

**TENNESSEE VALLEY AUTHORITY**

CHATTANOOGA, TENNESSEE 37401  
400 Chestnut Street Tower II

February 14, 1983

WBRD-50-390/82-96  
WBRD-50-391/82-92

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:

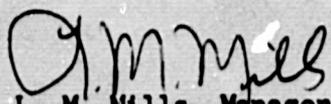
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - INTERPRETATION OF R. T. FILM  
ON WELDED PIPE BY SWEPCO TUBE CORPORATION - WBRD-50-390/82-96,  
WBRD-50-391/82-92 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector D. Quick on September 1, 1982 in accordance with 10 CFR 50.55(e) as SWEPCO NCR-1. Our first interim report was submitted on October 1, 1982. Enclosed is our final report. TVA no longer considers the subject condition to be adverse to the safe operation of the plant. Therefore, we will amend our records to delete the subject nonconformance as a 10 CFR 50.55(e) item.

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

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ENCLOSURE  
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2  
INTERPRETATION OF R. T. FILM ON WELDED PIPE BY SWEPCO TUBE CORPORATION  
SWEPCO NCR-1  
WBRD-50-390/82-96, WBRD-50-391/82-92  
10 CFR 50.55(e)  
FINAL REPORT

Description of Deficiency

SWEPCO, Clifton, New Jersey, (a sub-vendor) is furnishing ASME SA-358 T316L pipe to TVA on contracts 83015 which was let to Dravo, Marietta, Ohio and 825673 which was let to Capitol Pipe and Steel Products Company, Charlotte, North Carolina. Welding was performed by use of SWEPCO Syncro process with filler metal. The pipe is scheduled for use on the Essential Raw Cooling Water (ERCW) system.

Radiographs were evaluated on July 12, 1982 at SWEPCO on an audit basis. At that time indications were noted. SWEPCO stated that they were aware of the subject indications but consider them surface center line shrinkage, non-relevant and not detrimental to the product. TVA was not in agreement with SWEPCO's interpretation of the radiographs and was concerned with possible masking of subsurface indication. It was agreed by SWEPCO, TVA and Dravo that TVA and Dravo would select a sample lot of material. Welds would be ground and material reradiographed. If indications could be removed without removing a significant amount of material, material would be acceptable.

Thirteen pipes judged the worst surface condition were selected for sampling. This consisted of 56 individual areas. Of the 56 areas selected for testing, after grinding and reradiographing 55 areas were judged as surface conditions. Metal removed from the weld was 10 to 20 mils.

One area on pipe (Piece Mark #28 (6-7)) showed an indication approximately 3" long running parallel with the weld. This area was ground and reradiographed in increments of approximately 10 mils until the indication was removed. The indication was on the inside of the pipe. Reduction of the weld thickness was from 396 to 338 mils.

During the process of grinding it was noted that the indication decreased then increased in length prior to removal. Borescope evaluations showed a slightly irregular line running parallel with the weld with jagged edges approximately 10 mils wide with undetermined depth. Total wall thickness in the weld was reduced 58 mils.

Original film density was approximately 2.9. The density of the film used in the reradiograph of areas in question was approximately 3.9. The contractor was requested to bring the radiograph film density in line with the original radiographs. The contractor complied with this request.

It was determined that a generic problem with interpretation of their film existed and that SWEPCO had been accepting a surface condition (called center line shrink) on their film. It has been determined that this surface condition did mask subsurface discontinuities and from TVA's point of view the existing condition on this pipe does not meet the requirements or the intent of the ASME Code.

## Safety Implications

In order to evaluate the extent of RT film misinterpretation and the number of pipe sections that did not meet minimum ASME code requirements, a TVA inspector reviewed all of the SWEPCO and Dravo RT film pertinent to pipe supplied for use at the Watts Bar Nuclear Plant (WBN). This review was performed using the criteria established in ASME Section III and Section II, SA-655.

The inspector evaluated every indication evident on the RT film. The indications which did not meet the SA-655 acceptance criteria were located on the pipe in questions for further evaluation. Many of the indications were surface imperfections which were removed by very light surface grinding. Only one indication required more than 0.020 inches of material to be removed. That defect required the removal of 0.056 inches of material. However, in no case was enough material removed to violate the SA-655 acceptance criteria or to violate the minimum wall thickness criteria. After each area was ground, or if the original RT film itself was defective, new RT film was shot by SWEPCO. All indications which were evaluated by TVA's inspector were noted on the RT reader sheets, and their disposition was noted by him.

When SWEPCO reradiographed an indication, they provided the inspector with a new RT film reader sheet. These sheets were not initialed by the SWEPCO ANI indicating that he reviewed the film, whereas the reader sheets for the original film were initialed by him. In most instances, the RT reader sheets sent to WBN as a part of the data package on this pipe do not have the ANI's initials on them. TVA believes that this is acceptable since there is not an explicit requirement in the ASME Code for the ANI to initial the reader sheets prior to material being shipped, so long as the ANI has signed the NM-1 form (which was done in this instance). Therefore, we believe that since the ANI reviewed and approved the pipe which was made by SWEPCO utilizing their ASME approved manufacturing/examination program and since the TVA inspector has evaluated all the RT film and ensured compliance with SA-655 without any defective pipe being found, the pipe is acceptable for use in its intended service without any further examination/testing being required.

Consequently, TVA's determination is that no condition adverse to the safety of operations of the plant exists, and therefore, we do not consider this condition to be a 10 CFR 50.55(e) item.