

TENNESSEE VALLEY AUTHORITY

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JUL 11 1989

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of the Application of) Docket Nos. 50-390
Tennessee Valley Authority) 50-391

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - DEFECTIVE WELD IN COMPONENT COOLING
WATER SURGE TANK - WBRD-50-390/89-05 - FINAL REPORT

The subject deficiency was initially reported to NRC Region II Inspector Vinoy Besai on June 12, 1989, in accordance with 10 CFR 50.55(e) as Condition Adverse to Quality Report (CAQR) WBP 890110. Enclosure 1 contains our final report. There are no commitments made in this report. We consider 10 CFR 21 applicable to this deficiency.

If there are any questions, please telephone G. R. Ashley at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

Mr. Roy A.
Manager, Nuclear Licensing
and Regulatory Affairs

Enclosures
cc: See page 2

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TEAM
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U.S. Nuclear Regulatory Commission

JUL 11 1989

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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
FAILURE IN COMPONENT COOLING
SYSTEM SURGE TANK
CAQR WBP 890110
WBRD-50-390/89-05
10 CFR 50.55(e)

FINAL REPORT

Description of Deficiency

During leak testing of the Component Cooling System (CCS) surge tank 1A baffle, a leak was observed along the bottom right center of the surge tank baffle. The leak area was approximately 26 inches long, located along the top of a fillet weld. It was determined visually that the leak resulted from a crack in the fillet weld which attaches the baffle plate to the bottom head of the tank. This leakage results in a cross train leakage in the surge tank.

The baffle plate was fabricated from 1/4-inch American Society of Mechanical Engineers (ASME) SA515 grade 70 plate, and the bottom head was fabricated from 1/2-inch ASME SA515 grade 70 plate. To determine the extent of the crack, TVA examined it by magnetic particle testing. This test found the crack to be approximately 36 inches long and extending through the 1/4-inch baffle plate. Excavation of the defective weld area revealed a fit-up gap which measured 3/16 of an inch in the area of the crack, leaving the 1/4-inch fillet weld with little or no fusion to the baffle plate.

The defective weld was the result of poor workmanship during fabrication by the vendor, Applied Engineering Company, Orangeburg, South Carolina. The tank was purchased by TVA under contract No. 75C57-83146.

Magnetic particle testing of the baffle plate on the unit 2 CCS surge tank resulted in no identified defects.

Safety Implications

The defective baffle plate weld compromises the train separation of the CCS. With a single failure (assumed to be a break or significant leak for these purposes) in one train of the CCS, the other train's surge tank volume would leak down through the weld leaving the operating CCS train with no surge capacity. Subsequent system expansions and contractions could then result in pump cavitation and, consequently, the loss of the operating train of CCS. Therefore, this condition could have adversely affected the safe operation of the plant had it remained uncorrected.

Corrective Action

The crack in the baffle plate has been repaired by TVA and, along with the remaining weld, inspected and tested. This was accomplished under workplan C-WBP880752-1.

No preventive actions by TVA are required.