

NRCREP - Comments to CC N-659 and N-640

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Subject: Comments to CC N-659 and N-640
CC: "RILEY, Jim" <jhr@nei.org>, "Gothard, Mike" <mgothard@epri.com>

My comments concerning Code cases N-659 and N-640 are attached for your consideration.

<<Comments CC N 659 Spanner.doc>>

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The following comments relate to the proposed conditions for Code Cases N-460 and N-691 contained in pages 62948 and 62949 of the Federal Register, Vol. 71, No. 208, dated October 27, 2006; and DG-1133 dated October 2006.

1. Code Case N-460 *“Thus, the NRC proposes to condition the use of Code Case N-460 in the final guide such that the Code Case can only be applied when performing inservice examinations in accordance with a Section XI inservice inspection program.”*

Comment 1:

While I agree that Code Case N-460 should not be used in conjunction with Code Case N-659, the conditional acceptance proposed above is considered unnecessary. Code Case N-659 and N-659-1 already require that the ultrasonic examination area be accessible and “include 100% of the volume of the entire weld, plus 1/2 in. (13mm) of each side of the welds”. Similar provisions are contained in Code Case N-713.

Though the actual wording of the proposed condition is not specified, the limitation to “inservice” examinations noted above will be burdensome during repair and replacement of existing components because of the preservice examination requirements contained in IWA-4530. The “inservice only” conditional acceptance would prohibit the use of Code Case N-460 for preservice examination of repairs to existing components and in-kind replacements. Neither of which would typically affect access. Though the extent is unknown, the end result would be additional, otherwise unneeded, relief requests.

2. Code Case N-659 Discussion Section

Comment 2:

The NRC seems to have some misconceptions concerning using UT in lieu of RT. I conducted a performance demonstration to use UT in lieu of RT using CC N-659 and Section V, Article 14 as guidelines. The results of the demonstrations are included in the white paper that accompanies the proposed ASME Section XI Code case for UT in lieu of RT, N-713. Automated and manual procedures were demonstrated using experienced and relatively inexperienced personnel. Greater than 90% of the flaws were detected using Section V and Appendix VIII procedures that were essentially only revised to increase the examination volume from 1/3t to full thickness. Additional training on construction flaws was not necessary to pass the demonstration. All the procedures had essentially the same effectiveness. Single sided examinations were also demonstrated to be effective, contrary to the NRC staff assertion that they have not been demonstrated. The discussion on 1/2t versus a 1/2 inch is mostly an economic one. Heat affected zones (HAZ) are rarely greater than 1/4 inches wide and they only approach 1/2t wide for thin welds. Imposing a 1/2t examination volume requirement for thick welds is a burden on owners to prepare and perform the scanning on a volume that is outside of the HAZ.

3. Code Case N-659 Conditions Section

Comment 3:

Paragraph (a) condition. I recommend that for welds equal to and greater than 1 inch thick that the examination volume be 1/2 inch and use 1/2t for thinner welds.

Comment 4:

Paragraph (b) and (d) conditions. For Section V procedures 5 to 9 flaws should be included in the demonstration and they must all be detected. The acceptance table should be used for Section V procedures if 10 or more flaws are used.

Comment 5:

Paragraph (b) and (d) conditions. For Section XI, Appendix VIII procedures the three additional construction flaws required by the Code case are sufficient. The procedures and personnel that have been qualified to Appendix VIII requirements have been demonstrated on more than 10 flaws. The vessel mockups contain construction type flaws so there is no need to demonstrate on more construction flaws. The sensitivity of the Appendix VIII procedures are more than enough to detect construction flaws and the quality of the personnel that have passed Appendix VIII are outstanding.

Comment 6:

Paragraph (b) and (d) conditions. There is no need to require blind procedure and personnel demonstrations. A blind personnel demonstration is sufficient, since they are essentially demonstrating the procedure also. There is also no need to require at least 30 flaws for the procedure demonstration. This will make the demonstrations too expensive and not improve the effectiveness of the procedures commensurately.

Comment 7:

Paragraph (b) and (d) conditions. For thin components the ability of UT procedures to detect a 2% thru wall flaw is not possible. For example, this condition would require a .006 inch deep flaw to be detected for a .3 inch thick component. This condition would result in numerous false calls. UT has the physical capability to detect flaws that are perhaps .03 to .06 inches deep. Flaw fabrication processes cannot reliably make such a small flaw. I recommend that the 2% flaw condition be truncated at .06 inch deep.

Comment 8;

Paragraph (b) and (d) conditions. One of the conditions requires flaws to be located within 10% of the width location. It is not clear what the width location is. Please clarify.

Comment 9:

Paragraph (b) and (d) conditions. One of the conditions requires ALL flaws to be correctly identified as acceptable or unacceptable. This is not possible to do, as the demonstrations showed. This condition will be impossible to meet because of the known sizing errors, the small flaws of NB-2553(c), and the variety of potential construction flaws that include volumetric and planar shapes. I recommend that 80% of the flaws should be correctly identified based on my experience.

Draft Regulatory Guide DG-1133 dated October 2006, Table 2, page 14, N-659

Comment 10:

N-659 The Code committee has struggled with the wording for qualification/calibration block material for a long time. The words in the Code case were taken from other NRC approved sections of the Code. I'm not sure that all material specifications provide ranges for the phase and grain shape and I assume metallography will be required to meet this condition as written. I recommend to delete this condition in its entirety as it will only add an additional confusion factor to this issue without improving on the current wording.