

August 23, 2006

Mr. Kenneth R. Balkey  
Vice President  
Nuclear Codes and Standards  
American Society of Mechanical Engineers  
Three Park Avenue  
New York, NY 10016-5990

SUBJECT: American Society of Mechanical Engineers (ASME) Actions on Limitations in The Codes and Standards Rule and Regulatory Guide 1.147 Regarding the ASME Code and Code Cases

Dear Mr. Balkey:

By letter dated April 24, 2006, you informed the Nuclear Regulatory Commission (NRC) of an initiative undertaken by the American Society of Mechanical Engineers (ASME) Subcommittee on Nuclear Inservice Inspection to address NRC limitations on the use of Section XI of the ASME Boiler and Pressure Vessel Code and Code Cases defined during the regulatory endorsement process. This activity was initiated, in part, as a result of concerns expressed by nuclear industry stakeholders, including utility personnel and ASME members, regarding the number of limitations included in Title 10, Code of Federal Regulations, Part 50.55a (10 CFR 50.55a) and Regulatory Guide (RG) 1.147.

Attachment 3 to your letter contains Section XI's justification for a request that NRC remove limitations on Section XI, IWB-1220, and on the use of Code Cases N-554-2 and N-567-1. By letter dated June 1, 2006, the NRC staff provided an initial response to your April 24, 2006, letter and indicated that the NRC staff was reviewing the basis provided for removing the limitations and would provide a response in a followup NRC letter.

The NRC staff has completed its review of Attachment 3 to the ASME letter. The NRC staff agrees that there is justification for removing the limitation on Section XI, IWB-1220, and the limitations in RG 1.147 on Code Cases N-554-2 and N-567-1. The enclosure to this letter contains the results of our review of ASME's limitation removal requests and the bases for the NRC staff conclusions. The NRC will pursue removing the limitation on Section XI, IWB-1220, in the rulemaking to incorporate the 2004 Edition of the ASME Code in 10 CFR 50.55a and will pursue removing the limitations on Code Cases N-554-2 and N-567-1 in the course of issuing RG 1.147, Revision 15. A final determination on ASME's request will be made as part of these regulatory processes.

K. Balkey

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If you have any questions, please contact Edmund J. Sullivan of my staff at 301-415-2796.

Sincerely,

***/RA/***

John A. Grobe, Director  
Division of Component Integrity  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission

CC: K Ennis, ASME  
R Porco, ASME  
B Erler, ASME  
G Karcher, ASME  
G Park, ASME  
R Swayne, ASME

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EVALUATION OF THE ASME REQUEST FOR REMOVING  
CONDITIONS IN 10 CFR 50.55a and REGULATORY GUIDE 1.147

- Subject: 10 CFR 50.55a(b)(2)(xi) *Class 1 piping*
- Condition: Licensees may not apply IWB-1220, "Components Exempt from Examination," of Section XI, 1989 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, and shall apply IWB-1220, 1989 Edition.
- Discussion: The staff included this condition in the statement of considerations for the rule issued on September 22, 1999. The reasons stated pertained to welds located inside a penetration or encapsulated by guard pipe. The proposed and final rules did not refer to concerns with exempting the examination of welds in concrete or buried underground.

The statement of considerations for the final rule stated, in part, that:

“The provisions of Sec. 50.55a(g)(2) require that facilities who received their construction permit on or after January 1, 1971, for Class 1 and 2 systems be designed with provisions for access for preservice inspections and inservice inspections. Several early plants with limited access have been granted plant specific relief for certain configurations. These exemptions were granted on the basis that the examinations were impractical because these plants were not designed with access to these areas. Modifications to the plant would have been required at great expense to permit examination. Therefore, narrow exceptions were granted to these early plants. For later plants, however, Sec. 50.55a(g)(2) required that plants be constructed to provide access. The rationale for granting exemptions to early plants is not applicable to these later plants. In addition, there have been improvements in technology for the performance of examination using remote automated equipment. In designs where these welds are truly inaccessible, relief will continue to be granted when appropriate bases are provided by the licensee per Sec. 50.55a(g)(5). With regard to the safety significance of this piping, failure of Class 1 piping within a containment penetration may lead to loss of containment integrity and an unisolable pipe break. These areas were considered break exclusion zones as part of their initial design, in part, due to the augmented examinations performed on this portion of the piping system. Further, this issue could affect the large early release frequency (LERF). For these reasons, the limitation has been retained in the final rule (Sec. 50.55a(b)(2)(xi)) to require licensees to use the rules for IWB-1220 that are contained in the 1989 Edition in lieu of the rules in the 1989 Addenda through the 1996 Addenda.”

