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Proposed Rules

Please find attached my comments for your consideration.

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COMMENTS REGARDING 50.55a RULEMAKING

10 CFR 50.55a(b)(2)(xxx) Section XI Condition: Steam Generator Preservice Examinations

“The NRC proposes to add § 50.55a(b)(2)(xxx) to require a full length examination of 100 percent of the tubing in each newly installed steam generator prior to plant startup. This requirement would be instead of the unapproved provisions in IWB–2200(c) pertaining to steam generator tube preservice inspections (PSI).”

Steam generator tubes, a significant portion of the reactor coolant pressure boundary, are important to the safe operation of a pressurized water reactor. As such, the NRC has established requirements pertaining to the design, fabrication, erection, testing, and inspection of the steam generator tubes. With respect to the performance of the PSI of steam generator tubes, the NRC has indicated in NRC Regulatory Guide (RG) 1.83, Revision 1, “Inservice Inspection of Pressurized Water Reactor Steam Generator Tubes,” (withdrawn in 2009) that all tubes in the steam generator should be inspected by eddy current or alternative technique prior to service to establish a baseline condition of the tubing. A similar position is articulated in NUREG–0800, Standard Review Plan (SRP) Section 5.4.2.2, “Steam Generator Tube Inservice Inspection,” Revision 1 and subsequent revisions. A PSI is important since it ensures that the steam generator tubes are acceptable for initial operation. In addition, the PSI provides the baseline condition of the tubes. This data is essential in assessing the nature of indications found in the tubes during subsequent inservice inspections. Preservice requirements for ASME Class 1 components are provided in IWB–2200, and IWB–2200(c) currently states, “Steam generator tube examination shall be governed by the plant Technical Specifications (TS).” However, there are no preservice examination requirements for steam generators defined in plant TS. Preservice examination requirements for steam generators are not within any of the categories described in 50.36 for the content of TS. Because IWB–2200(c) requires the steam generator tube examinations be performed in accordance with plant TS, and TS contain no rules for PSI of steam generator tubing, the NRC is clarifying the preservice inspection requirements for steam generator tubes.

The proposed clarification is consistent with industry guidelines and the NRC staff position outlined in SRP Section 5.4.2.2, “Steam Generator Program.” The proposed requirement supersedes the requirements of IWB– 2200(c). These inspections must be performed with the objective of finding and characterizing the types of preservice flaws that may be present in the tubes and flaws that may occur during operation.”

Proposed Rule Language

(xxx) Section XI condition: Steam generator preservice examinations. Prior to plant start up with a newly installed steam generator, a 100 percent full length examination will be conducted of the tubing in each new steam generator instead of the preservice inspection requirements of IWB–2200(c).

Comment

While I agree with the intent of the proposed condition, I believe it is unacceptably vague and both limiting in some sense, and broad in another sense, to the extent that any examination performed can be found to meet the proposed rule language and be deemed adequately protective.

The current language includes the phrase "... a newly installed steam generator." It is not clear what this means although one interpretation can be that the SG is welded into the system. This would appear to preclude a PSI from being performed on a completed SG at the site either prior to or after positioning within the plant but not actually "installed", or at the fabrication facility prior to shipping to the site. Is the intent of the proposed condition to address a newly installed SG or a newly completed SG irrespective of the SG's location and installed condition? The proposed language can also be interpreted broadly to mean that the SG tubes can be PSI examined at any time during fabrication – even prior to forming, and still meet the requirements of the proposed rule. Is this the intent?

Regarding the examination requirement, no specific examination method or technique, requirements, personnel or procedure demonstration qualification requirements or acceptance criteria are provided. Notwithstanding the discussion in the SOC, the SOC in my view, is not part of the regulation and is not enforceable, nor is the intent or expectation on the part of the NRC. As written, any examination, including visual examination to any non-specified acceptance criteria, or construction code required examination and criteria, could be performed to satisfy the letter of the proposed rule language. If alternative requirements to those specified in IWB-2200(c) are to be used for PSI for new SGs prior to being placed in service, and there is an expectation that specific methods of examination be used on the SG tubes, that specific personnel and procedure qualification or demonstration requirements and examination criteria are to be met, that the examination may not take place prior to a particular point during the fabrication phase of the steam generator, in order for the PSI to be found acceptable, then those alternative requirements need to be clearly specified or referenced within the proposed condition. Stakeholders are entitled to know specifically what requirements need to be met in order to be compliance with the regulations.

