TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

March 23, 1984

WBRD-50-390/84-12
WBRD-50-391/84-12

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 - PIPE SUPPORTS MODELED IN INCORRECT COORDINATE SYSTEM (NONGLOBAL) - WBRD-50-390/84-12, WBRD-50-391/84-12 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector P. E. Fredrickson on February 27, 1984 in accordance with 10 CFR 50.55(e) as NCR WBN CEB 8402. 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

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

8404050028 840323
PDR ADOCK 05000390
S PDR

OFFICIAL COPY

IE27

An Equal Opportunity Employer

ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
PIPE SUPPORTS MODELED IN INCORRECT COORDINATE SYSTEM (NONGLOBAL)
NCR WBN CEB 8402
WBRD-50-390/84-12 AND WBRD-50-391/84-12
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

A skewed coordinate system is used in support computer analysis; however, supports are designed and installed in accordance with the global coordinate system. A piping analyst incorrectly issued load data for supports at node points 53S and 65S in the residual heat removal (RHR) system in the skewed coordinate system before transformation into the global coordinate system. This error was overlooked by the checker. These loads are less in the skewed coordinate system than it would be in the global coordinate system.

Safety Implications

Since the supports in the RHR system were designed based upon the skewed coordinate system where the loads are less than the global coordinate system, it is possible that the RHR piping could fail under design basis accident conditions and subsequently adversely affect the safety of the plant.

Corrective Action

TVA has evaluated the discrepancy between the analyzed and installed support orientation at node points 53S and 65S to determine the effect upon analysis qualification and has found that the present support orientations did not disqualify the analysis; therefore, no reanalysis is required. The Division of Engineering Design (EN DES) Civil Engineering Support Branch has revised the support loads tables to reflect the correct global coordinate system data and forwarded these revised loads to EN DES Watts Bar Design Project. Support redesign is required and will be tracked under engineering change notices (ECNs) 4662 and 4663 for units 1 and 2, respectively. All support redesign will be completed and construction modifications will be made in accordance with ECNs 4662 and 4663 by May 17, 1984, for unit 1 and July 31, 1985, for unit 2, respectively.

We believe that this design error is an isolated occurrence and maintain that the checklist contained in the controlled Rigorous Analysis Handbook addresses the proper methods of controlling and documenting support loads. The importance of assuring that skewed supports are properly orientated and documented, and that the postprocessor printout is reflected on the isometric and support load tables has been reemphasized to the piping analyst and the checker.