TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

March 16, 1982

WBRD-50-390/81-82
WBRD-50-391/81-76

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - DESIGN OF AXIAL SUPPORTS FOR PIPING USING LUGS WELDED TO THE PIPE - WBRD-50-390/81-82, WBRD-50-391/81-76 - SECOND INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on September 22, 1981 in accordance with 10 CFR 50.55(e) as NCR WBN SWP 8155. An interim report was submitted on October 22, 1981. Enclosed is our second interim report. We expect to submit our next report on or about August 30, 1982.

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 Regulation and Safety

Enclosure
cc: Mr. Richard C. DeYoung, 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 AXIAL SUPPORTS FOR PIPING USING LUGS WELDED TO THE PIPE
WBRD-50-390/81-82, WBRD-50-391/81-76
10 CFR 50.55(e)
SECOND INTERIM REPORT

Description of Deficiency

The two deficiencies identified by this NCR are:

1. Lugs, designed to keep pipes from moving axially, butt up against the rounded corner of square tubing on pipe supports allowing greater movement than designed for. This results in a longer moment arm, creating a bending moment on the pipe wall that could result in overstressing of the pipe.

2. The criteria for determining the moment arm to the centroid of the bearing areas was misinterpreted. This resulted in smaller moment arms, producing nonconservative pipe stresses induced by the lug.

Interim Progress

TVA design employees have reviewed all typical and engineered supports against reevaluated criteria (which removes excessive conservatism). The majority of the typical supports have been found to be adequate under the new criteria and the remainder are under review. This review should be complete by April 1, 1982. The engineered supports have lugs that cause overstressing of the pipe walls in some cases and some of the lugs that cause the overstressed condition have been redesigned. Also, a testing program has been initiated at the site to see if it is feasible to modify the supports by a shimming process. Based on the outcome of the testing program it will be decided if the remaining involved supports will require the lugs to be redesigned or shims to be added to the support steel. Revisions to engineered supports will be made under ECN 3184.