RAIO-1017-56368

October 03, 2017

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. 153 (eRAI No. 8965) on the NuScale Design Certification Application

REFERENCE: U.S. Nuclear Regulatory Commission, "Request for Additional Information No. 153 (eRAI No. 8965)," dated August 07, 2017

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. 8965:

- 03.08.04-24

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 Response to NRC Request for Additional Information eRAI No. 8965

Enclosure 1:

NuScale Response to NRC Request for Additional Information eRAI No. 8965

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

eRAI No.: 8965
Date of RAI Issue: 08/07/2017

NRC Question No.: 03.08.04-24

10 CFR 50, Appendix A, GDC 1, 2, and 4 provides requirements to be met by SSC important to safety. In accordance with these requirements, DSRS Section 3.8.4 provides review guidance pertaining to the design of seismic Category I structures, other than the containment.

Identify the seismic-resisting system(s) for the RXB in both the North-South (N-S) and East-West (E-W) directions. Clarify if the interior E-W walls shown in Figure 1.2-19 (grid lines RXD and RXB), are part of the lateral force resisting system. If the pilasters in the north and south walls, combined with the roof, are intended to perform as moment frames, clarify whether these moment frames are capable of resisting at least 25% of the design seismic forces.

NuScale Response:

The NuScale Reactor Building is a reinforced concrete shear wall building. The main seismic-resisting system, in both N-S and E-W directions, is composed of exterior shear walls along the perimeter and interior shear walls comprising the reactor pool and crane walls. All main shear walls have a thickness of 5 ft and are tied together by rigid concrete diaphragms at different levels and by the roof.

The exterior shear walls around the perimeter are continuous along the entire building height; from the basemat at elevation 24 ft, to their connection with the roof at elevation 163 ft. The exterior shear walls are braced by reinforced concrete pilasters embedded within the walls. These pilasters are regions of increased wall thickness and not a separate moment frame system. Therefore, there is no applicable requirement that the pilasters resist at least 25% of the design seismic forces.

The interior shear walls surrounding the pool are also continuous from the basemat up to the grade elevation 100 ft. Above grade level, the E-W walls along gridlines RXB and RXD and the N-S wall along gridline RX6 are the only interior shear walls that extend the full remaining distance up to the roof. These shear walls, including the interior E-W walls shown in Figure

1.2-19 (grid lines RXD and RXB), are part of the lateral force resisting system.

Primary 3 foot-thick floor slabs connect the exterior and interior walls at elevations 50 ft , 75 ft, 100 ft, and 126 ft. The walls are also connected by the 4 foot-thick roof. During a seismic event, the seismic forces are resisted by in-plane shear and in-plane moment along the walls parallel to the seismic motion, and by out-of-plane shear and out-of-plane moment along the walls perpendicular to the seismic motion. The primary floor slabs and roof are also subject to in-plane and out-of-plane shear and moments.

Secondary shear walls with thickness ranging from 2 to 3 ft make up the stairwells located at the four interior corners of the building and the elevator shaft located at the south-west corner.

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