

October 18, 2019

Docket No. 52-048

U.S. Nuclear Regulatory Commission
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SUBJECT: NuScale Power, LLC Submittal of Changes to Final Safety Analysis Report, Section 21.1, "Multi-Module Design Introduction and Overview"

REFERENCES: Letter from NuScale Power, LLC to Nuclear Regulatory Commission, "NuScale Power, LLC Submittal of the NuScale Standard Plant Design Certification Application, Revision 3," dated August 22, 2019 (ML19241A315)

During a teleconference with the NRC Project Manager, NuScale Power, LLC (NuScale) discussed potential updates to Final Safety Analysis Report (FSAR), Section 21.1, "Multi-Module Design Introduction and Overview." As a result of this discussion, NuScale changed the Section 21.1. The Enclosure to this letter provides a mark-up of the FSAR pages incorporating revisions to Section 21.1, in redline/strikeout format. NuScale will include this change as part of a future revision to the NuScale Design Certification Application.

This letter makes no regulatory commitments or revisions to any existing regulatory commitments.

If you have any questions, please feel free to contact Nadja Joergensen at 541-452-7338 or at njoergensen@nuscleasepower.com.

Sincerely,



Zackary W. Rad
Director, Regulatory Affairs
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Enclosure: Changes to NuScale Final Safety Analysis Report Section 21.1, "Multi-Module Design Introduction and Overview"

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Changes to NuScale Final Safety Analysis Report Section 21.1, “Multi-Module Design Introduction and Overview”

The design measures that ensure the functional independence of module-specific safety-related systems are described in the following sections:

- emergency core cooling system: Section 6.3.1
- containment system: Section 6.2.1 and 6.2.4
- decay heat removal system: Section 5.4.3
- module protection system (MPS): Section 7.1.2
- neutron monitoring system: Section 7.1.2
- chemical and volume control system (CVCS) (demineralized water isolation valves): Section 9.3.4

The UHS is the only safety-related system in the NuScale Power Plant that is not module-specific and is shared between multiple NPMs. As described in Section 9.2.5, the UHS is a passive safety system that is capable of performing its safety function for a limiting 12 NPM heat load. The UHS has sufficient capacity to remove heat from a design basis accident (DBA) in one NPM and an orderly shutdown and cooldown of the remaining NPMs. Long-term heat removal following a DBE is provided by the UHS and by module-specific safety-related systems without reliance on other shared systems.

21.1.2 Safety-Related System Protection From Internal Events

Internal events have the potential to result in adverse multi-module interactions. Safety-related systems are protected from internal events such as floods, pipe failures, and missiles, which includes dynamic and environmental effects of these events, consistent with General Design Criterion (GDC) 4. The design features and programs that demonstrate protection of safety-related systems are described in Chapter 3 (pipe failures, floods, missiles). The design features and programs that demonstrate protection from the effects of an internal fire are addressed in Section 9.5.1.

The NuScale Power Plant is designed such that an accident in one NPM that results in an accident in another NPM is bounded by analysis and shown to be acceptable. The postulated accidents are listed in Table 15.0-1. ~~There are no accidents in this table that result from operation or failures of shared systems.~~ The postulated accidents were evaluated for adverse multi-module effects as described below.

A spent fuel cask drop and an NPM drop are not analyzed DBAs because the potential for NPM or spent fuel cask drops is precluded by the inclusion of a single failure proof Reactor Building crane as described in Sections 15.7.5 and 15.7.6. The effects of the control rod ejection and steam generator tube failure accidents (Sections 15.4.8 and 15.6.3) are contained within the affected NPM process boundaries and do not result in adverse interactions with another NPM. In the Reactor Building, high energy line breaks and moderate energy line leakage cracks are acceptable on a bounding basis, as described in the PRHA technical report TR-0818-61384 and FSAR Section 3.6. Beyond the Reactor Building, the routing and evaluation of all piping, including high- and moderate-energy, is the COL applicant responsibility as described in Section 3.6.