

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37402

400 Chestnut Street Tower II

July 20, 1981

OFFICIAL COPY

WBRD-50-390/81-56
WBRD-50-391/81-04

Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - IMPROPER INSTALLATION OF
COMPRESSION-TYPE TERMINALS ON SINGLE-PHASE STATIC INVERTERS -
WBRD-50-390/81-56, WBRD-50-391/81-04 - REVISED FINAL REPORT

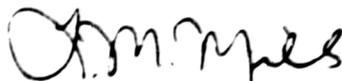
The subject nonconformance was initially reported to NRC-OIE Inspector
M. Thomas on December 12, 1980 in accordance with 10 CFR 50.55(e) as
NCR 2810R. Our final report was provided on January 12, 1981. TVA
considers 10 CFR Part 21 applicable to this nonconformance.

The enclosed report provides additional information on the corrective
action for this nonconformance, which TVA has determined to be applicable
to both units.

If you have any questions, please get in touch with D. L. Lambert at
FTS 857-2581.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure

cc: Mr. Victor Stello, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
IMPROPER INSTALLATION OF COMPRESSION-TYPE TERMINALS
ON SINGLE-PHASE STATIC INVERTERS
WBRD-50-390/81-56, WBRD-50-391/81-04
10 CFR 50.55(e)
REVISED FINAL REPORT

Description of Deficiency

During the installation of the single-phase static inverters, it was discovered that an insufficient number of crimps or improper crimps were made by Solid State Controls, Incorporated, on some compression-type terminals. These crimps grip the 300 MCM cable inside the terminal barrel to complete the electrical connections. Properly installed terminals require two crimps. Some terminations had only one crimp and some had three crimps. Because the lug barrels were not long enough to accept the extra crimp, the third crimp was made on the cable which could have caused a weakened point. One crimp might not have been sufficient to complete the electrical connection, and the cable being weakened by the third crimp might have caused it to fail which could have caused the single-phase static inverters to become inoperable.

Upon further field investigation of the subject condition, the following additional deficiencies were found:

1. The terminal lugs have the wrong size mounting holes for the size bolts used (i.e. 1/2" holes for 5/16" bolts).
2. The cables were damaged when the insulation was removed from the ends to allow mounting of lugs, which resulted in several cut strands of wire in the cables.
3. The cable lugs were mounted on the cables before the cables were formed to fit the equipment. When the cables were bent or molded to install on the equipment, the insulation was pulled back from the lugs.

Safety Implications

These static inverters convert direct current from the normal dc power supply during normal operation, or from the vital 125-volt dc control system batteries during emergency operation, to alternating current which is used for reactor instrumentation and control systems. Failure of these systems to operate properly could adversely affect the safety of the plant.

Corrective Action

In order to correct these deficiencies, most of the lugs will have to be cut off the cables, which will make the cables too short to reinstall. Therefore, all cables with improperly mounted lugs will be replaced. The replacement of cables will be coordinated with the manufacturer. Modifications will be completed by May 1982. The vendor has been notified of this condition to prevent recurrence.