RAIO-0817-55633

August 23, 2017

Docket: PROJ0769

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. 8868 (eRAI No. 8868) on the NuScale Topical Report, "Evaluation Methodology for Stability Analysis of the NuScale Power Module," TR-0516-49417, Revision 0

REFERENCES:
1. U.S. Nuclear Regulatory Commission, "Request for Additional Information No. 8868 (eRAI No. 8868)," dated June 30, 2017
2. NuScale Topical Report, "Evaluation Methodology for Stability Analysis of the NuScale Power Module," TR-0516-49417, Revision 0, dated July 2016

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. 8868:

- 01-12

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 Darrell Gardner at 980-349-4829 or at dgardner@nuscalepower.com.

Sincerely,

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

Distribution: Gregory Cranston, NRC, OWFN-8G9A
Samuel Lee, NRC, OWFN-8G9A
Bruce Bavol, NRC, OWFN-8G9A

Enclosure 1: NuScale Response to NRC Request for Additional Information eRAI No. 8868

NuScale Power, LLC
1100 NE Circle Blvd., Suite 200 Corvalis, Oregon 97330, Office: 541.360.0500, Fax: 541.207.3928
www.nuscalepower.com

Enclosure 1:

NuScale Response to NRC Request for Additional Information eRAI No. 8868

NuScale Power, LLC
1100 NE Circle Blvd., Suite 200 Corvalis, Oregon 97330, Office: 541.360.0500, Fax: 541.207.3928
www.nuscalepower.com

Response to Request for Additional Information
Docket: PROJ0769

eRAI No.: 8868
Date of RAI Issue: 06/30/2017

NRC Question No.: 01-12

In accordance with 10 CFR 50 Appendix A GDC 12, oscillations must be either not possible or reliably and readily detected and suppressed.

Section 4.1, “Introduction,” of topical report (TR), TR-0516-49417-P states that pure neutronic stability will be addressed separately in the design certification; however, Section 4.3.2.4, “Instability Mode: Xenon Oscillations,” appears to address the subject of Xenon stability. It is unclear if the current submittal is intended to address the topic of xenon stability.

In order to make an affirmative finding associated with the above regulatory requirement important to safety, NRC staff requests NuScale to clarify if NRC review of xenon stability is requested as part of this TR submittal.

NuScale Response:

Xenon stability is addressed in Section 4.3 of the NuScale Final Safety Analysis Report. In this topical report, xenon instability was examined with respect to its potential coupling with hydraulic feedback since the natural frequency of the hydraulic mode of oscillation in the NuScale design was found to be much larger than other light water reactors. This topical report states that the absence of coupling or coherence between xenon mode and hydraulic mode is due to having widely different periods.

Xenon stability is not required for approval in this topical report beyond acknowledging the absence of coupling with hydraulic modes.

Impact on Topical Report:
There are no impacts to the Topical Report TR-0516-49417, Evaluation Methodology for Stability Analysis of the NuScale Power Module, as a result of this response.