TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

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October 22, 1984

BLRD-50-438/83-53
BLRD-50-439/83-46

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Mr. O'Reilly:

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 - THIRD 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, 1984. Enclosed is our third interim report. We expect to submit our next report on or about August 14, 1985.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

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

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

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)
THIRD INTERIM REPORT

Description of Deficiency

There is a discrepancy between the FSAR stated break size that will ensure a controllable cooldown and that specified by the design criteria and the design drawings. FSAR sections 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 (0.612-inch inner diameter (ID)) as the break size which will ensure a controllable cooldown. However, Design Criteria for the Classification of Piping, Pumps, Valves, and Vessels, N4-50-D754 R0, specifies a 3/4-inch ID (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 (GDC) 33. It is also the basis for the flow restrictor that permits the classification change from ASME Section III class 1 to ASME Section III class 2 per 10 CFR 50.55 a(d), footnote 2. This also agrees with Babcock and Wilcox (B&W) letter D-2424 dated March 10, 1977, in which B&W stated that a break larger than 3/4-inch must be considered as a LOCA sized break. Likewise, the 3BW0422-NK series drawings for the reactor coolant drain and vent system have a number of flow restrictors larger than 0.612-inch ID, and drawings 3BW0422-NK-05 R9 (section B-B, detail A) and 3BW0422-NK-09 R8 (Section A-A) show 3/4" ID flow restrictors, all of which are in agreement with the design criteria.

It has been found that flow restrictor ASME classification specified by the design drawing does not agree with that specified by the design criteria diagram. Drawings 3BW0422-NK-07 R8 (Section E7-E7) and 3BW0422-NK-08 R10 (section F-F) show 1-inch x 3/4 inch schedule 80 reducers (0.742-inch ID) welded at the small diameter. The reducers are to ASME Section III class 2. However, the upstream reducer should be to ASME Section III class 1 per Design Criteria Drawing (DCD) 3BW0622-NK-01 R8. The deficiency of 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

TVA has received confirmation from B&W that a 3/4-inch schedule 160 pipe (0.612-inch inside diameter) is the upper limit for a reactor coolant system leak to ensure a controllable cooldown. It has been determined that there are only four cases in which flow reducers on the 3BW0422-NK series drawings exceeded the 0.612-inch inside diameter limit. Drawings 3BW0422-NK-7, -8, and -9 have been revised to correct the size of the flow reducers and the ASME Code classifications. The fourth flow reducer shown on drawing 3BW0422-NK-5 has been installed on the reactor vessel (RV) high point vent. The revision of this drawing is being delayed due to the addition of the RV head

temperature probe on the high point vent. This new assembly which contains the flow reducer is being designed by B&W. This nonconformance report will, therefore, remain open pending TVA's review of the field change package, and revision of the TVA drawing, and revision of the TVA design criteria for the "Classification of Piping, Pumps, Valve, and Vessels," N4-50-D754.