

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

June 11, 1985

BLRD-50-438/84-28
BLRD-50-439/84-27

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 - TARGET ROCK SOLENOID VALVES ON
POSTACCIDENT SAMPLING FACILITY (PASF) DO NOT MEET BACKPRESSURE REQUIREMENTS -
BLRD-50-438/84-28 AND BLRD-50-439/84-27 - FINAL REPORT

The subject deficiency was initially identified for Watts Bar Nuclear Plant (WBN) and reported to NRC-OIE Inspector P. E. Fredrickson on February 15, 1984 in accordance with 10 CFR 50.55(e) as NCR WBN WBP 8410 (WBRD-50-390/84-10 and WBRD-50-391/84-10. Our first interim report for WBN was submitted on March 15, 1984. On March 27, 1984, C. A. Julian was notified that the subject nonconformance report BLN EEB 8403 for Bellefonte Nuclear Plant (BLN) would be combined with the WBN report. Our final report for WBN and first interim report for BLN was submitted on April 27, 1984. Enclosed is our final report for BLN.

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. Damer
J. W. Hufham, Manager
Licensing and Regulations

Enclosure

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

Records Center (Enclosure)
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ENCLOSURE
BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
TARGET ROCK SOLENOID VALVES ON POSTACCIDENT SAMPLING FACILITY (PASF)
DO NOT MEET BACKPRESSURE REQUIREMENTS
BLRD-50-438/84-10 AND BLRD-50-439/84-10
10 CFR 50.55(e)
NCR BLN EEB 8403

FINAL REPORT

Description of Deficiency

During a generic review for Watts Bar Nuclear Plant (WBN) nonconformance report (NCR) WBN WBP 8410 (WBRD-50-390/84-10, WBRD-50-391/84-10), TVA determined that Target Rock process solenoid valves were also being used at Bellefonte Nuclear Plant (BLN) postaccident sampling facility (PASF) lines as containment isolation valves, and as at WBN, these valves would see a backpressure during a loss of coolant accident (LOCA) which would keep the valves from remaining closed. At BLN, the valves could see a backpressure of 25 lb/in^2 resulting in a differential pressure which exceeds the 5 lb/in^2 differential design limit of the valve. This was caused by a failure to recognize that, on "open ended" piping inside containment, a LOCA would result in a reverse differential pressure across the isolation valve.

Safety Implications

Because these valves could not have performed their intended containment isolation function, a breach of containment could have resulted during a LOCA, and this condition could have adversely affected the safe operation of the plant.

Corrective Action

Design drawing revisions have been completed and field modifications will be completed by June 30, 1986, through engineering change notice (ECN) 3237 to reorient the affected valves so that the vendor-recommended valve flow direction is opposite the system flow. This allows the inlet port of the valve to be connected to the downstream side of the process line. In this configuration, the postulated 25 lb/in^2 pressure caused by a design-basis earthquake LOCA will appear at the inlet port which is consistent with the valve design and will allow the valve to close and remain closed during containment isolation. This "reversed" configuration is functionally acceptable and will not adversely affect the valves during normal operation.

To prevent a recurrence of this problem, TVA has issued design standard DS-E18.3.5 which includes a data sheet specifically for procuring process solenoid valves. Valve backpressure design considerations is an entry on this data sheet and is required to be addressed by the originating organization.