TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

January 26, 1981

RECEIVED
JAN 29 1981
U.S. NUCLEAR REGULATORY COMMISSION

Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - IMPROPER WELD ATTACHMENT OF SHEAR LUGS - NCR 2451R - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. W. Wright on October 30, 1980, in accordance with 10 CFR 50.55(e). Our first interim report was submitted on December 1, 1980. Enclosed is our final report.

If you have any questions, please get in touch with D. L. Lambert at FTS 857-2581.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure
cc: Mr. Victor Stello, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

B019
S 1/1

8101300483



S

ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
IMPROPER WELD ATTACHMENT OF SHEAR LUGS
NCR 2451R
10 CFR 50.55(e)
FINAL REPORT

## Description of Deficiency

Shear lugs were not installed in accordance with applicable drawings and welding procedures in the HVAC Chilled Water System 31, including the main control room, control building electrical board rooms, and the auxiliary building shutdown board rooms. The following conditions deviate from TVA design criteria:

(1) Welds were made at the ends of some lugs making it impossible to detemine whether the welds were full penetration as required by TVA design criteria or butt welded.

(2) Lugs were installed where they bridge welded joints in the pipe runs.

(3) Lugs were installed with fillet welds, instead of full penetration welds, as required by TVA design criteria.

As a result, the welds may prove to be inadequate to carry the required design loads.

## Safety Implications

These air-conditioning systems are necessary for the reliability of electrical equipment located in the auxiliary board room and the main control room. This electrical equipment is essential for the safe operation and shutdown of the plant. Failure of these welds could have resulted in the degradation of safety-related equipment essential to the safe operation of the plant.

## Corrective Action

TVA has completed the investigation of the subject deficiency in safety systems inside the auxiliary building and the control building, which includes the areas mentioned above.

TVA has detemined that the lugs will be acceptable if a 1/4-inch fillet has been used or if undersized welds can be built up to a 1/4-inch fillet weld. Lugs that were welded over pipe welds will be removed and installed in a manner that will preclude interference with pipe welds. Modifications will be completed by August 1981 for unit 1 and May 1982 for unit 2. Responsible craft employees have been retrained in the various weld requirements to prevent recurrences.