

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

October 17, 1985

WBRD-50-390/85-38  
WBRD-50-391/85-37

U.S. Nuclear Regulatory Commission  
Region II  
Attn: Lr. J. Nelson Grace, Regional Administrator  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

85 OCT 25 4 9:38

Dear Dr. Grace:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - INCORRECT USE OF AMP PIDG TERMINAL  
LUGS - WBRD-50-390/85-38, WBRD-50-391/85-37 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector  
Al Ignatonis on September 13, 1985 in accordance with 10 CFR 50.55(e) as SCR  
WBN EEB 8537. A delay of one week for submittal was discussed with  
Steve Weise on October 11, 1985. Enclosed is our final report.

If you have any questions, please get in touch with R. H. Shell at  
FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

*J. A. Dome*  
J. W. Hufham, Manager  
Licensing and Risk Protection

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

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## ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2  
INCORRECT USE OF AMP PIDG TERMINAL LUGS  
WBRD-50-390/85-38, WBRD-50-391/85-37  
SCR WBN EEB 8537  
10 CFR 50.55(e)  
FINAL REPORT

### Description of Deficiency

AMP Products Corporation model PIDG crimp-type terminal lugs have been used on various solid conductor component leads at Watts Bar Nuclear Plant (WBN). However, AMP PIDG terminal lugs are designed and recommended by the vendor for use on stranded wire conductors only.

The misapplication of the PIDG lugs has been identified on discrete electrical components (resistors, diodes, capacitors, and similar devices) in the following categories at WBN.

1. Foxboro control loops and test points.
2. TVA relay racks and local panels.
3. Strip chart recorder selector switches.
4. Solenoid valve surge suppression networks.
5. Diesel generator alarm circuits.
6. Fire damper electro-thermal links.
7. Status monitor relays.

TVA has determined that this deficiency resulted from inadequate site procedures for the installation and acceptance of terminal lugs used in solid conductor component leads. The applicable site procedures did not reflect the requirements of TVA General Construction Specification G-38. Section 3.4.2.7.4 of G-38 specifies that the only acceptable methods of splicing or terminating solid conductor leads is soldering, soldering over a crimped connection, or coiling the leads around a stud or screw having or using a flat washer. Additionally, the vendor recommendations on the use of PIDG terminal lugs were not followed.

### Safety Implications

The subject deficiency could reduce the reliability of the crimped connection and, subsequently, the reliability (availability or accuracy) of affected components. The affected components in categories 1 and 2 above are class 1E safety related. Thus, this condition could potentially have an adverse affect on the safety of operations of the plant.

### Corrective Action

TVA will solder existing PIDG terminal lugs on solid conductor component leads or replace them with lugs recommended for use on solid conductor leads. Those components for unit 1 in categories 1 and 2 above will be reworked.

prior to WBN unit 1 fuel loading. All affected unit 2 components will be reworked prior to unit 2 fuel loading. All corrective actions will be done per engineering change notices (ECN) 5879 and 5880 for units 1 and 2, respectively.

TVA will revise General Construction Specification G-38 and Office of Nuclear Power Maintenance and Inspection Procedures MAI-4 and -5 to specify that crimp-type terminal lugs may be used on solid conductor component leads if they are approved for that application by the vendor. WBN site inspection procedure QCP-3.06-3.1 will be revised to require verification of the correct application of terminal lugs on solid leads by qualified inspectors. These revisions to the specification and procedures will be completed by December 16, 1985, and will prevent recurrence of the subject deficiency.