

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

May 23, 1983

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:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - ATTACHED PIPING POTENTIAL SAFETY CONCERN - NCR BLN NEB 8008 - SEVENTH 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, and February 17, June 22, and October 14, 1982. Enclosed is our seventh interim report. We consider 10 CFR Part 21 to be applicable to this nonconformance. We expect to submit our next report by November 18, 1983.

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: Mr. Richard C. DeYoung, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. R. J. Ansell (Enclosure)
Bellefonte Project Services
Babcock & Wilcox Company
P.O. Box 1260
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NRC REGION II
ATLANTA, GEORGIA

ENCLOSURE

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

B&W has performed an investigation on the 205 FA plants where the high energy lines (which could be subjected to major displacements), jet impingement, and/or pipe whip from a spectrum of LOCA pipe breaks were listed. A comparison was made of the connecting lines which were designed for the appropriate displacements and loadings from LOCA breaks. This investigation significantly reduced the number of piping connections of concern. However, some potential problem areas were identified.

These problem areas were categorized into three groups as listed in the fourth and fifth interim reports. All B&W analyses for group one have been completed except for the incore piping. B&W's schedule for completing the incore piping evaluation has been changed from March 1, 1983 to September 1, 1983.

All B&W and TVA analyses for groups 2 and 3 have been completed.

B&W has advised TVA that the assignable cause of the nonconforming condition and action required to prevent recurrence are as follows:

1. Internal B&W criteria did not clearly define requirements for analysis of attached piping.
2. NRC Standard Review Plan requirements versus ASME Code requirements were applied differently by two separate B&W analytical groups.

The B&W criteria did not clearly define system functionality as it applied to attached piping during and after a postulated LOCA. As a result, an accident analysis was performed which assumed that certain piping lines remained intact after a postulated LOCA, whereas the loading analysis assumed that the piping was not required. This mismatch resulted partly from different interpretations by B&W analytical groups of paragraph F-1220(c) of ASME Code Section III. The result was that not all of the possible loads were provided for in the piping loading calculations.

In order to prevent recurrence, B&W has rewritten the analysis criteria clearly defining the required attached piping matrix. A copy of the revised matrix has been submitted to TVA.