

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

April 27, 1984

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WBRD-50-390/84-10
WBRD-50-391/84-10
BLRD-50-438/84-28
BLRD-50-439/84-27

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:

WATTS BAR AND BELLEFONTE NUCLEAR PLANTS UNITS 1 AND 2 - TARGET ROCK SOLENOID VALVES ON PASF DO NOT MEET BACK PRESSURE REQUIREMENTS - WBRD-50-390/84-10 AND WBRD-50-391/84-10 - BLRD-50-438/84-28 AND BLRD-50-439/84-27 - FINAL REPORT FOR WATTS BAR AND FIRST INTERIM REPORT FOR BELLEFONTE

The subject deficiency was initially 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. Our first interim report was submitted on March 15, 1984. On March 27, 1984, C. A. Julian was notified that related nonconformance report BLN EEB 8403 would be combined with this report. Enclosed is our final report for Watts Bar and first interim report for Bellefonte. We expect to submit our next report for Bellefonte on or about June 12, 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
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

WATTS BAR AND BELLEFONTE NUCLEAR PLANTS UNITS 1 AND 2
TARGET ROCK SOLENOID VALVES ON PASF
DO NOT MEET BACK PRESSURE REQUIREMENTS
NCR WBN WBP 8410 AND BLN EEB 8403
WBRD-50-390/84-10, WBRD-50-391/84-10
BLRD-50-438/84-23, BLRD-50-439/84-27
10 CFR 50.55(e)

FINAL REPORT FOR WATTS BAR AND FIRST INTERIM REPORT FOR BELLEFONTE

Description of Deficiency

TVA purchased and installed Target Rock nuclear-grade process solenoid valves to serve a containment isolation (CI) function for the postaccident sampling facility (PASF). These valves are in the containment air sample and reactor coolant liquid sample return lines. This installation is shown on TVA drawing 47W610-4308 R4 with the valves in question identified as FSV-43-341, -342, -307, and -325. In this configuration, the valves must be capable of closing and remaining in that state with a 15 psid back pressure applied in order to successfully accomplish the required CI during the design basis accident (DBA) loss of coolant accident (LOCA).

During the negotiating phase of procuring additional valves for unit 2, the vendor recognized the desired valve model could not meet the leak rate specifications on the data sheet. More importantly, TVA learned in a February 2, 1994, telecon with the vendor that the valves previously supplied under the original contract (and described above) were not designed to function properly with a back pressure applied and would open with approximately 5 psid back pressure.

Based on information obtained in the above telecon, it is concluded that the subject valves are not designed to close and/or remain closed with a 15 psid back pressure applied and thus do not conform to requirements specified in design criteria WB-DC-40-34, "Containment Isolation System," Section 3.4.

During the generic investigation of this item, TVA determined that Target Rock solenoid valves in the containment air sample and reactor liquid sample return lines of the Bellefonte (BLN) postaccident sampling system could see a 25 psid back pressure. This also exceeds the vendor's 5 psid limit and could allow leakage. TVA has written nonconformance report BLN EEB 8403 to identify this condition at BLN.

The apparent cause of this deficiency is a failure of the TVA designers to properly specify to the vendor all design parameters associated with a system isolation valve which also serves a containment isolation function.

Safety Implications

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