

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

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May 20, 1985

WBRD-50-390/85-17

U.S. Nuclear Regulatory Commission
Region II
Attn: Dr. J. Nelson Grace, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Dr. Grace:

WATTS BAR NUCLEAR PLANT UNIT 1 - INCORRECT DESIGN OF PIPE SUPPORT 1-68-002 -
WBRD-50-390/85-17 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
P. Fredrickson on May 14, 1985 in accordance with 10 CFR 50.55(e) as
NCR WBN OEB 8512. 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

J. A. Hufham
for J. W. Hufham, Manager
Licensing and Regulations

Enclosure

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

Records Center (Enclosure)
Institute of Nuclear Power Operations
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Atlanta, Georgia 30339

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNIT 1
INCORRECT DESIGN OF PIPE SUPPORT 1-68-002
WBRD-50-390/85-17
10 CFR 50.55(e)
NCR WBN OEB 8512
FINAL REPORT

Description of Deficiency

While working on a unit 2 support design for the pressurizer surge line, a TVA designer determined that the corresponding unit 1 support 1-68-002, had an incorrect connection detail. This particular support utilizes a pair of U-bolts to connect the surge line to a 20"x20"x1" termination plate. The termination plate is then welded to the flanges of a W6x15.5 beam. This design overstresses the beam flanges and was an isolated error caused by a designer's failure to provide an adequate load path for forces from the U-bolts to be transmitted into the web of the beam without overstressing the beam flanges.

Safety Implications

During a design basis seismic event, this support design could allow the beam flanges to become overstressed which could allow the termination plate to break loose leaving the pressurizer surge line unsupported. This in turn could allow the surge line to break which would represent a breach of the reactor coolant pressure boundary and a loss of coolant accident (LOCA).

Corrective Action

TVA has redesigned the connection between the U-bolt termination plate and the W6x15.5 beam, has added stiffener plates to the beam through engineering change notice (ECN) 5666, and has implemented these design changes at the site.

To prevent a recurrence of this condition, TVA management has instructed pipe support design personnel to ensure that when an unusual connection is made between structural members, the detailed design of the connection does not permit overstressing in local areas of the members under design loading conditions.