

**TENNESSEE VALLEY AUTHORITY**

CHATTANOOGA, TENNESSEE 37401

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March 13, 1986 49

WBRD-50-390/85-40

WBRD-50-391/85-39

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 UNITS 1 AND 2 - SUSPECT TERMINALS ON GE TYPE PK TEST  
BLOCKS - WBRD-50-390/85-40, WBRD-50-391/85-39 - THIRD INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector  
Al Ignatonis on September 18, 1985 in accordance with 10 CFR 50.55(e) as NCR  
W-267-P. Previous interim reports were submitted on October 17, and  
December 2, 1985. Enclosed is our third interim report. We expect to provide  
our next report on or about May 20, 1986. We consider 10 CFR Part 21  
applicable to this deficiency.

Delay in submittal of this report due to a lack of information from GE was  
discussed with Bob Carroll on February 4, 1986.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

  
R. L. Gridley  
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  
1100 Circle 75 Parkway, Suite 1500  
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## ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2  
SUSPECT TERMINALS ON GE TYPE PK TEST BLOCKS  
WBRD-50-390/85-40, WBRD-50-391/85-39  
NCR W-267-P  
10 CFR 50.55(e)  
THIRD INTERIM REPORT

### Description of Deficiency

TVA has experienced two failures of General Electric (GE) PK test block terminal studs during an inspection of spare terminals on these type blocks. The failures occurred with terminals on blocks used in the non-safety-related 6.9-kV unit board 1A, breaker 1522 trip cutout block TD 86522, and unit board 2D, breaker 1634 trip cutout block TD 886634. Both terminal studs fractured easily when pulled during an inspection which had been initiated because similar fractures had occurred in non-safety-related equipment at Sequoyah Nuclear Plant (SQN). Because the 6.9-kV unit boards and the safety-related 6.9-kV shutdown boards were procured under the same contract, the PK blocks are the same type for either application. Also, these same type blocks are used on various other safety-related systems.

According to GE, as stated in their February 3, 1986, letter to TVA, the root cause of this problem was stress corrosion cracking due to their subsupplier's failure to use specified material and stress-relief annealing coupled with an atmosphere containing stress corrosion accelerators.

### Safety Implications

Although there have been no failures of terminal studs on PK test blocks used with safety-related systems, the potential for such a failure exists since no distinction has been found between PK blocks supplied for use with 1E or non-1E circuits. If one or more terminal studs failed in safety-related equipment (e.g., the 6.9-kV shutdown boards or the diesel generator relay boards) their circuits could be lost through either a loss of continuity or short circuiting, or an energized terminal could physically fall and cause arcing and possibly an electrical fire. Any of these potential situations could adversely affect safe operation of the plant.

### Interim Progress

TVA is still awaiting information from GE on necessary corrective actions as well as material to correct the problem. To prevent a recurrence of the problem, GE has stated they intend to inspect the subsupplier's plant and to require a certification of the material and annealing on all future shipments. Also, they will have an independent laboratory test the initial shipment of new studs and periodically test subsequent shipments to be sure they are of the correct alloy and are correctly annealed.

TVA will provide the next report on this item on or about May 20, 1986.