TENNESSEE VALLEY AUTHORITY

Watts Bar Nuclear Plant
P.O. Box 800
Spring City, TN 37381

OCT 07 1986

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WBRD-50-390/86-58
WBRD-50-391/86-55

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 - UNITS 1 AND 2 - INCORRECT PRESSURE SWITCH SETPOINTS FOR ERCW SCREEN WASH PUMPS - WBRD-50-390/86-58, WBRD 50-391/86-55 - FINAL REPORT

The subject deficiency was initially reported to NRC-Region II Inspector Gordon Hunegs on June 17, 1986, in accordance with 10 CFR 50.55(e) as SCR WBN MEB 8663. Our interim report was submitted on July 21, 1986. Enclosed is our final report.

If there are any questions, please get in touch with J. A. McDonald at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. A. McDonald

J. A. McDonald, Manager
Watts Bar Site 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

Mr. G. G. Zech (Enclosure)
Director, TVA Projects
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323





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ENCLOSURE
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
INCORRECT PRESSURE SWITCH SETPOINTS FOR ERCW SCREEN WASH PUMPS
WBRD-50-390/86-58, WBRD-50-391/86-55
SCR WBN MEB 8663
10 CFR 50.55(e)
FINAL REPORT

## Description of Deficiency

The instrument tabulations (TVA drawings) 47B601-67-54R34, -55R34, and -57R34 for Watts Bar Nuclear Plant (WBN) indicate that the setpoints for the pressure switches used to activate the ERCW traveling screens (PS-67-434A, -439A, -455B, and -451B) are set to actuate at 90 psig. However, a recent TVA calculation, which accounts for minimum reservoir level, maximum pipe corrosion, and maximum pump derating, indicates that the correct pressure switch setpoints should be between 70 and 75 $lb/in^2$. The calculation was performed as a required accuracy verification for the evaluation of the instrumentation tubing slope deficiency.

TVA has determined the cause of this deficiency to be that no setpoint calculations were performed for the affected switches.

## Safety Implications

The affected pressure switches sense/measure the essential raw cooling water (ERCW) screen wash pumps' discharge pressures and signal the traveling screen motors to start when screen wash pressure has been established. Under worst case design basis conditions, (minimum reservoir level, maximum pipe corrosion, and maximum pump derating) calculations indicate that with a 90 $lb/in^2$ setpoint, it is possible that the pressure switches would never signal their associated traveling screens to start after initiation of the backwash sequence. This could allow the screens to clog and restrict flow to the ERCW pumps and, subsequently, to the ERCW system. Since the subject deficiency is common to all of the ERCW screen wash pumps, and since ERCW flow is essential to safe plant operation in all operating modes, the subject deficiency could adversely affect the safety of operations of the plant.

Corrective Action

TVA will issue Technical Instruction (TI) 74, "ERCW Screen Wash Pump Test," to require periodic performance testing of the screen wash pumps and piping system. This is necessary because the upper setpoint for the switches is based on assumed field conditions and procurement of a pressure switch with the required narrow range (70 to 75 psig) and required accuracy is not considered to be reasonable. This monitoring of the screen wash system will ensure that the system operates within design specifications, and that any long term system degradation due to such things as pipe corrosion and pump derating is detected and corrective measures taken if conditions warrant. The screen wash system was tested in August 1984 (preoperational test TVA 18C). The results of that test showed a minimum corrected discharge pressure in excess of 137.7 psig. As such no change to the existing 90 $lb/in^2$ setpoint is required. TVA will issue TI 74 by initial fuel loading for WBN unit 1.

TVA's Division of Nuclear Engineering (DNE) has implemented NEP 3.1 which details the way calculations are developed, controlled, issued, and used. NEP 3.1 states that "Calculations shall be used on all TVA designs where design input or output documents need further development or improving." Branch chiefs for the electrical and mechanical disciplines have amplified this point in policy memos.

All DNE employees were given an overview of the requirements of the NEPs during the first two weeks of July 1986. Further training has been given to employees involved in nuclear design activities as their supervisors deemed necessary. These actions will prevent recurrence of this deficiency.