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Acceptability of ASME Section XI, Division 2, 'Requirements for Reliability and Integrity Management (RIM) Programs for Nuclear Power Plants,' for Non-Light Water Reactors

Comment On: NRC-2021-0166-0001
Acceptability of ASME Code Section XI, Division 2, Requirements for Reliability and Integrity Management (RIM) Programs for Nuclear Power Plants, for Non-Light Water Reactors

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Submitter Information

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General Comment

NuScale Power, LLC Comments on Docket ID NRC-2021-0166.

Attachments

LO-109284 - NuScale Comments DG-1383 (RG 1.246_RIM)-signed

November 12, 2021

Office of Administration
Mail Stop TWFN-7-A60M
U.S. Nuclear Regulatory Commission
Washington, DC 20555–0001
ATTN: Program Management, Announcements and Editing Staff

SUBJECT: NuScale Power, LLC Comments on *Acceptability of ASME Code Section XI, Division 2, Requirements for Reliability and Integrity Management (RIM) Programs for Nuclear Power Plants, for Non-Light Water Reactors*, Docket ID NRC-2021-0166

REFERENCES:

1. *Acceptability of ASME Code Section XI, Division 2, Requirements for Reliability and Integrity Management (RIM) Programs for Nuclear Power Plants, for Non-Light Water Reactors*, 86 Fed. Reg. 54,253, September 30, 2021

2. Draft Regulatory Guide DG-1383, (Proposed New Regulatory Guide 1.246, dated September 2021), *Acceptability of ASME Code Section XI, Division 2, Requirements for Reliability and Integrity Management (RIM) Programs for Nuclear Power Plants, for Non-Light Water Reactors* (ADAMS Accession No. ML21120A185)

3. *Regulatory Analysis, Draft Regulatory Guide DG-1383, Acceptability of ASME Code Section XI, Division 2, Requirements for Reliability and Integrity Management (RIM) Programs for Nuclear Power Plants, for Non-Light Water Reactors* (ADAMS Accession No. ML21120A192)

In a Federal Register Notice (FRN) dated September 30, 2021 (Reference 1), the U.S. Nuclear Regulatory Commission (NRC) requested comments on Draft Regulatory Guide DG-1383, *Acceptability of ASME Code Section XI, Division 2, Requirements for Reliability and Integrity Management (RIM) Programs for Nuclear Power Plants, for Non-Light Water Reactors* (Reference 2), and its associated draft regulatory analysis (Reference 3) by November 15, 2021. NuScale Power, LLC (NuScale) submits the following comments in response, requesting that RG 1.246 include light water reactors (LWRs) within its scope to facilitate implementation of ASME Section XI Division 2 by LWR applicants and licensees via the code alternative process.

Draft Regulatory Guide DG-1383 describes an approach that is acceptable to the NRC staff for the development and implementation of a preservice inspection (PSI) and inservice inspection (ISI) program pursuant to the 2019 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, ''Rules for Inservice Inspection of Nuclear Power Plant Components,'' Division 2 (hereafter "ASME Section XI Division 2"). It endorses, with conditions, ASME Section XI Division 2, but only for license applicants and licensees of non-light water reactors power reactors (non-LWRs). As proposed, the guidance of DG-1383 would not extend to applicants and licensees of LWRs seeking to implement ASME Section XI Division 2. As stated in the FRN and DG-1383 the reason for limiting applicability to non-LWRs is that ASME Section XI, Division 1, provides requirements for a PSI and ISI program for an LWR.

The applicability of DG-1383 to non-LWRs is in contrast with the intended scope of ASME Section XI Division 2, which specifically provides applicability for LWRs. ASME Section XI Division 2, Section RIM-1.1(a) states that "This Division provides the requirements for the creation of the Reliability and Integrity Management (RIM) Program <u>for all types of nuclear power plants</u>" (emphasis added). The basis of ASME Section XI Division 2 lies in the over 60 years of operating experience of LWRs and the extensive data on reliability of components collected as a result. The elements supporting the RIM program (including probabilistic risk assessment, nondestructive examination, and Division 1 fracture evaluations) are all proven elements that have been well-demonstrated in LWRs. Excluding LWR applicability under this RG is not consistent with intent of the ASME Code.

