



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37361-2000

William J. Museler  
Site Vice President, Watts Bar Nuclear Plant

DEC 18 1993

CDR-50-390

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 )  
Tennessee Valley Authority )

Docket Nos. 50-390

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - CONSTRUCTION DEFICIENCY REPORT (CDR)  
50-390/93-04 - TURBINE DRIVEN AUXILIARY FEEDWATER PUMP (TDAFWP) ROOM DC  
VENTILATION EXHAUST FAN STARTER BREAKER WIRED INCORRECTLY - FINAL REPORT

The subject deficiency was initially reported to the NRC Operations Center on November 19, 1993, in accordance with 10 CFR 50.55(e)(3) as Problem Evaluation Report (PER) WBP930287. This PER was subsequently escalated to Significant Corrective Action Report (SCAR) WBSA930207. The enclosure contains TVA's final report on this subject. No commitments are being made in this submittal.

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

Very truly yours,

William J. Museler

Enclosure

cc: See page 2

80076  
9401040390 931218  
PDR ADDCK 05000390  
S PDR

JE 27

U.S. Nuclear Regulatory Commission  
Page 2

DEC 18 1993

cc (Enclosure):

INPO Record Center  
700 Galleria Parkway  
Atlanta, Georgia 30339

NRC Resident Inspector  
Watts Bar Nuclear Plant  
Rt. 2, P.O. Box 700  
Spring City, Tennessee 37381

Mr. P. S. Tam, Senior Project Manager  
U.S. Nuclear Regulatory Commission  
One White Flint North  
11555 Rockville Pike  
Rockville, Maryland 20852

U.S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

## ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) - UNIT 1  
TURBINE DRIVEN AUXILIARY FEEDWATER PUMP (TDAFWP)  
ROOM DC VENTILATION EXHAUST FAN STARTER  
BREAKER WIRED INCORRECTLY  
CDR 50-390/93-04  
FINAL REPORT

### DESCRIPTION OF DEFICIENCY

While performing verification for Quality Maintenance Data Sheets on September 14, 1993, day shift craft personnel discovered that the night shift craft personnel had incorrectly terminated cable 1SG233S at the breaker for magnetic starter 1-STR-030-0214-S. This condition was initially documented on Problem Evaluation Report WBP930287 and was subsequently escalated to Significant Corrective Action Report WBSA930207.

The subject starter operates the DC ventilation exhaust fan for the Turbine Driven Auxiliary Feedwater Pump (TDAFWP) room. The TDAFWP room contains one nonsafety-related AC ventilation exhaust fan and one safety-related DC ventilation exhaust fan. Either ventilation exhaust fan is capable of maintaining the TDAFWP room temperature below the maximum allowable temperature. The nonsafety-related AC ventilation exhaust fan is normally in operation.

The subject condition was identified after Quality Control inspectors had signed off on the work performed. It would not have been discovered through the normal closure process for Workplan D-08611-10 or Design Change Notice M-08611-10. Preoperational testing would have discovered the deficiency. However, WBN normally does not take credit for preoperational testing in determining whether a substantial safety hazard could have been created, if left uncorrected.

### SAFETY IMPLICATIONS

There is a design basis event (small break Loss of Coolant Accident concurrent with Loss of Offsite Power and failure of a diesel generator) which requires that one motor driven auxiliary feedwater pump and the TDAFWP be available to provide the required flow. For this event, the safety-related DC ventilation exhaust fan is the only means available to maintain the TDAFWP room temperature below maximum allowable. Incorrect wiring of the safety-related DC ventilation exhaust fan starter breaker would prevent the fan from operating when the TDAFWP was running. Of primary concern is not the environmental qualification of equipment located in the TDAFWP room. Rather, the TDAFWP room temperature would increase to the point where room area temperature detectors would sense a TDAFWP steam line break and automatically cause closure of the Train A and Train B steam supply isolation valves to the TDAFWP. Insufficient feedwater flow would be available to mitigate the postulated design basis event.

### CAUSE OF DEFICIENCY

The cause for the subject deficiency is personnel error. The craftsmen failed to terminate the cable properly and the Quality Control inspector failed to verify the termination correctly.

Drawing 45W1614-11 required the cable conductors to be terminated at points L1, Z, and L2 on the starter breaker. Craft personnel terminated the cable conductors at points L1, L2, and L3.

### CORRECTIVE ACTION

1. An additional data sheet was added to Workplan D-08611-10 and the incorrect termination was corrected by craft and verified by QC.
2. This deficiency was reviewed with involved craft personnel.
3. Internal wiring of hardware associated with seven cables previously inspected by the involved QC inspector were reinspected. No deficiencies were noted. The seven cables are listed below:

Cable Number: 1PM4026D  
1PM4027F  
1PM4029D  
1PM4030F  
1A1559  
1A1560  
1A1561

4. Between January 1 and December 14, 1993, the involved QC inspector performed 1,103 inspections. TVA QC inspectors performed 55 overviews of the involved QC inspector's work. No unsatisfactory findings were noted.
5. This deficiency was reviewed with involved Quality Control inspection personnel during documented training sessions on September 20, 1993, October 14, 1993, October 19, 1993, and October 27, 1993.