



August 16, 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 Supplemental 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)," dated October 10, 2017

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

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

- 03.09.05-7

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,

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

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Enclosure 1: NuScale Supplemental Response to NRC Request for Additional Information eRAI No. 8901

Enclosure 1:

NuScale Supplemental 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.: 03.09.05-7

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 3.9.5.1 states that an ICI guide tube support structure is located inside the lower riser to support and align ICI guide tubes with their respective fuel assemblies. Figure 3.9-3 shows a typical ICI guide tube.

The applicant is requested to provide detailed description, including drawing, of the ICI guide tubes, its classification and design code/standard. In addition, the applicant is requested to describe the means at which the ICI guide tubes are attached to the ICI guide tube support plate, the CRA guide tube support plate and the upper core plate.

NuScale Response:

The following ICI guide tube design discussion supplements that provided in the initial RAI 8901 response, RAIO-1017-56539, dated October 10, 2017.

There are three segments of the in-core guide tube. The top segment extends through the pressurizer and is welded to the baffle plate at the bottom of the pressurizer. The upper end of this segment is welded to a spacer disc that floats between a shoulder in the nozzle and the instrument flange.

The next segment extends the full height of the upper riser and is socket welded to the lower side of the hanger ring. The hanger ring is bolted flush against the bottom of the baffle plate. The in-core guide tube extends through the five in-core guide tube supports and extends below the bottom support. Note that the term 'in-core guide tube support' and 'control rod drive shaft support' are used interchangeably because it is the same structure that performs two functions. The holes in the supports are slightly larger in diameter than the in-core guide tubes to allow for small temperature variations. The materials are austenitic stainless steel and temperature differences are small, therefore, thermal motion is small.



The third segment is part of the lower riser assembly (LRA). The cruciform structure at the base of the in-core guide tube is welded to the upper core plate at the base of the assembly. The upper end is captured in the counter bore in the lower side of the in-core guide tube support for approximately one inch. The counter bore is slightly deeper to allow for the small vertical thermal growth of the guide tube.

Detailed design drawings of the Reactor Vessel Internals, the Upper Riser, and the Lower Riser were made available for NRC audit during the period of July 12, 2017 to August 31, 2017.

Impact on DCA:

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