

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

July 6, 1984

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:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - ATTACHED PIPING POTENTIAL SAFETY  
CONCERN - NCR BLN NEB 8008 - TENTH INTERIM REPORT

On November 21, 1980, R. W. Wright, NRC-OIE Region II, was informed that the subject nonconformance was determined to be reportable in accordance with 10 CFR 50.55(e). This was followed by our interim reports dated December 19, 1980; April 2 and July 17, 1981; February 17, June 22, and October 14, 1982; May 23 and November 17, 1983; and January 5, 1984. Enclosed is our tenth interim report. We consider 10 CFR Part 21 to be applicable to this nonconformance. We expect to submit our next report by June 28, 1985.

A one-week delay of this submittal was discussed with Inspector P. E. Fredrickson on June 28, 1984.

If you have any questions concerning this matter, 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

H. B. Barkley, Manager  
205 Plant Project Services  
P.O. Box 1260  
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## ENCLOSURE

### BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 ATTACHED PIPING POTENTIAL SAFETY CONCERN NCR BLN NEB 8008 10 CFR 50.55(e) TENTH INTERIM REPORT

#### Description of Deficiency

Babcock and Wilcox (B&W), Lynchburg, Virginia, has uncovered an inconsistency between the assumptions relative to pipe breaks in the loss-of-coolant accident (LOCA) analysis and the structural analysis of certain connecting pipes in the affected or broken loop. The LOCA analysis does not assume a consequential failure of piping caused by a LOCA pipe break. Certain piping and instrumentation connections to the Reactor Coolant System (RCS) may not be adequately designed to maintain function or to resist consequential failures as a result of the LOCA break in the Reactor Coolant System. Consequential failures of these piping connections could represent an inconsistency with the ECCS analysis performed for Bellefonte.

#### Interim Progress

As specified in previous interim reports, the completed analyses show that the stress levels in all piping and instrumentation connections to the RCS are acceptable except for the incore piping. In interim report No. 9 TVA listed three of the alternatives identified by B&W for reducing the incore piping stresses to acceptable levels. However, upon consideration, B&W believes using the "leak before break" (LBB) criterion has the greatest probability of success. The load component causing the overstress condition results from movement of the reactor vessel due to asymmetric pressures in the reactor cavity after a break in the primary piping. The LBB criterion will eliminate the break in the primary piping and thereby eliminate the load component causing the incore piping to be overstressed.

Implementation of this alternative will require Nuclear Regulatory Commission (NRC) acceptance of the LBB criterion. The NRC now allows application of the LBB criterion to large reactor coolant pipes at plants with Westinghouse nuclear steam supply systems (NSSS). The B&W Owners Group (B&WOG) has a program underway to develop LBB criteria for the B&W NSSS which builds upon Westinghouse's experience with the NRC. TVA is participating in the B&WOG LBB program. TVA believes that the NRC review of LBB has progressed to the extent that an acceptable LBB criterion will be available for use in time to support the Bellefonte schedule. TVA has, therefore, informed B&W of our agreement to use the LBB criterion to resolve the overstress problem on the incore piping.

Once the LBB criterion has been approved by the NRC, B&W is to confirm that the LBB criterion does in fact resolve the incore piping overstress problem.