10 CFR 50.55a(b)(2)(xxxi) Section XI Condition: Mechanical Clamping Devices

"The NRC proposes to add § 50.55a(b)(2)(xxxi) to prohibit the use of mechanical clamping devices on Class 1 piping and portions of piping systems that form the containment boundary. In the 2010 Edition of the ASME BPV Code, a change was made to include mechanical clamping devices under the small items exclusion rules of IWA–4131. Currently in the 2007 Edition/2008 Addenda of Section XI under IWA–4133, "Mechanical Clamping Devices Used as Piping Pressure Boundary," mechanical clamping devices may be used only if they meet the requirements of Mandatory Appendix IX of Section XI of the ASME BPV Code. Article IX–1000(c) of Appendix IX prohibits the use of mechanical clamping devices on (1) Class 1 piping and (2) portions of a piping system that form the containment boundary.

In the 2010 Edition, IWA–4133 was modified to allow use of IWA–4131.1(c) for the installation of mechanical clamping devices. This change allowed the use of small items exemption rules in the installation of mechanical clamps. Subparagraph IWA–4131.1(c) was added such that mechanical clamping devices installed on items classified as “small items” under IWA–4131, including Class 1 piping and portions of a piping system that form the containment boundary, would be allowed without a repair/replacement plan, pressure testing, services of an Authorized Inspection Agency, and completion of NIS–2 form.

The NRC, in accordance with the previously approved IWA–4133 of the 2007 Edition/2008 Addenda of the ASME BPV Code, does not believe that the ASME has provided a sufficient technical basis to support the use of mechanical clamps on Class 1 piping or portions of a piping system that form the containment boundary as a permanent repair. Furthermore, the NRC does not believe that the ASME has provided any basis for the small item exemption allowing the installation of mechanical clamps on these components. In the 2011 Addenda of the ASME BPV Code, IWA–4131.1(c) was relocated to IWA–4131.1(d).”

Proposed Rule Language

(xxxi) Section XI condition: Mechanical clamping devices. The use of mechanical clamping devices on Class 1 piping and portions of piping systems that form the containment boundary is prohibited.

Comment

I support and agree with the discussion and bases of the proposed condition. However, the wording of the actual proposed condition should be supplemented. I believe it is an enhancement to cite the specific paragraph of Section XI, e.g., IWA-4131.1(d), to which the NRC is taking exception and, therefore, conditioning, and needs to state what specific Code provisions must be used instead, e.g., add “When implementing the 2010 Edition with 2011 Addenda of the ASME Code, Section XI, Paragraph IWA-4131.1(d) may not be used. The provisions of IWA-4131.1(c) of the 2007 Edition through the 2010 Edition of Section XI must be used instead”. Without such a citation, the user of the Code has no idea which portion of the Code cannot be used, and what should be used in its place in order to be in compliance with this proposed condition. Moreover, lack of a specific reference to the Code requirement being conditioned could make compliance and enforcement determinations much more difficult and indefensible.

Related to IWA-4131.1(d) and the use of Mechanical Clamps are Section XI, IWA-4133 and Sections III, NX-3671.7, “Sleeve Coupled and Other Patented Joints”. IWA-4133 basically states that a licensee may use mechanical clamps which do not meet the requirements of IWA-4000, on piping systems provided the requirements of Appendix IX or IWA-4131.1(d) are met. Appendix IX addresses the use of mechanical clamps on ASME Class 2 and 3 systems. This is an important distinction. If a licensee desires to use a mechanical clamp on an ASME Class 2 or 3 component and not apply Appendix IX or IWA-4131.1(d), the licensee must apply the other applicable requirements of IWA-4000. For repair and replacement activities, this requires the licensee to meet its original construction Code or ASME Section III requirements (IWA-4220).

NX-3671.7 provides the requirements for sleeve-coupled and other patented joints, including mechanical clamping devices. NB-3671.7, which applies to ASME Class 1 components, provides specific design and test requirements to assure the design adequacy of the joint or device, requires provisions to prevent separation of the joint, and requires accessibility provisions for maintenance, removal and replacement after service. However, NC/ND-3671.7, which applies to ASME Class 2 and 3 components, do not provide for specific design and test requirements to demonstrate adequacy of the joint or device. Rather NC/ND-3671.7 allows the designer to judge the adequacy of the joint or device based solely upon experience. Such discretion could allow a joint design or device to be implemented even if it does not meet ASME Section III fabrication, design or inspection requirements, may not take into account operational experience and operational considerations, and could result in the non-uniform use of standards and criteria between plant designs, applicants and licensees.

I note that this rulemaking does not take any exception to ASME Section III, Paragraph NX-3671.7. For the reasons stated above, to ensure that adequate safety is maintained for ASME Class 2 and 3 sleeve-coupled and other patented joints, including mechanical clamping devices, it is suggested that a condition be proposed that implementation of NB-3671.7 be required when implementing NC/ND-3671.7 although the respective NC/ND design criteria and inspection requirements may be applied.

