

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

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February 17, 1982



U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - ATTACHED PIPING POTENTIAL SAFETY CONCERN - NCR BLN NEB 8008 - FOURTH 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 and April 2 and July 17, 1981. Enclosed is our fourth interim report. We consider 10 CFR Part 21 to be applicable to this nonconformance. We expect to submit our next report by June 23, 1982.

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, Manager
Nuclear Regulation and Safety

Enclosure

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

Mr. James McFarland (Enclosure)
Senior Project Manager
Babcock & Wilcox Company
P.O. Box 1260
Lynchburg, Virginia 24505

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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)
FOURTH INTERIM REPORT

Description of Deficiency

Babcock and Wilcox (B&W), Lynchburg, Virginia, has uncovered an apparent disconnect 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 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 can be categorized into three groups as listed below. The status is given for each item within these groups.

1. Pipe supplied by B&W to be analyzed by B&W to show either acceptability or need for corrective fix.
 - Primary Piping Cold Leg - Calculations have been completed by B&W to show that for a postulated break in the reactor coolant pump suction line section, the stress levels in the pump discharge line section are acceptable and there is no consequential break. Similarly, for a postulated break in the pump discharge line section, the stress levels in the pump suction line section are acceptable and there is no consequential break.
 - Surge Line - Simplified calculations have been completed by B&W to show that the surge line has sufficient structural integrity considering postulated cold leg breaks. Specifically, the surge line can be eliminated from further study as B&W's investigation shows that the line meets allowable stress limits when subjected to nearby small or large LOCAs, static jet impingement, impact factor, end displacement and pressure considered.

- Spray Line - B&W is still investigating.
 - Incore Piping - B&W is still investigating.
2. TVA-supplied piping for which B&W has supplied the required input to TVA for the piping analysis.
- Core Flood Line
 - LPI, Decay Heat Drop Line
 - Steam and Feedwater Piping

Data supplied by B&W has been considered by TVA. Based upon current methods and procedures for considering secondary breaks, the data supplied by B&W will not adversely affect TVA's piping analyses of the core flood, low-pressure injection, decay heat drop line, and steam and feedwater piping. TVA is waiting for additional data on the effects on attached piping of a main steam or feedwater break.

3. TVA-supplied piping for which B&W has generated input for TVA use in structural analysis.
- HPI Lines
 - Instrument Lines

All items have been reviewed by TVA relative to current methods and procedures and will not adversely affect Bellefonte Nuclear Plant instrument and HPI lines.

B&W has also advised TVA that the safety analyses for steam line break (SLB) accidents did not consider any simultaneous or consequential failure of the Reactor Coolant System (RCS) as a result of the original SLB. TVA has requested B&W to provide movements of RCS attachment points to enable TVA to analyze the attached piping for a SLB.