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From: Robert Hermann <rhermann@structint.com>
To: <NRCREP@nrc.gov>
Date: Wed, Sep 15, 2004 5:35 PM
Subject: Comments on Condition for Code Case N-638-1

My written comments on the inappropriate condition applied to the subject code case are attached.

Could you please provide me with an evaluation or analysis that demonstrates that the condition is consistent with 10CFR50.109 back fitting provisions?

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E-RFDS = ADM03
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Template = ADM-013

Comments on Conditioning Code Case N-638-1

The NRC has conditioned code Case N-638-1 as follows:

> N-638-1 *Similar and Dissimilar Metal Welding Using Ambient Temperature Machine GTAW Temper Bead Technique, Section XI, Division 1*
> 8-9/01E
>
> **NRC Condition**
>
> UT volumetric examinations shall be performed with personnel and procedures qualified for the repaired volume and qualified by demonstration using representative samples which contain construction type flaws. The acceptance criteria of NB-5330 in the 1998 Edition through 2000 Addenda of Section III apply to all flaws identified within the repaired volume.

It is my view that the condition applied to this code case is unnecessary and unwarranted for the following reasons:

- Inadequate guidance is provided as to the nature and scope of the demonstration desired. The workmanship standards contained in NB-5300 do not provide appropriate criteria for establishing a performance demonstration.

- The condition does not appear to be consistent with the back fitting requirements of 10CFR50.109 in that a safety enhancement would be achieved by the demonstration required in the condition. The automatic GTAW process for ambient temperature temper bead welding receives one of the most stringently qualified welding processes in terms of both process and personnel qualification. The process use no flux which eliminates any concern for entrapped slag. The fracture toughness of the weldment and heat-affected zone is demonstrated as a part of the procedure qualification. Bead overlap and heat input are carefully controlled as part of the qualification and in field use to assure that adequate tempering is achieved. NDE of the repair is delayed for 48 hours to identify any postulated delayed hydrogen cracking for this extremely low hydrogen weld.

  Further performance demonstration is not required for ultrasonic fabrication examinations performed in accordance with the construction code (ASME BP&V Code, Section III) endorsed for use in NRC regulations. The condition being applied to the code case is essentially a back fit to the regulations that is establishing something similar to Appendix VIII, Section XI that has been applied to pre-service and in-service UT of welds.

- The NRC has approved the use of this code case for applications over 100 sq. in. without a specific performance demonstration. Further in applications where this code case is used for overlays of dissimilar weldments, UT performed is required

to be qualified by procedure and personnel qualification under the PDI program incorporated by reference in 10 CFR50.

- UT examination of components fabricated for use such as pressure vessels and piping has been highly successful in producing highly reliable, safe products. In many countries of the world, UT examination is the required NDE method of acceptance for fabricated boiler and pressure vessel nuclear components. Specific performance qualification is not required.

- ASME is currently developing rules for UT examination use for ASME, Section III fabrication. If performance demonstration is thought to be needed by the NRC, they should pursue the necessary rulemaking when endorsing the code change.

If possible, could you please provide a copy of the back analysis or evaluation that supports conditioning the use of this code case?

Sincerely,

Robert A. Hermann

Robert A. Hermann, PE