



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

JUN 20 1991

WBRD-50-390/91-26  
WBRD-50-391/91-26

10 CFR 50.55(e)

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) UNITS 1 AND 2 - DEFICIENCY IN THE  
INSTALLATION OF 480 VOLT SHUTDOWN TRANSFORMERS BUSHING CONDUCTORS -  
WBRD-50-390/91-26, WBRD-50-391/91-26 - INTERIM REPORT

The subject deficiency was initially reported to NRC Inspector A. R. Long on May 21, 1991, in accordance with 10 CFR 50.55(e) as Problem Evaluation Report WBP910287. Enclosed is TVA's interim report. A final report will be provided by December 16, 1991.

If there are any questions, please telephone P. L. Pace at (615) 365-1824.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

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Enclosures

cc: See page 2

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*111*

U.S. Nuclear Regulatory Commission

**JUN 20 1991**

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## ENCLOSURE 1

### WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 DEFICIENCY IN THE INSTALLATION OF 480 VOLT SHUTDOWN TRANSFORMERS BUSHING CONDUCTORS PROBLEM EVALUATION REPORT WBPER910287 10 CFR 50.55(e)

#### INTERIM REPORT

#### DESCRIPTION OF DEFICIENCY

The 480 volt shutdown transformers have Westinghouse Type CRW bushings that allow attachment of supply and load conductor connections. These bushings have "dead weight" loads applied in excess of vendor recommendations. Vendor Technical Manual for the 480 Volt Shutdown Transformer bushings (No. WBN-VTM-W120-160) allows a maximum moment of 1200 in-pounds, a maximum bushing conductor lateral load of 100 pounds if moment forces are not calculated, and a maximum axial loading of 100 pounds.

Contrary to these vendor recommendations, aluminum conductor bars are bolted to the bushings, and five 750 MCM multistranded cables are connected to the aluminum conductor. These cables exit the transformer connection chamber through conduits in the bottom of the chamber and pass through the floor to the breakers in the floor below. The length of these cables is approximately 15 feet. Thus, the maximum dead weight load applied to the bushings is 197 pounds. An analysis of the loads applied to the bushings had not been previously performed.

#### SAFETY IMPLICATIONS

Although the vendor recommendations were not met, failure of a transformer bushing due to cable weight exceeding vendor recommendations has not occurred in the years since being installed. However, the transformer bushings and the attached cables have not experienced the electrical loads that would be expected during plant operation.

If a seismic event were to occur, bushing failures on more than one transformer could be possible since opposing oscillations between the bushing and the breaker in the 480V shutdown board located on the floor below may increase the effective cable load. Therefore, this condition could have adversely affected the safe operation of the plant had it remained uncorrected.

#### INTERIM PROGRESS

The corrective action plan for this condition has been developed and includes an evaluation by the vendor of whether bushing damage has occurred and if physical modifications are needed or if the present configuration is acceptable. This evaluation will be completed by November 14, 1991.

TVA will provide a final report based upon the above evaluation of this condition by December 16, 1991.

ENCLOSURE 2

LIST OF COMMITMENTS

TVA will provide a final report based upon an evaluation of this condition by December 16, 1991.