

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

1630 Chestnut Street Tower II

August 12, 1985

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BLRD-50-438/83-53

BLRD-50-439/83-46

U.S. Nuclear Regulatory Commission
Region II

Attn: Dr. J. Nelson Grace, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Dr. Grace:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - SIZE OF LINES OF FLOW RESTRICTORS
IS ABOVE THAT WHICH ENSURES A CONTROLLABLE COOLDOWN PER FSAR -
- BLRD-50-438/83-53, BLRD-50-439/83-46 - FOURTH INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
Linda Watson on October 6, 1983 in accordance with 10 CFR 50.55(e) as NCR BLN
NEB 8311. This was followed by our interim reports dated November 2,
1983 and May 14 and October 22, 1984. Enclosed is our fourth interim report.
We expect to submit our next report on or about October 13, 1986.

If you have any questions, please get in touch with R. H. Shell at
FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. A. Homer
for W. Hufham, Manager
Licensing and Risk Protection

Enclosure

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

Records Center (Enclosure)
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

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ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
SIZE OF LINES OF FLOW RESTRICTORS IS ABOVE THAT WHICH ENSURES
A CONTROLLABLE COOLDOWN PER FSAR
BLRD-50-438/83-53, BLRD-50-439/83-46
NCR BLN NEB 8311
10 CFR 50.55(e)
FOURTH INTERIM REPORT

Description of Deficiency

TVA design criteria N4-50-D754 R0, "Classification of Piping, Pumps, Valves, and Vessels," specifies a 3/4-inch inside diameter (section 3.7, page 8) for sensing, sampling, and radiation monitoring lines. This is based on the normal makeup capacity of the makeup and purification system and is intended to meet 10 CFR 50, Appendix A, General Design Criterion 33. It is also the basis for the use of flow restrictors that permit the classification change from ASME, Section III, Class 1, to ASME, Section III, Class 2, per 10 CFR 50.55a(d), footnote 2. This also agrees with Babcock and Wilcox (B&W) letter D-2424 dated March 10, 1977, where B&W stated that a break larger than 3/4 inches must be considered as a loss-of-coolant-sized break. FSAR Section 9.3.6.1 (page 9.3-41), 9.3.6.3 (1) page 9.3-58), and 9.3.6.3 (2g) (page 9.3-60) specify an opening equivalent to a 3/4-inch schedule 160 pipe (0.614-inch inside diameter) as the limiting break size for which a controllable cooldown can be ensured. The discrepancy is that the break size stated in the FSAR does not agree with the break size specified by the design criteria and the design drawings. The 3BW0422-NK series drawings for the reactor coolant drain and vent system have a number of flow restrictors larger than 0.614-inch inside diameter, and drawings 3BW0422-NK-05 R9 (section B-B, detail A) and 3BW0422-NK-09 R8 (section A-A) show 3/4-inch inside diameter flow restrictors, all of which are in agreement with the design criteria.

Drawings 3BW0422-NK-07 R8 (section E7-E7) and 3BW0422-NK-08 R10 (section F-F) show 1-inch by 3/4-inch schedule 80 reducers (0.742-inch inside diameter) welded at the small diameter. The reducers are ASME, Section III, Class 2. The upstream reducer should be ASME, Section III, Class 1, per design criteria drawing 3BW0622-NK-01 R8. The flow restrictor ASME classification specified by the design drawing does not agree with that specified by the design criteria diagram. The deficiency in the ASME classification difference between reducers can be attributed to an error in the detailed piping design whereby the wrong mark numbers were assigned to the reducers.

Interim Progress

The revision of TVA design criteria N4-50-D754 has been issued to specify the correct leak size which will ensure a controllable cooldown. In our third interim report on this deficiency, we reported that a flow reducer (shown on drawing 3BW0422-NK-5) had been installed on the reactor vessel (RV) high point vent. However, the detail of the fourth flow reducer shown on drawing 3BW0422-NK-5 has been deleted due to the addition of the RV head temperature probe assembly on the high point vent. This new assembly which contains the flow reducer is being designed by B&W. Since the detail of this design will be supplied by B&W, reference to the appropriate B&W field change package (FCP) has been made on TVA drawing 3BW0422-NK-5. B&W has not yet sent an approved (by B&W) version of the FCP. TVA will submit the next report upon receipt, review, and approval of B&W's approved FCP.