

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

August 19, 1982

BLRD-50-438/81-75
BLRD-50-439/81-74

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:

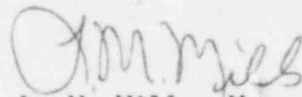
BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - OVERPRESSURE PROTECTION IN THE
DECAY HEAT REMOVAL SYSTEM - BLRD-50-438/81-75, BLRD-50-439/81-74 - FINAL
REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
C. Julian on November 27, 1981 in accordance with 10 CFR 50.55(a) as
NCR BLN BLP 8127. This was followed by our interim reports dated
December 21, 1981 and April 14, 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


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
OVERPRESSURE PROTECTION IN THE DECAY HEAT REMOVAL SYSTEM
NCR BLN BLP 8127
BLRD-50-438/81-75, BLRD-50-439/81-74
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The decay heat removal (DHR) cooler inlet relief valve discharge and the cooler outlet relief valve discharge have been combined into a single discharge header. The line size of the common header is the same as the relief valve discharge lines. This is in violation of ASME Section III, NC3677.3(d) which states that, ". . . in no case shall the area of such common lines be less than the combined area of all lines discharging into it." This condition exists on both trains A and B for both units. This situation arose because TVA design engineers were not aware, at the time design changes were being made to complete item 2.1.6a of NUREG-0578, that NC3677.3(d) applied to the thermal relief valves. The 2-inch relief valve discharges were combined into a single line and connected to a 2-inch embedded drain line. This problem was discovered during a checking of the system drawings for other changes.

Safety Implications

With the present design, if both pressure relief valves relieve at the same time, the rated flow would be achieved and there would be no adverse effect on the safe operations of the plant.

Corrective Action

TVA has qualified the present piping design using ASME Section III NB3677.2 as a basis. The qualification method involved a review against NB3677.2 requirements and calculations to show that, with the two relief valve discharges combined, sufficient discharge area exists and undue back pressure does not develop in accordance with NB3677.2(d).

Because of code violations for the installation of relief valves and as a means to prevent recurrence, TVA design personnel were instructed about this design deficiency and instructed to review all relief valve designs for compliance with appropriate codes. The investigation identified one additional significant item on the Component Cooling Water System which has been documented under NCR BLN BLP 8210.

No other TVA nuclear plants are affected.