TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

82 JUL 14 A July 90 1982

WBRD-50-390/82-70
WBRD-50-391/82-67
YCRD-50-566/82-13
YCRD-50-567/82-13

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR AND YELLOW CREEK NUCLEAR PLANTS UNITS 1 AND 2 - STEAM GENERATOR LOWER SUPPORT BOLTS - WBRD-50-390/82-70, WBRD-50-391/82-67, YCRD-50-566/82-13, YCRD-50-567/82-13 - FIRST 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 8201. Enclosed is our first interim report.

In the future, this NCR will be handled under separate reports for Watts Bar and Yellow Creek Nuclear Plants. We expect to submit our next report on Watts Bar Nuclear Plant on or about November 1, 1982. TVA has elected to defer construction activities for the Yellow Creek Nuclear Plant. Deferral does not mean that the project will be cancelled but that TVA is minimizing its expenditures and construction efforts until such time that TVA has sufficient information to indicate whether the project should be completed or cancelled. Therefore, we will not be submitting another report for this nonconformance until a final decision is made regarding this project.

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, DC 20555

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ENCLOSURE

WATTS BAR AND YELLOW CREEK 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 YCRD-50-566/82-13, YCRD-50-567/82-13
10 CFR 50.55(e)
FIRST INTERIM REPORT

Description of Deficiency

This NCR is written to cover the generic concern on yield strength and susceptibility to stress corrosion cracking of the steam generator lower support bolts.

Watts Bar Nuclear Plant

The ASTM A564 type XM-16 (Carpenter Custom 455) steam generator lower support bolts supplied by Westinghouse for Watts Bar have two potential areas of nonconformance: (1) the yield strength may not meet Final Safety Analysis Report commitments for these bolts at operating temperatures; and (2) 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 recent failure experience with ultra high strength bolting in primary component supports.

Bellefonte Nuclear Plant

Similar conditions at Bellefonte are being reported under NCR BLN NEB 8111. The manufacturer for the Bellefonte bolts is Babcock & Wilcox of Lynchburg, Virginia.

Yellow Creek Nuclear Plant

Similar implications to Yellow Creek Nuclear Plant will be investigated when a decision is made concerning the status of plant construction.

Interim Progress

TVA is conducting a fracture mechanics evaluation of the Watts Bar steam generator lower support bolts. The evaluation involves calculation of the applied K_I values and determination of critical fracture toughness (K_{IC}) and stress corrosion potential (K_{ISCC}) of specific materials at ambient and at operating temperatures as applicable. A comparison of the applied K_I with the critical K_{IC} and K_{ISCC} will provide verification of the material's acceptable fracture toughness and resistance to stress corrosion cracking. Either trend curves will be established from manufacturer's data or hot tensile tests will be performed on TVA heat specific materials to justify strength at temperature. To date, calculation of the applied K_I values is nearing completion, the specific material testing is underway, and manufacturer's trend curve data is being obtained. Depending on the results of the evaluation, replacement or reheat treatment of material may be required at Watts Bar.