

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

October 17, 1983

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BLRD-50-438/82-40

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 UNIT 1 - OVERPRESSURIZATION OF MAKEUP AND
PURIFICATION PIPING AND VALVES - BLRD-50-438/82-40 - SECOND REVISED FINAL
REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
D. Quirk on May 28, 1982 in accordance with 10 CFR 50.55(e) as NCR 1808.
This was followed by our interim reports dated June 28 and August 10, 1982,
our final report dated October 12, 1982, our revised final report dated
February 3, 1983, and our supplemental final report dated July 8, 1983.
Enclosed is our second revised final report.

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

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ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNIT 1
OVERPRESSURIZATION OF MAKEUP AND PURIFICATION PIPING AND VALVES
BLRD-50-438/82-40
NCR 1808
10 CFR 50.55(e)
SECOND REVISED FINAL REPORT

Description of Deficiency

During a preflush leak test, the piping and valves on the suction side of unit 1 makeup pumps were inadvertently subjected to a pressure of 1530 lb/in²g. The pressure was applied in increments of 200 lb/in² after an initial pressurization of 100 lb/in². The design pressure for the subject piping and valves is 675 lb/in². The cause of the deficiency was site personnel failed to take into account differences in pressure boundaries during leakage testing.

Safety Implications

The failure of site personnel to take into account differences in pressure boundaries during leak testing could result in an overpressurization incident that might lead to damage to safety-related components or equipment.

Corrective Actions

Site personnel with the subject system responsibility have been retrained to TVA's Division of Construction test procedure for hydrostatic systems (No. BNP-CTP-7.6R0) and have been cautioned to be more observant of pressure boundaries when performing leakage tests.

The following actions were taken to ensure that the subject valves were adequate and can be used "as is:"

1. Each valve was visually examined for signs of distress.
2. The Borg-Warner valve gland retainers were inspected and replaced, if necessary.
3. Each valve was fully cycled and timed for successful valve operability.
4. Each valve was checked for functionally adequate seat tightness during a valve leak rate test.

An analysis has shown that the piping and pumps can be used "as is." Also, B&W has informed TVA via their letter D-4249 that Bingham-Willamette (manufacturer of the pumps) had stated that pumps could withstand the overpressurization. The piping analysis has shown that the fiber stress levels are sufficiently below the 100°F yield stress for stainless steel, and the qualification of the pipes and fittings is not affected by the overpressurization.

In TVA's fifth supplemental report to the NRC, TVA stated that all valves with the exception of valve VJBB-439-A were acceptable "as is." Additionally, TVA stated that the valve in question was to be reworked and retested. TVA has now determined that the leakage rate of 0.02 gal/min from valve VJBB-439-A would have been reduced to a lower value if the subject valve had been securely tightened during the actual leak test. Additionally, the leak rate of 0.02 gal/min) from the subject valve will not affect system performance and, therefore, is acceptable "as is."