

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

May 18, 1983

BLRD-50-438/82-59
BLRD-50-439/82-53

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:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - USE OF FILLET WELDS ON PIPING LUGS
- BLRD-50-438/82-59, BLRD-50-439/82-53 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on August 19, 1982 in accordance with 10 CFR 50.55(e) as NCR GEN CEB 8209. This was followed by our interim reports dated September 20, 1982 and January 19 and March 15, 1983. Enclosed is our final report. A final report was submitted separately on this NCR for the Watts Bar Nuclear Plant.

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
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
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ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
USE OF FILLET WELDS ON PIPING LUGS
BLRD-50-438/82-59, BLRD-50-439/82-53
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

Fillet welds have been used to attach lugs to piping at Bellefonte. These lugs are permanent integral attachments on mechanical piping and are designed to provide support or to retain movement axially or laterally. At Bellefonte, the lugs were designed by both ITT Grinnell and TVA. While use of fillet welded lugs is allowed by the ASME Code, TVA's Civil Engineering Support Branch was concerned that TVA had no specific design document to qualify piping with fillet welded lugs and that their design document, CEB report 76-20, was being used even though it requires the use of full penetration welds.

Safety Implications

As noted below, no safety implication exists for previously installed fillet-welded lugs.

However, if this situation had remained uncorrected, use of CEB report 76-20 in the future design of fillet-welded lugs intended for use with safety-related piping could produce larger piping stresses than those for which the piping was being designed. This could cause the pipe to fail, which in turn could adversely affect safe operation of the plant.

Corrective Action

Vendor-designed fillet-welded lugs are adequate as is, and TVA-designed fillet-welded lugs were limited to rigorously analyzed piping two inches or less in diameter and for various alternately analyzed piping. In all such cases, TVA has determined that the stress margins in CEB report 76-20 exceed the additional design stresses required by the use of the fillet-welded lugs, and that these lugs are acceptable as is. The calculation package for these lugs is complete and procedures for designing fillet-welded lugs for Bellefonte have been incorporated into DIM-N4-50-D717-4.