DOCKET NUMBER
PROPOSED RULE PR 50
(69 FR 46452)

(1)

From: Carol Gallagher
To: Evangeline Ngbea
Date: Thu, Oct 21, 2004 1:25 PM
Subject: Comment on Proposed Rule - Incorporation by Reference of ASME B&P Vessel Code Cases (RIN 3150-AH35)

Attached for docketing is a comment on the above noted proposed rule from Rick Swayne, Reedy Engineering, that I received via the Rulemaking website on 10/20/04.

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DOCKETED
USNRC

October 21, 2004 (4:23PM)

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RULEMAKINGS AND
ADJUDICATIONS STAFF

Template = SECY-067

SECY-02

Code Case N-416-3

The staff's proposed technical bases for the limitation on this Code Case are incorrect. In addition, the proposed limitation is unclear.

There are three methods of replacing vessels in a nuclear power plant.
1. Replacement of a vessel wholly fabricated at a fabricator's facility.
2. Replacement of a vessel partially fabricated at a fabricator's facility and shipped to the nuclear power plant site in two or more parts.
3. Replacement of only a part of a vessel, using a part fabricated at a fabricator's facility (e.g., RSG internals with top or bottom half of shell).
It appears that the proposed limitation is intended to apply only to Case 2 above, but might br read to apply also to Case 3.

In Case 1, above, the vessel girth weld is hydrostatically tested by the fabricator, after welding blind flanges onto each nozzle. Current and proposed vessel replacements are probably all constructed in accordance with either Section III or VIII and N or U stamped. Both Sections III and VIII require a hydrostatic test. The nozzle-to-piping welds made during installation would be subjected to a system leakage test in accordance with Code Case N-416-3, at nominal operating pressure. The proposed limitation would have no effect on Case 1.

In Case 2, above, the requirements depend on the Construction Code used for construction of the original vessel. There are three possible conditions in current U.S. plants.
1. If the vessel is N-stamped, Section XI requires the replacement to be N-stamped. In this case, Section III requires the vessel to be hydrostatically tested in accordance with Section III, prior to application of the Code Symbol Stamp. Code Case N-416-3 does not permit an exception to this Section III hydrostatic test requirement.
2. If the vessel is U-stamped, Section XI requires the replacement to be U-stamped or N-stamped. In this case, Section VIII or III requires the vessel to be hydrostatically tested in accordance with Section VIII or III, respectively, prior to application of the U or N Stamp. Code Case N-416-3 does not permit an exception to this Section III or VIII hydrostatic test requirement.
3. In the vessel is not Code-stamped, the replacement vessel need not be Code-stamped. In this case, the pressure testing of the field girth weld must satisfy only the Owner's requirements and the FSAR. The Owner may specify a pressure test at nominal operating pressure, unless a higher pressure is specified in the FSAR. This condition probably applies only to a few reactor vessels, and not to any of the vessels currently being replaced. In this case, Code Case N-416-3 would not be used for pressure testing of the girth weld.
In each of the above three cases, the nozzle-to-piping welds made during installation would be subjected to a system leakage test in accordance with Code Case N-416-3, at nominal operating pressure. The staff's proposed limitation on Code Case N-416-3 would not have any effect on any of these possible conditions.

In Case 3, above, the girth weld is made as an installation weld by the Owner. This weld is subject to the provisions of Code Case N-416-3. In this case, Code Case N-416-3 permits pressure testing of the girth weld at nominal operating pressure, along with the nozzle-to-piping welds also made during installation. I believe that most of the steam generator replacements that have been made in the last ten years have been made by using Code Case N-416-1 or -2, and both the girth welds and the nozzle-to-piping welds have been subjected to a system leakage test at nominal operating pressure, rather than a hydrostatic test. The purpose of Code Case N-416 has always been to allow a reduction in the test pressure for installation of such replacement material, parts, and components in a nuclear power plant. Although it does not appear that the staff intended to apply the limitation to Case 3, above, it is the only case in which the

limitation would have any effect. Therefore, I will address the balance of my comments to Case 2.

The staff has already endorsed installation of replacement material, parts, and components using only a system leakage test. This has been done through endorsement of Cases N-416-1 and -2, as well as the endorsement of IWA-4540(a) in both the 2000 Addenda and the 2003 Addenda. The proposed limitation on Code Case N-416-3 is inconsistent with the staff's prior positions. The ASME Committee has been studying for many years the issue of the value of the hydrostatic test. The ASME Committee long ago concluded that the Section III and VIII hydrostatic test did nothing to assure structural integrity, because the pressure is too low to effectively challenge the structural integrity. It provides a slightly higher degree of assurance of leak tightness, but no assurance of structural integrity. Structural integrity is assured by the combination of requirements for material strength, design, and nondestructive examination.

Further, the staff states that the "attachment piping is usually not connected to such components when they are replaced. Therefore, typical hardship issues ... do not apply." If the attachment piping is not connected to the vessel, the vessel nozzles are probably open, in which case, they would all have to be sealed to perform a pressure test. In the past, the test has been performed after making the nozzle-to-piping welds, in which case the hardship issues do apply. If the staff is proposing that all of the openings should be blanked for performance of a hydrostatic test, that would result in material damage from welding (partially offset by PWHT), and a lot of outage time to weld the covers, PWHT the welds, remove the covers, and remachine the weld preps, for no added safety benefit. I think that constitutes a hardship.

In conclusion, the staff limitation would almost never apply, would not apply to the situation for which it is intended, and would not result in any increase in safety.

<u>Code Case N-504-2</u>
The staff's proposed reference to Section XI, Appendix P is inappropriate.

While the proposed nonmandatory appendix was assumed by the ASME Code Committee volunteers to end up as Appendix P, the action was delayed by negative votes during the normal review by the Code Committee. As a result, a different appendix was published as Appendix P in the 2004 Edition. The action incorporating Code Case N-504-2 will probably be published as Appendix Q (or perhaps R) in the 2005 Addenda. It will not be published in time for the staff to reference it in this rule.

The staff might be able to make an agreement with the ASME Staff to publish the ASME-approved action on the ASME website in a publically-accessible area, so the staff can reference it. Otherwise, the staff should add the appropriate limitations to RG1.147.

I have no objection to the proposed limitations, as they are obviously supported by the ASME Committee. My only objection is to the way the staff has proposed to reference them.
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Mail Envelope Properties (4177F11C.5A5 : 2 : 21030)

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Creation Date:	10/21/04 1:25PM
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1439-0001.wp	10561	10/21/04 01:18PM

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Expiration Date:	None
Priority:	Standard
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