

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401  
400 Chestnut Street Tower II

March 24, 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

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50-438

Dear Mr. O'Reilly:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - FAILURE OF MAIN STEAM LINES  
BECAUSE OF MAIN FEEDWATER OVERFILL - NCR BLN NEB 8004 - NINTH  
INTERIM REPORT

On March 19, 1980, Bruce Cochran, 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 April 17, September 23, and December 29, 1980, June 25 and December 28, 1981, and March 31, August 27, and November 18, 1982. Enclosed is our ninth interim report. We expect to submit our next report by July 15, 1983. We consider 10 CFR Part 21 to be applicable to this nonconformance.

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

*D S Kammer*

*for* 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. 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 FAILURE OF MAIN STEAM LINES BECAUSE OF MAIN FEEDWATER OVERFILL NCR BLN NEB 8004 10 CFR 50.55(e) NINTH INTERIM REPORT

#### Description of Deficiency

A preliminary safety concern, PSC 35-79, was initiated within B&W, Lynchburg, Virginia, which presents the concern that a potential exists for overfilling steam generators by excessive addition of main feedwater (MFW) or auxiliary feedwater (AFW).

Excessive feedwater addition, as used here, is defined as a condition which would exist if feedwater (main or auxiliary) is continually added to the steam generators in an unplanned fashion at a rate greater than the core heat generation capability for converting it to steam. Overfill, the condition addressed in this preliminary safety concern, may be defined as a limiting case of excessive feedwater addition which allows liquid spillage into the steam lines.

It is estimated that the time to overfill the integral economizer once-through steam generators (IEOTSG) provided on the Bellefonte Nuclear Plant is approximately 2 to 4 minutes with MFW and between 7 to 15 minutes with AFW.

Potential results of overfill could be:

1. Steam line deformation and failure because of water accumulation.
2. Steam generator blowdown because of steam line failure with the potential for core return to power from a safe shutdown condition, excessive steam generator tube stress, exceeding reactor vessel NDT limits, or containment overpressurization.

#### Interim Progress

TVA is continuing their final analysis of the MFW overfill event. The preliminary analyses showed that a MFW overfill event would not overstress the main steam lines. The final analyses, confirming the main steam line integrity, is expected to be completed soon.