

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401  
400 Chestnut Street Tower II

BLRD-50-438/83-19 JAN 26 AIO: 06 January 25, 1984  
BLRD-50-439/83-15

U.S. Nuclear Regulatory Commission  
Region II  
Attn: Mr. James P. O'Reilly, Regional Administrator  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

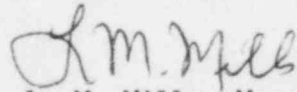
BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - PRESSURE DROP ACROSS VELAN  
2-1/2-INCH STOP/CHECK VALVE - BLRD-50-438/83-19, BLRD-50-439/83-15 -  
FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector  
A. K. Hardin on February 2, 1983 in accordance with 10 CFR 50.55(e) as  
NCR 2212. This was followed by our interim reports dated March 3 and  
September 20, 1983. Enclosed is our final report. We consider 10 CFR Part  
21 applicable to this deficiency.

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, 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  
PRESSURE DROP ACROSS VELAN 2-1/2-INCH STOP/CHECK VALVE  
NCR 2212  
BLRD-50-438/83-19, BLRD-50-439/83-15  
10 CFR 50.55(e)  
FINAL REPORT

Description of Deficiency

During flushing operations of the makeup and purification (MU/P) and high pressure injection (HPI) systems, seven of nine 2-1/2-inch 1500 lb. Velan stop/check valves intermittently failed to fully open and/or have shown indication of excessive pressure drop.

Velan has determined by testing that the cause of the excessive pressure drop and the intermittent failure of the valves to fully open can be attributed to the insufficient area of holes in the valve disc which connects the downstream side of the valve with the area above the disc. The root cause of this deficiency can be attributed to a design error committed on the disc drawing which was intended to reduce machining time. The full effect of this reduced equalizing area was not realized until the testing was performed following the incident at BLN.

Safety Implications

Failures of these valves could cause HPI, which is required for postaccident cooling, to be lost to the reactor coolant system (RCS), or the RCS pressure boundary could be violated during normal operation if there is a pipe break upstream of the subject valves. Thus, the safe operation and shutdown (postaccident) of the plant could be adversely affected.

Corrective Action

Velan has reviewed all stop/check and piston check discs and has determined that the discs must be modified by drilling four holes in the sides of the discs. The existing valve discs for unit 1 are to be replaced with Velan-supplied newly modified valve discs by March 26, 1984. All unit 2 stop/check valve discs will be modified by June 28, 1985.

To prevent recurrence of this deficiency, Velan is revising disc drawings to incorporate design changes, where necessary, to assure that proper clearances and adequate pressure equalization passages are provided for proper operation.