

**TENNESSEE VALLEY AUTHORITY**

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

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March 2, 1986

WBRD-50-391/86-01

U.S. Nuclear Regulatory Commission  
Region II  
Attention: Dr J. Nelson Grace, Regional Administrator  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

Dear Dr. Grace:

WATTS BAR NUCLEAR PLANT UNIT 2 - OVERPRESSURIZATION OF THE VOLUME CONTROL  
TANK - WBRD-50-391/86-01 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector  
Al Ignatonis on November 20, 1985 in accordance with 10 CFR 50.55(e) as NCR  
WBN 6379. Our revised interim report was submitted on January 31, 1986. A  
letter extending the due date of this report was submitted on February 14,  
1986. Enclosed is our final report.

If there are any questions, please get in touch with R. H. Shell at  
FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



R. L. Gridley  
Manager of Licensing

Enclosure

cc: Mr. James Taylor, 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  
WATTS BAR NUCLEAR PLANT UNIT 2  
OVERPRESSURIZATION OF THE VOLUME CONTROL TANK  
WBRD-50-391/86-01  
NCR WBN 6379  
10 CFR 50.55(e)  
FINAL REPORT

Description of Deficiency

The chemical and volume control system (CVCS) volume control tank (VCT) was overpressurized during flushing operations of the CVCS piping associated with test packages 2-062-436-099 and -100. The design pressure of the VCT is 75 lb/in<sup>2</sup> and the ASME hydro test pressure is 124 lb/in<sup>2</sup>. The worst condition occurred with the VCT being supplied flow through valve 2-62-LCV-132 using the residual heat removal (RHR) pump (discharge pressure of approximately 220 lb/in<sup>2</sup>) and relieving through valve 2-62-683.

A similar deficiency occurred during a hydrostatic test of the unit 1 VCT which was reported under 10 CFR 50.55(e) nonconformance report (NCR) 3877. This condition resulted in the VCT being subjected to a pressure of 270 lb/in<sup>2</sup>. After evaluation and inspection by Westinghouse, the component supplier, it was determined that the VCT was acceptable to use as-is. The action to prevent recurrence of the unit 1 deficiency involved modifications to the hydrostatic test procedure. The unit 2 deficiency did not occur in conjunction with hydrostatic testing.

The root cause of this deficiency is inadequate procedures. The Watts Bar Nuclear Plant (WBN) procedure governing flushing and cleaning of piping systems, WBN Quality Control Test (QCT) 4.36, does not adequately address reviewing for limiting components in a system based on anticipated flushing pressures.

Safety Implications

Overpressurization could potentially have occurred during previous flushing operations using this procedure if the discharge pressure exceeded the design pressure of the system or components involved. Overpressurization of essential safety systems could result in failure or degradation of the system which could adversely affect safe operations of the plant.

Corrective Action

Measurements of maximum diameter of enlarged sections of the VCT indicate a minimal amount of permanent tank deformation. Based on comparison of these measurements with similar measurements performed on the Unit 1 VCT, the

Unit 1 overpressurization event was approximately three times more severe than the Unit 2 event. However, to provide additional assurance of the acceptability of the Unit 2 VCT, TVA also performed a penetrant test (PT) inspection of the VCT pressure boundary weld seams on both the outside and inside surfaces. No defects were found during this testing. Therefore, it has been determined that the Unit 2 VCT still meets the design specifications and is acceptable for use as-is.

In order to prevent recurrence, WBN QCT-4.36, Section 6.2.2.4, flushing procedure will be revised to incorporate a review for limiting components based on anticipated flushing pressures to ensure that maximum design pressures are not exceeded. This procedure is scheduled to be issued by June 1, 1986. TVA will also review previous safety-related flushing operation packages using this procedure to verify that overpressurization due to limiting components did not occur. Any components which are found to be overpressurized and do not meet design specifications will be addressed by initiating separate nonconformance reports.