

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

April 16, 1982

WBRD-50-390/81-48

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 UNIT 1 - ERCW SEISMIC SUPPORT DEFICIENCY -  
WBRD-50-390/81-48 - FINAL REPORT

The subject deficiency was initially reported to MRC-OIE Inspector R. V. Crlenjak on May 6, 1981 in accordance with 10 CFR 50.55(e) as NCR WBN SWP 8127. Interim reports were submitted on June 5, September 15, October 28, and December 16, 1981 and February 17, 1982. Enclosed is our final report. TVA considers 10 CFR Part 21 applicable to this deficiency.

If you have any questions, please get in touch with R. H. Shell at FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

A handwritten signature in cursive script that reads "L. M. Mills".

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 UNIT 1  
ERCW SEISMIC SUPPORT DEFICIENCY  
NCR WBN SWP 8127  
WBRD-50-390/81-48  
10 CFR 50.55(e)  
FINAL REPORT

Description of Deficiency

The design of one support (designed by Bergen-Paterson) on an ERCW discharge header was found to be deficient. This condition was discovered while TVA was doing calculations for a design modification of this support. The plate, bolt, and weld stress allowables were exceeded when design loads were considered. Checking the original design and load conditions showed that the original support design was deficient in the same way. Although the support had been modified by TVA before the deficiency was found, the modification did not affect the original support design or calculations.

TVA requested the original design calculations from Bergen-Paterson, the original designer of the support, for review. The calculations model assumed a slightly different configuration than was detailed on the actual design drawing. The support was erroneously assumed to be simply supported (flexible connections) at both ends in the calculations. However, the design drawing showed a fixed connection (no rotation) at one end of the support. The fixed connection would transmit a moment to the anchor plate on the wall which would overstress the plate, weld, and anchor bolts when the design load from the pipe was experienced.

Safety Implications

Had the support failed during operation of the plant, the pipe would be overstressed and could rupture. This could lead to deficient flows to some equipment cooled by the ERCW System. Therefore, the safe operation of the plant could have been affected had the support remained uncorrected.

Corrective Action

Bergen-Paterson has suggested a design which will allow both ends of the support to be considered as simply supported (flexible connection). TVA has agreed that this redesign is appropriate and will revise the support drawing to incorporate the redesign and resolve the deficiency by July 30, 1982.

No other supports of this design have been found on the ERCW System. Also, TVA has modified several hundred other Bergen-Paterson supports and has done calculations on them. No deficiencies of this nature have been discovered on these supports. Therefore, this deficiency appears to be a single, isolated case.

However, Bergen-Paterson has agreed to perform a review of support calculations (on a sampling basis) to assure that no other supports could have this deficiency. TVA will monitor this program which will be completed by June 30, 1982. If further deficiencies are found, they will be documented on nonconformance reports as appropriate.

Since TVA has assumed the support design responsibility for Watts Bar Nuclear Plant, Bergen-Paterson will not be providing new support designs for Watts Bar.