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

September 26, 1983

WBRD-50-390/82-84
WBRD-50-391/82-80

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 - LACK OF QUALIFICATION FOR EMBEDMENT PLATES - WBRD-50-390/82-84, WBRD-50-391/82-80 - REVISED FINAL REPORT

On December 15, 1981 NRC Region II Inspector R. Butcher was notified of a reportable deficiency involving TVA review and handling of Engineering Change Notices (ECNs). Interim reports on this deficiency (Audit M81-13) were provided on January 19 and March 31, 1982. On May 19, NRC Region II Inspector R. V. Crlenjak was notified that nonconformance report (NCR) WBN CEB 8217 would be included with Audit M81-13. Another report concerning these combined deficiencies was provided on August 5, 1982.

On August 16, 1982 NRC Region II Inspector F. Long was notified that NCR WBN CEB 8217 would be handled separately from Audit M81-13. Interim reports specifically for NCR WBN CEB 8217 were submitted on September 14 and November 12, 1982. Our final report was submitted on December 22, 1982.

NRC-OIE Inspector Linda Watson was contacted on June 20, 1983 concerning the reopening of construction deficiency report (WBRD-50-390/82-84, WBRD-50-391/82-80) and the inclusion of NCR WBN WBP 8311. An interim report was submitted on July 22, 1983. Enclosed is our revised 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: See page 2

IE 27

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

ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
LACK OF QUALIFICATION FOR EMBEDMENT PLATES
NCRs WBN CEB 8217 AND WBN WBP 8311
WBRD-50-390/82-84, WBRD-50-391/82-80
10 CFR 50.55(e)
REVISED FINAL REPORT

Description of the Deficiency

In 1978, EDS Nuclear Incorporated, Norcross, Georgia, notified TVA by letter of the completion of their verification effort for TVA support embedment plates having EDS-designed pipe support loads. The letter identified several supports for the Reactor Coolant System and Component Coolant System piping at Watts Bar Nuclear Plant (WBN) which exceed the allowable loads provided to EDS by TVA. As TVA had already approved the EDS drawings and had issued them to its construction forces, a nonconformance report (NCR) was required to identify this deficiency. However, an NCR was not written until after EDS had supplied TVA, in 1981, with the actual support revisions. This was due to a failure by TVA design personnel to either understand or comply with the directions of TVA's Division of Engineering Design (EN DES) Engineering Procedure (EP) 1.26, "Nonconformance Reporting and Handling by EN DES," which was in effect at that time.

On December 22, 1982, TVA submitted a final report to NRC-OIE concerning NCR WBN CEB 8217 based on the facts that the revised EDS support designs had been incorporated into plant design under engineering change notice (ECN) 2958, affected EN DES personnel had been educated concerning EP 1.26, and per EP 3.03, TVA would no longer issue vendor drawings to construction forces before receipt of vendor analysis. However, during review of this item, the NRC-OIE inspector at WBN questioned the acceptability of a mark 9 embedment plate based on a difference in the "as built" configuration of the plate and the plate drawing.

During TVA's review of this plate (initiated at the inspector's request), it was found that the drawing discrepancy was based on the fact that a stiffener added to the plate in question was not shown on the plate drawing. These stiffeners are shown on support detail drawings so no actual discrepancy existed. However, this review also identified an overloading of a section of the plate such that the tensile strength of the plate's mounting studs was exceeded. NCR WBN WBP 8311 was then written to document this overloading condition.

Safety Implications

Overloading an embedment plate used in the reactor coolant system piping scheme could cause the plate to fail and cause a subsequent failure in the piping. This could adversely affect safe operation of the plant.

Corrective Action

Through further investigation of the plate in question (48N930-MK9) TVA has found that the actual load applied to the embedded plate by one of the attached supports is substantially less than the load tabulated on the support drawing. Subsequent reanalysis showed that this plate is not overloaded and no modifications are required. TVA also reanalyzed the other six embedded plates that EDS had originally cited as overloaded and had provided revised sketches for. Two of these six plates require physical modification (a stiffener plate) to reduce plate stress and anchor loads. This will be accomplished through ECN 4241 with all actions being complete by December 1, 1983.

Although not specifically created to correct this problem, TVA feels that the current revisions to EP 3.03 (which requires that contracts contain provisions for independent review calculations) and EP 5.14 (which requires squadchecking drawings per EP 4.04) are sufficient controls to prevent a recurrence of this problem.