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

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October 31, 1983

WBRD-50-390/83-49
WBRD-50-391/83-47

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 - LUGS WELDED TO SPIRAL WELDED PIPE
WBRD-50-390/83-49, WBRD-50-391/83-47 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector Linda Watson on August 9, 1983 in accordance with 10 CFR 50.55(e) as NCR WBN WBP 8318. Our first interim report was submitted on September 8, 1983. 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

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
LUGS WELDED TO SPIRAL WELDED PIPE
NCR WBN WBP 8318
WBRD-50-390/83-49, WBRD-50-391/83-47
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

Lugs have been welded directly to spiral welded pipe used as ducts on TVA drawings 47W915-1 and 47W915-15 and supported with typical support numbers 47A055-81, -80, and -83. These lugs have also been welded to the supports. Design criteria WB-DC-40-31.8 states that for attachment of round duct to supports, a strap loop or ring shall be used. In addition to the typical supports initially identified, TVA has determined that typical supports numbered 47A055-96, -170, -191, -192, -212, and -214 are similarly deficient.

Designers were not fully aware of support design requirements set forth in design criteria WB-DC-40-31.8. Also, inadequate checking of the design work on the typical support drawings allowed them to be released with errors.

Safety Implications

During a seismic event, the spiral welded pipe, which has a very thin wall, could become overstressed and tear. Once the pipe tears, it could fail and damage safety-related equipment below. Additionally, this duct is seismic category I which is required to maintain its pressure boundary integrity at all times.

Corrective Action

TVA has reviewed all duct typical support drawings with lugs welded to spiral welded pipe. TVA is revising all the affected drawings by adding a hoop ring to the duct end supports. This will ensure the ducts' pressure boundary integrity and position retention are in compliance with WB-DC-40-31.8. The drawing revisions are being implemented under ECN 4331 and will be complete for both units 1 and 2 by November 30, 1983. Field implementation of the hanger rework required will be complete on unit 1 by February 1, 1984, and unit 2 by February 1, 1985.

Before the discovery of this nonconforming condition, TVA had initiated the following training programs:

1. Pipe support design manual training.

2. EN DES Engineering Procedure (EP) training (as described by memo, SWP 820609 001), and particularly EN DES-EP 4.25 which emphasizes the responsibilities of the checker.

The training described above will prevent the recurrence of similar nonconforming conditions.