



January 23, 2018

Docket No. 52-048

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

SUBJECT: NuScale Power, LLC Response to NRC Request for Additional Information No. 162 (eRAI No. 8901) on the NuScale Design Certification Application

REFERENCES: 1. U.S. Nuclear Regulatory Commission, "Request for Additional Information No. 162 (eRAI No. 8901)," dated August 11, 2017
2. NuScale Power, LLC Response to NRC Request for Additional Information No. 162 (eRAI No. 8901) on the NuScale Design Certification Application, dated October 10, 2017 (ML17284A092)

The purpose of this letter is to provide the NuScale Power, LLC (NuScale) response to the referenced NRC Request for Additional Information (RAI).

The Enclosure to this letter contains NuScale's response to the following RAI Question from NRC eRAI No. 8901:

- 03.09.05-11

The response to the other fifteen questions of eRAI No. 8901 were previously provided in Reference 2. This completes all responses to eRAI No. 8901.

This letter and the enclosed response make no new regulatory commitments and no revisions to any existing regulatory commitments.

If you have any questions on this response, please contact Marty Bryan at 541-452-7172 or at mbryan@nuscalepower.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Zackary W. Rad', written over a horizontal line.

Zackary W. Rad
Director, Regulatory Affairs
NuScale Power, LLC

Distribution: Gregory Cranston, NRC, OWFN-8G9A
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Enclosure 1: NuScale Response to NRC Request for Additional Information eRAI No. 8901



Enclosure 1:

NuScale Response to NRC Request for Additional Information eRAI No. 8901

Response to Request for Additional Information Docket No. 52-048

eRAI No.: 8901

Date of RAI Issue: 08/11/2017

NRC Question No.: 03.09.05-11

10 CFR 50 Appendix A GDC 1 requires that structures, systems, and components important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed.

DCD Tier 2 Section 3.9.5 provides no information about reactor internals gap fit up during both hot and cold conditions. The applicant is requested to provide detailed design information regarding reactor internals components hot gap and cold gap fit up, and the effect of thermal expansion of various reactor internals components and if there is potential for any interference.

NuScale Response:

The NuScale reactor internals are designed in accordance with ASME Boiler and Pressure Vessel Code, Subsection NG, and include components designated as both "core supports" and "internal structures." The response to RAI 8901 Question 03.09.05-1, submitted by RAIO-1017-56539, dated October 10, 2017, provided information regarding the specific classification of each RVI component based on the Subsection NG Code.

FSAR Tier 2 Table 3.9-5 specifies the load combinations for the analysis of reactor internals, including Service levels A and B. Service level A and B events are described in FSAR Tier 2 Sections 3.9.1.1.1 and 3.9.1.1.2, respectively, and include plant heatup and cooldown. Reactor internals are evaluated for Service level A and B hot-to-cold (and vice-versa) transient loading conditions to applicable ASME Code stress limits. This includes consideration of secondary stresses that evolve due to thermal transient events. In addition, as discussed in the previously submitted response to RAI 8901 (see above) Question 03.09.05-15, deformation limits (which include consideration of thermal effects) are imposed on the NuScale reactor internals. Satisfying deformation limits ensures necessary "gap fit-up" in cases where working clearances are necessary, as merely satisfying the ASME Code stress limits does not ensure required functionality.



Based on these design and evaluation requirements , the effects of any possible interference due to hot gap and cold gap fit-up are addressed. Further, FSAR Tier 1 Table 2.1-4 (NuScale Power Module Inspections, Tests, Analyses, and Acceptance Criteria) Item 3 provides verification that the ASME Code requirements related to hot gap and cold gap fit-up are satisfied.

Impact on DCA:

There are no impacts to the DCA as a result of this response.