Although not a part of this current rulemaking, NRC should be aware that Section XI, Mandatory Appendix IX was converted to Non-Mandatory Appendix W, and companion changes to IWA-4133 were made in the 2013 Edition of Section XI. As a result, the ASME Code's Section XI prohibition on the use of mechanical clamps on ASME Class 1 components has been lifted if the use of Non-Mandatory Appendix W is never invoked by the licensee, and the design, inspection and testing requirements for mechanical clamping devices in ASME Class 2 and 3 components for Section XI applications are further reduced since a licensee's use of Appendix W would not be required. A licensee would be free to apply NC/ND-3671.7 as applicable, as permitted by IWA-4220, which as discussed above, is not adequately protective in my view, unless conditioned.

10 CFR 50.55a(g)(6)(ii)(F)(11) Cast Stainless Steel

"The NRC proposes to add § 50.55a(g)(6)(ii)(F)(11) to address examination requirements through cast stainless steel materials by requiring the use of Appendix VIII qualifications to meet the inspection requirements of paragraph –2500(a) of ASME BPV Code Case N–770–2. The requirements for volumetric examination of butt welds through cast stainless steel materials are currently being developed as Supplement 9 to the ASME BPV Code, Section XI, Appendix VIII. In accordance with Appendix VIII for supplements that have not been developed, the requirements of Appendix III apply. Appendix III requirements are not equivalent to Appendix VIII requirements. For the volumetric examination of ASME Class 1 welds, the NRC has established the requirement for examination qualification under the Appendix VIII. Thus, the NRC proposes to adopt a condition requiring the use of Appendix VIII qualifications to meet the inspection requirements of paragraph –2500(a) of ASME BPV Code Case N– 770–2 by January 1, 2020.

The development of a sufficient number of mockups would be required to establish an Appendix VIII program for examination of ASME Code Class 1 piping and vessel nozzle butt welds through cast stainless steel materials. The NRC recognizes that significant time and resources are required to create mockups and to allow for qualification of equipment, procedures and personnel. Therefore, the NRC proposes that licensees be required to use these Appendix VIII qualifications no later than their first scheduled weld examinations involving cast stainless steel materials occurring after January 1, 2020.”

Proposed Rule Language

(11) Cast stainless steel: Examination of ASME Code Class 1 piping and vessel nozzle butt welds involving cast stainless steel materials, shall be performed with Appendix VIII, Supplement 9 qualifications, or qualifications similar to Appendix VIII, Supplement 2 or 10 using cast stainless steel mockups no later than the next scheduled weld examination after January 1, 2020, in accordance with the requirements of paragraph-2500(a).

Comment

The wording “... similar to ...” in “... qualifications similar to Appendix VIII, Supplement 2 or 10 ...” is vague, subjective and unenforceable. Section XI, Appendix VIII states that Supplement 9 is currently under development. If the industry is required to comply with a regulatory requirement, the industry must know clearly what criteria are required to be met in order to be in compliance with the regulation. If an acceptable version of Supplement 9 is not contained in an Edition or Addenda of Section XI that is incorporated by reference in 50.55a and effective by January 1, 2020, as currently stated, any NRC reviewer or inspector can apply their own standard of “similar to” to a broad range of criteria ranging from grain size of cast material used; sample size; size, type, location, direction and quantity of flaws; RMS error values; and false call rate just to name a few; to determine compliance or non-compliance. The “standard” can also change over time, and what is envisioned as sufficiently similar to a person today, may not be consistent with another person’s (or the same person’s) view between today and 2020, thus resulting in a “moving target” as to what may be acceptable. Furthermore, members of the public who are interested in knowing what requirements NRC expects licensees to meet to comply with this proposed condition can’t meaningfully determine what “... similar to ...” means. I suggest this rule language be tightened up. If the NRC cannot articulate exactly (and have supporting bases) what is needed for an acceptable Supplement 9 qualification demonstration, I suggest this proposed rule change be postponed. Given the NRC’s recent timeline in amending 50.55a, I don’t foresee an opportunity for NRC to correct or change **50.55a(g)(6)(ii)(F)(11)**, if it is implemented, in a normal rulemaking before 2020. On the other hand, if the NRC staff has in mind specific requirements and criteria for an acceptable Supplement 9 qualification, which if met, objectively satisfies its “similar to” intent, then I suggest NRC publish those proposed requirements in a future proposed rulemaking. In my view the SOC expresses the NRC’s rationale for the proposed condition as well as its expectations, but the SOC itself is not enforceable and compliance with the SOC in order to meet the letter of the proposed condition cannot be imposed.