

Enclosure 11

Memo from Donald G. Naujock

to

Terence L. Chan

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PDI/NRC Meeting



U.S.NRC

United States Nuclear Regulatory Commission

Protecting People and the Environment

A NEED FOR ASME CODE, SECTION XI, APPENDIX VII, SUPPLEMENT 2 SINGLE SIDED QUALIFICATIONS

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- 10 CFR 50.55a(b)(2)(xv)(A)(2) provides the requirements for single side examinations.
- “Where examination from both sides is not possible on austenitic welds or dissimilar metal welds, full coverage credit from a single side may be claimed only after completing a successful single-sided Appendix VIII demonstration using flaws on the opposite side of the weld.”



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- In the mid 1990's, the PDI program determined that flaws on the opposite side of the weld in representative mockup could not reliably be detected.
- The difficulties were caused by diametric shrinkage, weld crown, ID geometry, and component taper.
- Hence, PDI self imposed a coverage restriction that limited axial scanning to one side of the weld. This created a 50% maximum coverage per weld side for ASME Section XI, Appendix VIII, Supplement 2 examinations.

- The 50% restriction has contributed to a significant number of requests for relief from ASME Code examination coverage requirements.
- Responses to NRC's requests for additional information often indicated that weld surface conditions were not as rough as those of representative mockups being used by PDI.



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- Since the mid 1990's, changes have occurred that improved UT effectiveness.
- 1. Qualifying phased array for austenitic welds.
- 2. Improving data analyses with computer focusing and skewing.
- 3. Smoothing rough surfaces for better coupling.
- 4. Removing incidental (non-functional) restrictions.
- 5. Reducing weld shrinkage using temper bead welding.



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- **Conclusions:**
- **The UT improvements suggest that under certain conditions, single sided Supplement 2 qualifications are achievable.**
- **These conditions should be used in developing a performance demonstration for single side Supplement 2 qualifications.**