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	WEP GROUP IDENTIFIER <u>EC-SP-4</u>	Date <u>1/16/87</u>
		Revision <u>0</u>
		WEP Group <u>004</u>

Approved _____ Date _____
 Reviewed A.E. Bradford 1/16/87 Prepared John Deigan

Address the following items in the space remaining on this page and on additional pages as needed (see Standard Practice WEP 3.1.10 for specific instructions).

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1. Employee Concern(s)/Quality Indicator(s) (Reference 7.1)

Employee Concern WI-85-035-004.

2. Characterization of Issue

The employee concern states the following problem: A seam weld running along the longitudinal length of a structural box anchor was slugged (As defined in Reference 7.2: Act of adding a separate piece or pieces of material in a joint before or during welding that results in a welded joint not complying with design, drawing, or specification requirements) with a 1/2 inch or 5/8 inch diameter piece of rebar and then covered with weld filler metal.

The Tennessee Valley Authority (TVA), General Welding Procedures Specification G-29C, Process Specification 1.C.1.2 Revision A, Paragraph 11.1.11 (Reference 7.3) states that, "Caulking or slugging of welds shall not be permitted."

3. Summary

A thorough review of box anchors by the Department of Energy Weld Evaluation Project (DOE/WEP) resulted in two (2) out of ten (10) in the ERCW line identified by the employee concern being examined. The remaining eight (8) out of ten (10) were eliminated for various reasons. The two (2) box anchors that were inspected were found to be acceptable after a visual and ultrasonic examination. The DOE/WEP has determined that no problems exist and therefore considers this group closed.

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4. Evaluation Methodology

The DOE/WEP Assessment Plan 004 (Reference 7.4) required a 100 percent visual and ultrasonic examination of the subject welds. The DOE/WEP Engineering, in advance of the weld inspection, performed a thorough review of TVA design isometrics to identify all box anchor supports in the Auxiliary Building on the Essential Raw Cooling Water (ERCW) System (System 67) at elevation 737 feet. All box anchor design and construction drawings were also thoroughly reviewed. These drawings provided the "as constructed" condition. The designs were studied to evaluate the feasibility of slugging the box anchor seam welds with a 1/2 inch or 5/8 inch diameter rebar in the seam joint.

5. Findings

An engineering review by DOE/WEP determined that a total of ten (10) structural box anchor supports unique to the ERCW System existed between the 737 foot floor elevation and the 755 foot ceiling elevation in the Auxiliary Building. Through the process of elimination, DOE/WEP examined only two (2) of these box anchors. The remaining eight (8) box anchors were eliminated from the investigation for the following reasons: Two were found to be in Watts Bar Nuclear Plant (WBNP) Unit 2; three were found to contain no seam welds; and the last three contained no seam welds and were discovered to be completely embedded in concrete.

The two box anchor designs which were reviewed, P/Ns 47A060-67-24 and 47A060-67-75, were found to have seam joint weld prep bevels large enough to sustain a 1/2 inch or 5/8 inch diameter rebar within the weld envelope; however, the visual and ultrasonic examinations performed on the seam welds of the two box anchor assemblies failed to identify any rejectable indications. The welds were determined to be completely acceptable.

6. Conclusions

Although DOE/WEP review of seam weld joint configurations of the two box anchors determined that it would have been physically possible to slug the welds with 1/2 inch or 5/8 inch diameter rebar (Reference 7.5), visual and ultrasonic examination of the welds established that they were acceptable with no indications of slugging.

Based on the results of the DOE/WEP investigation and weld examination, it is concluded that there is no basis for the employee concern; therefore, DOE/WEP considers this group closed.

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7. Reference

- 7.1 Original Employee Concern as listed in Section 1.
- 7.2 American Welding Society (AWS), Welding Handbook, Seventh Edition, Volume 1, Fundamentals of Welding, Copyright 1976, Page 316.
- 7.3 TVA General Welding Procedures Specification G-29C, Process Specification 1.C.1.2 Rev. A, Paragraph 11.1.11.
- 7.4 DOE/WEP Assessment Plan 007, March 28, 1986.
- 7.5 EG&G Idaho Notegram to A. E. Bradford from Robert S. Seigler, April 15, 1986.

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