

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

830 Power Building

SEP 29 1978

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:

This is in response to C. E. Murphy's letter dated August 28, 1978, RII:EOP 50-438/78-13, 50-439/78-13, concerning activities at the Bellefonte Nuclear Plant units 1 and 2 which appeared to have been in violation of NRC regulations. Enclosed is a revision to our previous response to the citation submitted in my letter to you dated September 19, 1978.

Very truly yours,

J. E. Gilleland
J. E. Gilleland
Assistant Manager of Power

Enclosure

cc: Mr. John G. Davis, Acting Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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ENCLOSURE

BELLEFONTE NUCLEAR PLANT
INFRACTION 50-438/78-13-05

BORATED WATER STORAGE TANK WELDING

REVISED REPORT

Infraction

50-430/78-13-05, Borated Water Storage Tank Welding

Criterion V of Appendix B to 10 CFR 50 as implemented by the FSAR, paragraph 17.1A.5 states in part that "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings."

TVA's Contract PO 78K70-8235.26 with Prairie Tank and Construction Company contains TVA specification 3617 which requires that the borated water storage tank be welded in accordance with (among others) the following requirements:

Paragraph 14.4 The surfaces to be welded and adjacent base metal shall be cleaned to bright metal immediately before assembling for welding, completely removing for a sufficient distance back from the edges of the welding zone all oil, dirt grease, oxide films, or other foreign material that might be imparted to the weld or base metal.

Paragraph 14.5 Each layer or weld bead shall be thoroughly cleaned and ground back to bright metal free of cracks, craters, slag, and porosities. After grinding, the surfaces must be brushed with a stainless steel brush before subsequent layers are deposited. Successive layers or beads shall be uniform in thickness.

Contrary to the above, the surfaces of the carbon steel backup channels to which the stainless steel liner plates are welded were not cleaned to bright metal before assembly and welding, nor were the welders wire brushing the welds before subsequent welds were deposited.

Corrective Action Taken and Results Achieved

TVA specification 3617, section 14.4, which requires cleaning weld preps to bright metal, is in conflict with section 14.1 of the same specification, which states that welding is to be in accordance with American Welding Society Structural Welding Code, D1.1 (AWS). The weld preps were cleaned to the intent of the AWS Code, section 3.2.1 which is in accordance with section 14.1 of specification 3617.

To resolve the conflicting paragraphs, section 14.4 of specification 3617 has been revised to read as follows, which is in agreement with the AWS Code:

14.4 Surfaces and edges to be welded shall be smooth, uniform, and free from fins, tears, cracks, and other discontinuities which would adversely affect the quality or strength of the weld. Surfaces to be welded and surfaces adjacent to a weld shall also be free from loose or thick scale, slag, rust, moisture, grease, and other foreign material that would prevent proper welding or produce objectionable fumes. Mill scale that can withstand vigorous wire brushing may remain.

All completed welds will be accepted as is subject to acceptable testing according to section 16 of TVA specification 3617.

Before the inspection in which this infraction was identified, TVA had noted as a deficiency in an internal audit on Prairie Tank and Construction Company that subsequent layers of weld metal were being deposited without being cleaned, ground, and brushed to bright metal.

The requirement for grinding weld layers back to bright metal is in conflict with section 14.1 of the specification which states that welding is to be in accordance with American Welding Society Structural Welding Code, D1.1 (AWS).

Accordingly, section 14.5 of specification 3617 has been revised as follows:

14.5 Each layer of weld shall be cleaned with stainless steel brushes, and where necessary, grinding to remove all cracks, craters, slag, and porosities before subsequent layers are deposited. Successive layers or beads shall be uniform in thickness.

The following corrective action was recommended by TVA and concurred with by Prairie Tank and Construction Company to resolve the deficiency involving cleaning of weld metal before depositing subsequent layers:

1. Nonconform welds made without the specified cleaning and grinding performed.
2. Take appropriate action to properly clean and grind future welds as required by the specifications.
3. Instruct personnel on the cleaning requirements set forth in the specifications.

Steps Taken to Avoid Further Recurrence

The only welding done by Prairie Tank and Construction for Bellefonte Nuclear Plant is on this contract for the borated water storage tanks. No further actions in addition to those discussed above are necessary.

Date of Full Compliance

The corrective actions for Bellefonte Nuclear Plant were completely implemented on September 15, 1978.