TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
SN 157B Lookout Place

February 13, 1986

WBRD-50-391/81-67

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 UNIT 2 - QUALIFICATION ON EPOXY GROUT FOR SAFETY RELATED APPLICATIONS - WBRD-50-391/81-67 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on August 27, 1981 in accordance with 10 CFR 50.55(e) as NCR WBN 3567R. Our final report for unit 1 was submitted on September 13, 1983 and our last report for unit 2 was submitted on October 9, 1985. Enclosed is our final report for unit 2.

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
Atlanta, Georgia 30339

ENCLOSURE

WATTS BAR NUCLEAR PLANT UNIT 2
QUALIFICATION OF EPOXY GROUT FOR SAFETY-RELATED APPLICATIONS
WBRD-50-391/81-67
NCR WBN 3567R
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

Epoxy grout was specified on Watts Bar Nuclear Plant (WBN) design drawings at specific anchor bolt locations inside containment where temperatures may exceed 120°F. However, the load-carrying capabilities of epoxy grout may be reduced at temperatures above 120°F. Also, the epoxy grout has not been qualified to the radiation environment inside containment.

The cause of this deficiency is that neither TVA General Construction Specification No. G-32, "Bolt Anchors Set in Hardened Concrete," nor TVA Design Standard DS-C6.1 included limitations on the use of epoxy grout for grouting anchors in areas exposed to radiation or elevated temperatures.

The final report on this nonconformance for WBN unit 1 was submitted to NRC-OIE Region II on September 13, 1983.

Safety Implications

The subject condition, had it remained uncorrected, could have resulted in the failure of affected supports under design basis accident conditions. This could have led to a failure of an affected safety-related system, and could have adversely affected the safety of operations of the plant.

Corrective Action

TVA is conducting a system-by-system evaluation of all drawings for WBN unit 2 supports. Supports are being reviewed for the use of epoxy-grouted anchors, and design modifications are being performed where required. This effort is essentially complete.

Revised support drawings are being issued, as required, under engineering change notice (ECN) 4793. Based on these revised drawings, field modifications to existing supports or installation of new supports are being performed. All necessary corrective actions for this item will be completed by initial fuel loading for WBN unit 2.

TVA anticipates no problems with epoxy-grouted support anchors which are not exposed to the temperatures or radiation environment as described above. However, to prevent recurrence of this deficiency, TVA revised G-32 on August 25, 1982, to preclude the use of epoxy-grouted anchors in safety-related applications. Additionally, TVA Civil Design Standard DS-C1.7.1, formerly DS-C6.1, was revised on May 31, 1983, to preclude the use of epoxy-grouted anchors in safety-related applications. No further actions to prevent recurrence will be taken.