TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II



May 27, 1983

WBRD-50-390/82-39, -391/82-36

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 - POTENTIALLY OVERSTRESSED EMBEDDED PLATES - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on April 12, 1982 in accordance with 10 CFR 50.55(e) as NCR WBN CEB 8203. Interim reports were submitted on May 18, July 13, and October 14, 1982 and April 4, 1983. This deficiency was subsequently expanded to cover Bellefonte, Yellow Creek and Hartsville Nuclear Plants as NCR GEN CEB 8208.

For disposition purposes NCRs WBN CEB 8203 (WBRD-50-390/82-39, WBRD-50-391/82-36) and GEN CEB 8208 (BLRD-50-438/82-67, BLRD-50-439/82-60) are being submitted separately for the Watts Bar and Bellefonte Nuclear Plants respectively. Enclosed is our final report for NCR WBN CEB 8203. Our next submittal on NCR GEN CEB 8208 is expected to be transmitted by June 22, 1983.

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

L. M. Mills, Manager
Nuclear Licensing

Enclosure
cc (Enclosure):
Mr. Richard C. DeYoung, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, GA 30339







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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
POTENTIALLY OVERSTRESSED EMBEDDED PLATES
NCR WBN CEB 8203
WBRD-50-390/82-39, WBRD-50-391/82-36
10 CFR 50.55(e)
FINAL REPORT

## Description of Deficiency

After reviewing Watts Bar nonconformance report (NCR) 3842R, which is being separately reported (WBRD-50-390/82-14, WBRD-50-391/82-14) and concerns positioning of expansion anchors near embedded plates with attachments, TVA recognized that one aspect of this NCR should be reported separately. This separate concern is that multiple supports have been attached to embedded plates throughout the plant without a design review of the embedded plates' capacity. The apparent cause of this potential deficiency is the lack of control procedures and documentation requirements concerning the loading limits of embedded plates.

## Safety Implications

TVA's sampling program has determined that no safety concern now exists for multiple supports attached to embedded plates at the Watts Bar Nuclear Plant (WBN). However, if spacing requirements had not been issued (January 1983), continued unregulated attachment of multiple supports used with safety-related piping could have potentially overloaded embedded plates causing failure of the plates and ultimately could have caused failure of safety-related piping thus jeopardizing safe operations of the plant.

## Corrective Action

In March 1982, TVA evaluated a sample of 69 embedded plates to determine if support failure could occur. The results of this sample were determined to be acceptable since there were zero failures out of the sample of 69 plates. (A failure rate of 0 in a sample of 69 indicates with a 95 percent confidence level that less than 5 percent of the embedded plates would be subjected to loads that could result in support failure.) However, the inspection did identify one embedded stud stressed to .96 Fy. (Fy represents the tensile yield strength of the stud and TVA's maximum design allowable is .9 Fy). In January 1983, TVA construction forces at WBN implemented interim spacing requirements to control the spacing of future attachments to embedded plates, and then updated the sample taken in March 1982. No additional anchors were found to be overloaded during this update.

WBN Construction Specification N3C-928 has now been issued for locating attachments on embedded plates, and this specification requires design approval of all future attachments to embedded plates that do not meet the specified minimum spacing requirements. Also the support that was determine to have an overloaded stud from the original sample has been modified to reduce the stud load below .9 Fy.