

October 31, 2019

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 Submittal of Changes to Final Safety Analysis Report, Section 20.1, "Mitigation of Beyond-Design-Basis External Events"

REFERENCES:


1. 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)
2. Letter from NuScale Power, LLC to Nuclear Regulatory Commission, "NuScale Power LLC, Submittal of Changes to Final Safety Analysis Report, Section 1.1, 'Introduction,' Section 1.6, 'Mitigation of Beyond-Design-Basis External Events,' and NuScale Technical Report 'Mitigation Strategies for Loss of All AC Power Event,' TR-0816-50797, Revision 3," dated October 29, 2019 (ML19302G579)

During a teleconference with the NRC Project Manager and NuScale Power, LLC (NuScale) discussed potential updates to Final Safety Analysis Report (FSAR), Section 20.1, "Mitigation of Beyond-Design-Basis External Events." As a result of this discussion, NuScale changed Section 20.1. The Enclosure to this letter provides a mark-up of the FSAR pages incorporating revisions 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 541-452-7338 or at njoergensen@nuscalepower.com.

Sincerely,



Zackary W. Rad
Director, Regulatory Affairs
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Enclosure: Changes to NuScale Final Safety Analysis Report Section 20.1, "Mitigation of Beyond-Design-Basis External Events"

Enclosure:

Changes to NuScale Final Safety Analysis Report Section 20.1, "Mitigation of Beyond-Design-Basis External Events"

20.1.1 Not Used

COL Item 20.1-1: Not used.

COL Item 20.1-2: Not used.

COL Item 20.1-3: Not used.

COL Item 20.1-4: Not used.

COL Item 20.1-5: Not used.

20.1.2 Not Used

20.1.3 Mitigation Strategies for an ~~Extended~~ Loss of All AC Power Event

Following a loss of all AC power event~~n-ELAP~~ concurrent with a LUHS, automatic responses of safety-related equipment establish and maintain the key safety functions of core cooling, containment, and SFP cooling by placing the reactor modules into a safe, stable, shutdown state with passive core and containment cooling. Following the initial, automatic response of safety-related equipment—which requires no operator action and no electrical power (AC or DC)—the reactor modules and the spent fuel pool rely only on the large inventory of the reactor, refueling, and spent fuel pools, which comprise the UHS, to maintain uninterrupted and long-term heat removal. The first 72 hours of a loss of all AC power event~~n-ELAP~~ are identical to a station blackout, which is described in Section 8.4 of the FSAR.

Core Cooling

The core cooling function is automatically established and passively maintained by safety-related equipment, as follows:

- During a loss of all AC power event~~n-ELAP~~, reactor coolant system inventory is preserved by containment isolation that occurs within the first minute of the event.
- ~~If DC power is available, the~~ The decay heat removal system (DHRS) passively removes decay heat for the first 24 hours following of a loss of all AC power event~~n-ELAP~~. ~~If DC power is not available or is lost earlier than 24 hours, emergency core cooling system (ECCS) valves automatically open to remove decay heat.~~
- The ECCS cools the core for the remainder of a loss of all AC power event~~n-ELAP~~. Reactor coolant water accumulates in the containment vessel (CNV) and passively returns to the reactor vessel by natural circulation after ECCS valves open.
- The reactor modules are partially immersed~~submerged~~ in the reactor pool, which is part of the UHS. Passive heat removal to the UHS using DHRS and ECCS maintains core cooling for more than 50 days without pool inventory makeup or operator action during that period.

~~Maintain~~ Containment