TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

March 9, 1981

WBRD-50-390/81-19
WBRD-50-391/81-18

Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - DESIGN OF SELF DRILLING EXPANSION ANCHORS - WBRD-50-390/81-19, WBRD-50-391/81-18 - SECOND INTERIM REPORT

On December 4, 1980, R. W. Wright, NRC-OIE Region II, was informed that the subject nonconformance was determined to be reportable in accordance with 10 CFR 50.55(e). Our first interim report of January 2, 1981, identified this nonconformance as WBN SWP 8007. Enclosed is our second interim report. We expect to submit our next report by May 27, 1981.

If you have any questions, please get in touch with D. L. Lambert at FTS 857-2581.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure
cc: Mr. Victor Stello, Director (Enclosure) ✓
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
DESIGN OF SELF-DRILLING EXPANSION ANCHORS
WBRD-50-390/81-19, WBRD-50-391/81-18
10 CFR 50.55(e)
SECOND INTERIM REPORT

Description of the Deficiency

Bergen-Paterson (B-P) of Clifton, New Jersey, is under contract to the Tennessee Valley Authority (TVA) to design and supply installation drawings for pipe supports with self-drilling expansion anchors. These expansion anchors are used to attach base plates of pipe hangers to concrete structures. The pipe hangers support safety-related piping for all mechanical systems except the Upper Head Injection System and the Residual Heat Removal System.

The analysis performed by B-P involves designing the pipe hanger supports using normalized loads supplied by TVA. The process for designing the supports calls for the actual load carried by the expansion anchors. These actual loads are then compared to a tabulated column of values given in TVA Civil Design Standard DS-C6.1. These tabulated values correspond to a certain diameter anchor which is capable of carrying that load.

This is where the deficiency originated. TVA mistakenly advised B-P that it was acceptable to use the factored load column values given in DS-C6.1 when designing the expansion anchors. This information was incorrect as the service load column values given in DS-C6.1 should be used with normalized loads.

Corrective Action

TVA has taken the worst anchor from 20 randomly chosen supports to compare the actual load developed in the anchor against what the anchor specified on the B-P drawing is capable of carrying using the service load column values given in DS-C6.1. This evaluation has identified three anchors which are not adequate. Two of these three anchors are overstressed by 5 percent while one anchor is overstressed by 33 percent. TVA is continuing to evaluate the data.

A review of pipe hanger support contracts identified the only design work performed by B-P was on the Watts Bar facility. Therefore, TVA feels that it has isolated this problem and there are no generic implications to other plants. In addition, TVA is taking action to prevent the exchange of incorrect information as occured in this instance.