Notwithstanding, NuScale recognizes that current NRC regulations at 10 CFR 50.55a require the application of ASME Section XI, Division 1 for non-LWRs, and thus RG 1.246 cannot directly endorse ASME Section XI Division 2 for use by LWR applicants/licensees. NuScale seeks a future amendment of 10 CFR 50.55a to incorporate by reference ASME Section XI Division 2 for LWRs.

Until that rulemaking can occur, NRC should explicitly recognize in RG 1.246 that, from a technical perspective, ASME Section XI Division 2 is applicable and appropriate for implementation by LWR applicants/licensees. In order for a LWR applicant/licensee to implement it, they would still need to seek approval of a code alternative under 10 CFR 50.55a(z) and/or an exemption under the controlling regulations for the facility (10 CFR 50.12, 10 CFR 52.7, and/or applicable design certification rule provisions), but the technical basis and conditions for doing so would be established in advance. NuScale recommends the following changes to DG-1383, and associated changes to the final FRN and Regulatory Analysis, to guide LWR applicants/licensees in seeking to implement ASME Section XI Division 2 as a code alternative:

- Expand the "Applicability" of RG 1.246 to LWR designs;
- Include in the "Applicable Regulations" 10 CFR 50.55a(z);
- Address LWRs within the "Background" discussion to explain that similar considerations for non-LWRs apply to LWRs and the satisfaction of the General Design Criteria (GDCs) therefor;
- Include an additional "regulatory guidance position" and basis for that position to address applicability of the guidance to LWRs. This proposed Regulatory Guidance Position would recognize that ASME Section XI Division 2, as conditioned by RG 1.246, provides for LWRs an acceptable approach to satisfy 10 CFR 50.34(b)(6)(iv), 10 CFR Part 50 Appendix B, 10 CFR 52.79(a)(5), 10 CFR 52.79(a)(29)(i), and the relevant GDCs. This proposed Regulatory Guidance Position would impose the preceding 15 positions on LWRs, and further condition implementation of ASME Section XI Division 2 for LWRs on the applicant/licensee seeking and receiving authorization of a code alternative under 10 CFR 50.55a(z) and/or an exemption under the controlling regulations for the facility.

Extending the technical basis and regulatory positions of RG 1.246 to LWRs would substantially reduce the burden associated with a LWR applicant/licensee's request to implement ASME Section XI Division 2 as a code alternative; the RG would support a conclusion under 10 CFR 50.55a(z) that RIM achieves an acceptable level of quality and safety for LWRs. NRC has followed a similar approach in other contexts. For example, NUREG-1791 guides the Staff in reviewing—and by extension supports an applicant in seeking—an exemption from the licensed operator staffing requirements of 10 CFR 50.54(m). In the Staff Requirements Memorandum for SECY-15-0077, the Commission explicitly recognized the use of the exemption process for emergency planning zone determinations for SMRs until a rulemaking on the matter could be completed, indicating the agency's willingness to consider such exemptions. Documenting the Staff's position on the technical applicability of ASME Section XI Division 2 to LWRs in RG 1.246 would indicate—subject to an applicant/licensee's particularized request under 10 CFR 55a(z)—the NRC's receptiveness of and conditions for approving a code alternative.

NuScale's proposal further fulfills the policy and objectives of endorsing ASME Section XI Division 2 as documented in the draft Regulatory Analysis, namely consistency with: the NRC policy of evaluating the latest versions of national consensus standards to determine their suitability for endorsement by RGs; NRC's Management Directive 6.5; the National Technology Transfer and Advancement Act of 1995; and the Nuclear Energy Innovation and Modernization Act (NEIMA). Notably, NEIMA's stated purpose to develop "regulatory processes necessary to allow innovation and the commercialization of advanced nuclear reactors" is not limited to non-LWRs. NEIMA's scope of advanced reactors includes LWRs, such as NuScale's design, that achieve significant improvements compared to existing commercial nuclear reactors (Public Law 115-439, Section 3).

In conclusion, NuScale requests that, until 10 CFR 50.55a is amended to incorporate by reference ASME Section XI Division 2 for LWRs, NRC recognize the technical acceptability of RIM for LWRs by including LWR applicants and licensees within the scope of RG 1.246, subject to NRC's specific approval of an alternative to the required ASME Section XI Division 1. If you have any questions, please contact me at 541-360-0534 or at RSnuggerud@nuscalepower.com.

Sincerely,

Ross Snuggerud

Ross Snuggerud
Acting Director, Regulatory Affairs
NuScale Power, LLC