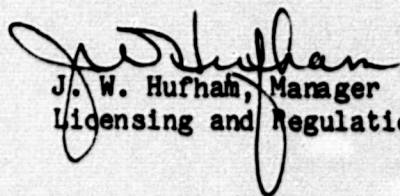
The subject deficiency was initially reported to NRC-OIE Inspector
P. E. Fredrickson on October 22, 1984 in accordance with 10 CFR 50.55(e) as NCR
WBN CEB 8419. This was followed by our interim report dated November 20, 1984.
Enclosed is our final report.

TVA does not now consider the subject nonconforming condition adverse to the
safe operation of the plant. Therefore, we will amend our records to delete the
subject nonconformance as a 10 CFR 50.55(e) item.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY


J. W. Hufnagel, Manager
Licensing and Regulations

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
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Atlanta, Georgia 30339

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
SUPPORTS MAY BE DEGRADED BY USE OF INSTALLATION TOLERANCES
NCR WBN CEB 8419
WBRD-50-390/84-48 and WBRD-50-391/84-43
10 CFR 50.55 (e)
FINAL REPORT

Description of Deficiency

TVA's drawing series 47A050 notes provide TVA's Office of Construction (OC) with several tolerances for fabrication and modification of base plates and installation of anchor bolts. These tolerances were primarily given to allow OC to resolve problems with interference of expansion anchor bolts with reinforcing steel. The cumulative effects of the use of these tolerances may result in significant increases in base plate stresses and anchor bolt loads. There is no evidence that these potential increases due to cumulative effects were considered in the design of the various supports.

A similar condition has been documented for Bellefonte Nuclear Plant (BLN) and is being reported under 10 CFR 50.55(e) to the NRC as nonconformance report (NCR) BLN CEB 8421 (BLRD-50-438/85-02, BLRD-50-439/85-02).

Safety Implications

TVA has completed an evaluation of the potential deficiency and has concluded that no significant effect on the acceptability of pipe supports was evident. As noted in the first report, the sample of 496 pipe supports used for evaluation of NRC Bulletin 79-02 was used for evaluation of the construction tolerances. The following procedure was used.

1. Evaluate each support in the sample to account for the effects of plate flexibility on the anchor bolt load and baseplate stresses.
2. Apply conservative amplification factors to anchor bolt loads and plate stresses to account for field installation and fabrication tolerances. Calculate expansion anchor factors of safety and plate stresses.
3. For baseplates where amplification reduces the factors of safety or increase plate stress to an unacceptable level, obtain a field sketch of the baseplate to determine the actual use of tolerances.
4. Recalculate anchor bolt loads and plate stresses based on the actual installed configuration.

Five of the 496 supports evaluated had expansion anchor factors of safety less than five. Four of the five supports were unaffected by use of the installation tolerances. The factor of safety of the fifth support was reduced from 5.1 to 4.9 by use of the installation tolerances. The plate stresses in all baseplates were found to be acceptable.