ENCLOSURE

The following observations can be made:

(1) Plants of early design, prior to 1971, were not designed with access to permit inspection of welds located inside a penetrations or encapsulated by guard pipe.

For these older plants inspections of welds inside penetrations or encapsulated by guard pipe under the requirements of 10 CFR 50.55a(b)(2)(xi), the provisions of NUREG-0313 for intergranular stress corrosion cracking (IGSCC), or the provisions of the break exclusion zone criteria cannot be performed because they are inaccessible for examination.

(2) Some relief requests from ASME Code inspection requirements were submitted and granted, but in many cases relief requests would not be necessary because a nearby weld would be included in the required inspection sample.

(3) In BWRs, stainless steel welds inside a penetration or encapsulated by guard pipe would not be examined because they are inaccessible. In general, to comply with the provisions of GL 88-01, "NRC Position on IGSCC in BWR Austenitic Stainless Steel Piping," licensees with inaccessible welds susceptible to IGSCC had to repair, mitigate, remove the welds to reduce or eliminate susceptibility to cracking, or describe to the NRC staff an alternative acceptable means to monitor component integrity.

(4) Applicants for operating licenses made commitments under the break exclusion zone (BEZ) criteria to perform the augmented inspections of BEZ welds to the extent practical within the limitations of design, geometry and materials of construction of the components.

(5) Plants designed after 1971 would normally not have containment penetrations with inaccessible welds, so the exemption under IWB-1220(d) is not an issue.

(6) In the rulemaking of 2001, the same issue was dealt with for Class 2 piping. Although the proposed rule included an identical limitation on IWC-1223, the final rule did not adopt this limitation. The SOC stated that, "regulatory guidelines associated with high energy line breaks are separate from the regulatory requirements associated with the ISI of nuclear power plant components. The intent of Sec. 50.55a(b)(2)(xii)(A) in the proposed rule was to ensure that licensee commitments regarding high energy line breaks in Branch Technical Positions under SRP 3.6.2 would not be eliminated from a misapplication of the exemption allowed in IWC-1223. The NRC concludes that it is the responsibility of each licensee to ensure that changes to later editions and addenda of the ASME Code are not misapplied to licensing design bases commitments, and that it is inappropriate for the NRC to impose modifications or limitations in Sec. 50.55a to ensure that commitments, not directly related to Section XI requirements but part of the licensing design basis, are maintained.

- Conclusion: Based on the preceding, the staff concludes that there is a reasonable basis for pursuing the removal of the condition on IWB-1220 in 10 CFR 50.55a(b)(2)(xi).
- Subject: Limitation on Code Case N-554-2, "Alternative Requirements for Reconciliation of Replacement Items and Addition of New Systems," and Code Case N-567-1, "Reconciliation Requirements for Class 1, 2, and 3 Replacement Components"
- Condition: The component used for repair/replacement must be manufactured, procured, and controlled as a safety-related component under an NRC-approved Quality Assurance program meeting the requirements of Appendix B to 10 CFR Part 50."
- Discussion: These code cases provide an alternative to the reconciliation requirements of the ASME Section XI Code. Code Case N-554-2 addresses the 1995 Edition through the 1996 Addenda, while Code Case N-567-1 addresses the 1991 Edition through later editions and addenda. The NRC limitation is related to the reconciliation of the administrative requirements. Neither code case requires the administrative requirements to be reconciled. Both code cases include the following statement:

"Administrative requirements, (i.e. those that do not affect the pressure boundary or core support or component support function) need not be reconciled. Examples of such requirements include quality assurance, certification, Code Symbol Stamping, Data Reports and Authorized Inspection".

The code cases allow the use of the administrative requirements of either the construction code of the item being replaced or the construction code of the replacement item. Recognizing that the owner is still required to comply with the quality assurance (QA) program for all applications, ASME added a footnote to the code cases providing a caution that states:

"This provision does not negate the requirement to implement the Owner's QA program, nor does it affect Owner commitments to regulatory and enforcement authorities".

The NRC staff concern with these two code cases was a potential conflict between the code case which says that the administrative requirement, including QA, do not need to be reconciled, and the application of 10 CFR 50, Appendix B to replacement of ASME Code Class 1, 2, and 3 components. The wording in the footnote addresses the NRC staff concern.

- Conclusion: Based on preceding, the NRC staff concludes that there is a reasonable basis for pursuing the removal of the limitations on Code Cases N-554-2 and N-567-1 in Regulatory Guide (RG) 1.147.