

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

82 JUN 7 10:25 AM June 3, 1982

BLRD-50-438/81-50  
BLRD-50-439/81-52

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 - MAIN STEAM VALVE ROOM A PIPE  
ANCHOR SUPPORT LOADS - BLRD-50-438/81-50, BLRD-50-439/81-50 - FINAL  
REPORT

The subject deficiency was initially reported to NRC-OIE Inspector  
R. V. Crlenjak on July 23, 1981 in accordance with 10 CFR 50.55(e)  
as NCR BLN BLP 8120. This was followed by our interim reports dated  
August 18, October 6, and November 13, 1981 and February 9, March 11,  
and April 22, 1982. Enclosed is our final report.

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, DC 20555

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ENCLOSURE  
BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2  
MAIN STEAM VALVE ROOM A PIPE ANCHOR SUPPORT LOADS  
NCR BLN BLP 8120  
BLRD-50-438/81-50, BLRD-50-439/81-52  
10 CFR 50.55(e)  
FINAL REPORT

Description of Deficiency

Two main steam pipe anchors and one feedwater pipe anchor (6-way restraints) per unit are attached to the R-line wall in the A main steam valve rooms. The original design of the R-line wall and roof slab was accomplished utilizing preliminary loads and preliminary anchor design concepts. The anchor design was completed and the actual anchor embedment loads determined. Although the actual loads were significantly higher than the preliminary design loads, the R-line wall and roof slabs were not reevaluated analytically but were reviewed subjectively and said to be acceptable by inspection which does not provide adequate design review. Deficiency No. 5 of audit M81-13 identified this nonconformance as being part of a generic problem of inadequate design review.

Safety Implications

If the R-line wall and roof slabs lacked sufficient capacity to withstand the applied anchor embedment loads, the main steam line and/or main feedwater line anchors could fail. Should this happen, the main steam isolation valves could be damaged, resulting in a steam generator blowdown; or the main feedwater isolation valve could be damaged, resulting in an overcooling condition in the steam generator. Such multiple failures, if they occurred, would degrade the safety of operations of the plant.

Corrective Action

Concrete stiffening walls have been designed and released to increase the capacity of the R-line wall in the vicinity of the unit 1 and unit 2 center main steam pipe anchors. These stiffening walls, in conjunction with the existing R-line wall and remaining reinforcing, provide sufficient capacity to resist the applied anchor loads. The walls at the corner main steam and feedwater anchors were determined to be acceptable as is. The adjacent walls and slabs, acting together with the existing R-line wall and remaining reinforcing, provide adequate capacity to resist the applied anchor loads at the corners. The modifications will be completed by September 1, 1983 for unit 1 and September 1, 1984 for unit 2.

Actions to prevent the recurrence of design review deficiencies of this type will be addressed in the final report on audit M81-13, Deficiency No. 5.