

Washington Public Power Supply System

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Docket No. 50-508

January 28, 1983
G03-83-82

U. S. Nuclear Regulatory Commission, Region V
Office of Inspection and Enforcement
1450 Maria Lane, Suite 260
Walnut Creek, California 94596-5368

Attention: Mr. D. M. Sternberg, Chief
Reactor Projects Branch No. 1

Subject: POTENTIAL 10CFR50.55(e) DEFICIENCY
STRUCTURAL WELDS - FAILURE TO MEET
AWS MINIMUM WELD SIZE REQUIREMENTS
(D/N #47)

Reference: Letter, G03-82-1329, Docket No. 50-508, Mr. R. S. Leddick
to Mr. D. M. Sternberg, same subject, dated December 29,
1982.

The referenced letter provided your office with an interim report concerning the subject condition. Upon review of the report by your staff, additional questions were raised that require resolution to facilitate NRC evaluation. These concerns were identified to the Supply System via telephone conversations on January 4, 1983. Specifically, three questions were asked as follows:

- 1) In the second paragraph under "Description of the Problem," what does "without preheat" mean with regards to the nine additional connections?
- 2) The third paragraph under "Description of the Problem," was interpreted as indicative of a site-wide problem. Is this actually the case?
- 3) What NDE, if any, was performed on the deficient welds?

The Supply System's response to the three questions noted above is as follows:

- 1) The use of the term, "without preheat," to describe the nonconformance was incorrect. The nine welds in question (welded by J. A. Jones) did receive satisfactory preheat in accordance with the requirements of AWS D1.1 and the weld procedure. The nonconformance only involved the use of multiple pass welds in lieu of single pass welds which are required by AWS D1.1.

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- 2) The problem has been specifically identified on the 265 Contract (J. A. Jones). However, due to the nature of the problem (i.e., detailer and contractor unfamiliarity with the requirements of AWS D1.1, Table 2.7), the potential exists that other site contractors may have had similar experiences. Since it would be impractical to inspect every small fillet weld on site to assure the requirements of Table 2.7 were met, it was decided to proceed with corrective actions as if all contractors had experienced the problem. Therefore, each contractor was directed to qualify their fillet weld procedures or demonstrate that they had in some manner provided the necessary heat input or controlled the rate of cooling.

The special restrictions imposed on the qualification testing (detailed in the referenced letter) represent the worst possible conditions (i.e., conditions most likely to have resulted in underbead or weld metal cracking). Further clarification of these restrictions to the qualification testing is as follows:

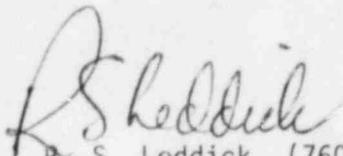
- Testing at 50°F on 3/4-inch plate provides a maximized cooling rate. It should be noted that with the -25°F allowed in the essential variables, the effective qualified temperature is 25°F. AWS D1.1 requires preheating to 70°F when the base metal temperature is below 32°F.
 - By depositing 3/16-inch fillets (or their equivalent in the multi-pass 5/16-inch weld) utilizing the lowest workable amperage, the heat input has been minimized.
 - Restraining the joint to prevent plate movement during welding will maximize the shrinkage forces.
- 3) NDE was not performed on the deficient welds identified in the referenced letter. Upon satisfactory completion of the fillet weld procedure qualification, the welds will meet the requirements of AWS D1.1 and the condition will be dispositioned use-as-is. Therefore, NDE will not be required.

It should be noted that, in some cases, the wording of the last restriction to the weld qualification testing (detailed on Page 2 of the attachment to the referenced letter) was changed to read, "The parameters of the WPS shall be followed and the amperage shall be the lowest that will produce a visually acceptable weld on 3/4" plate for each welding position used in production." This change was necessary because one contractor's welding procedure specified an amperage range wide enough to cover all thicknesses and positions and the lower half of that range did not produce visually acceptable welds on the required 3/4" plate.

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Should you have any questions or desire further information, please contact me directly.



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DRC:nj

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