

TENNESSEE VALLEY AUTHORITY

5X 105B Lookout Place

January 27 1986 05

WBRD-50-390/85-47

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 1 - INADEQUATE VOLTAGE TO VITAL AC POWER
POWER SYSTEM COMPONENTS - WBRD-50-390/85-47 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
Al Ignatonis on October 7, 1985 in accordance with 10 CFR 50.55(e) as SCR WBR
EEB 8539. Enclosed is our final report.

Significant delay in submittal of this initial report was discussed with
Steve Weise on November 7, 1985 and with Mr. Ignatonis on November 18, 1985
and January 6, 1986.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. A. Damer

J. A. Damer
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
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Atlanta, Georgia 30339

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNIT 1 INADEQUATE VOLTAGE TO VITAL AC POWER SYSTEM COMPONENTS

WBND-50-390/85-47

SCR WBN EEB 8539

10 CFR 50.55(e)

FINAL REPORT

Description of Deficiency

Electrical components at Watts Bar Nuclear Plant (WBN) have been identified as receiving inadequate operating voltage, per the manufacturer's minimum voltage requirements, due to excessive cable voltage drop on the 120V ac vital control power system (VCPS). The affected components are PNL-1-R-148 (reactor vessel level instrumentation system) and L-RE-90-134 (essential raw cooling water (ERCW) liquid radiation monitor).

TVA has determined that this deficiency is the result of a failure by involved Office of Engineering (OE) design personnel to adequately perform or document the necessary voltage calculations to ensure equipment operability.

Safety Implications

The identified components (PNL-1-R-148 and L-RE-90-134) are required to operate under design basis accident conditions throughout the range of the 120V ac VCPS voltages. This deficiency could render the components inoperative or could degrade their performance due to inadequate voltage. This could adversely affect the safety of operations of the plant.

Interim Progress

TVA will pull larger cables in order to reduce voltage drop to acceptable levels and ensure adequate performance of the identified components. Additionally, a detailed voltage calculation will be performed and documented for all class 1E electrical loads powered from the 120V ac VCPS. This work is being performed under engineering change notice (ECN) 5958. Any additional components identified by the aforementioned calculation as receiving inadequate voltage due to cable voltage drop will be incorporated under significant condition report (SCR) SCR WBN EEB 8539.

A minimum set of required electrical calculations for WBN will be identified, performed, and documented. The calculations will be maintained in accordance with OE procedures OEP-07, "Calculations," and OEP-11, "Change Control." TVA has recently completed a documented training program (June 29, 1985) on all OEPs to ensure that all involved OE employees are aware of existing requirements. TVA considers that these corrective actions are adequate to prevent recurrence of this deficiency. No further actions to prevent recurrence will be taken.

All corrective actions required to resolve this deficiency, as identified above, will be completed before initial fuel loading for WBN unit 1.