

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

April 15, 1983

WBRD-50-390/82-70

WBRD-50-391/82-67

U.S. Nuclear Regulatory Commission  
Region II

Attn: Mr. James P. O'Reilly, Regional Administrator  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

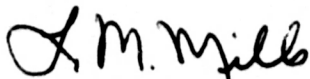
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - STEAM GENERATOR LOWER SUPPORT BOLTS  
- WBRD-50-390/82-70, WBRD-50-391/82-67 - THIRD INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on June 10, 1982 in accordance with 10 CFR 50.55(e) as NCR GEN NEB 820. Interim reports were submitted on July 9, and October 28, 1982. Enclosed is our third interim report. We expect to submit our next report on or about September 30, 1983.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY



L. M. Mills, Manager  
Nuclear Licensing

Enclosure

cc: Mr. Richard C. DeYoung, 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

830426041 830415  
PDR ADDCK 05000390  
S PDR

OFFICIAL COPY

IE 27

83 APR 21 A10:13

USNRC REGION II  
ATLANTA

## ENCLOSURE

WATTS BAR NUCLEAR PLANTS UNITS 1 AND 2  
STEAM GENERATOR LOWER SUPPORT BOLTS  
NCR GEN NEB 8201  
WBRD-50-390/82-70, WBRD-50-391/82-67  
10 CFR 50.55(e)  
THIRD INTERIM REPORT

### Description of Deficiency

The ASTM A564 type XM-16 (Carpenter Custom 455) steam generator lower support bolts supplied by Westinghouse for Watts Bar are potentially nonconforming in the following areas: (1) the yield strength at operating temperature may not meet Final Safety Analysis Report commitments; (2) the material may not possess adequate fracture toughness when subjected to design loadings; and (3) TVA cannot verify adherence to the Westinghouse-suggested preload on the bolts; consequently, the material may be susceptible to stress corrosion cracking. These potential problems have arisen from an apparent design basis error regarding material selection because of a lack of allowable stress trend curves as a function of temperature. In addition, the industry has experienced failures with similar high strength bolting in component supports.

### Interim Progress

TVA has completed a fracture mechanics evaluation of the bolts and associated laboratory determinations of critical fracture toughness and stress corrosion cracking potential of the material. The results indicated that reheat treatment of the material would provide adequate strength at temperature as well as sufficient fracture toughness and resistance to stress corrosion cracking. Accordingly, TVA has initiated a bolting reheat treatment program at Watts Bar. Reheat treatment for unit 1 bolts is nearing completion and the unit 2 program is underway. TVA is in the process of finalizing details of the fracture mechanics evaluation and associated material test results. Additional information will be provided in our next report.