



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 17, 2019

Mr. Thomas Bergman
Vice President, Regulatory Affairs
NuScale Power, LLC.
1100 NE Circle Boulevard, Suite 200
Corvallis, OR 97330

SUBJECT: NUSCALE DESIGN CERTIFICATION APPLICATION REVIEW STATUS

Dear Mr. Bergman:

On May 22, 2017, the U.S. Nuclear Regulatory Commission (NRC) sent a letter, "Review Schedule for the NuScale Power, LLC, Standard Design Certification of a Small Modular Reactor" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17103A380), to NuScale, establishing the review schedule for the design certification application of its small modular reactor. This letter provides a status of the NRC staff's review. The majority of the review is presently in Phase 2 and on schedule, with the staff evaluating responses to Requests for Additional Information (RAIs) and preparing the Safety Evaluations with Open Items. As you are aware, Phase 2 will be completed when the NRC publicly issues the last of the chapters of its Safety Evaluation Report with Open Items for the Advisory Committee on Reactor Safeguards (ACRS) to review. The NRC has completed Phase 3 for a few chapters of the review, with presentations made to the ACRS, and has progressed to Phase 4 to close Open Items. Overall, NuScale and the staff have made substantial progress in bringing issues to closure, and the staff anticipates meeting the Phase 2 public milestone date of May 16, 2019, for the majority of the review areas; however, because of delays in the resolution of several challenging issues, some parts of the review may not meet this public milestone. Notwithstanding the likelihood that the Phase 2 milestone may be partially missed, the staff is confident that, if timely resolution of the remaining issues is achieved, the overall 42-month schedule can be met.

To date, NuScale and the staff have identified 29 highly challenging review issues and have had significant discussions to identify a resolution that supports the staff's ability to reach a reasonable assurance determination. Through these efforts, 13 of the issues have been resolved. For another 11 issues, NuScale and the staff have conceptually agreed on a path forward for resolution. A few of the remaining highly challenging issues, along with a small number of other issues, may make the Phase 2 public milestone schedule difficult to achieve. The staff is concerned that it may not reach sufficient clarity on a strategy to support the resolution of these issues or their conversion to Open Items¹ and thus complete the Safety Evaluation Report with Open Items.

¹ When an issue is converted to an Open Item, it has a well-defined scope and clear resolution path (e.g., a closure plan or other information) and is likely to be resolved in a subsequent phase of the design certification application review without the need for supplemental RAIs.

The most notable unresolved issue is related to the application of the single failure criterion to the inadvertent actuation block valve. On December 14, 2018, NuScale requested via a letter that the Commission clarify the single failure criterion (ADAMS Accession No. ML18351A145). Another issue is the accident source term for which NuScale is considering approaches that may deviate from past regulatory precedent. The NRC held a public meeting on this subject on December 12, 2018, to continue efforts to identify a path forward. NuScale has committed to providing additional information to the staff this month on its preferred approach.

Additional issues that could extend beyond the Phase 2 milestone pertain to boron dilution and stratification concerns in the long-term cooling analysis, reactor vessel flange tool design and demonstration of fuel integrity following a seismic event with fuel located in either the flange tool or operating bay, margin between peak containment pressure and the containment design pressure, resolution of RAIs associated with thermal-hydraulic and neutronic response during design-basis events, and submittal of revised containment and accident analyses necessitated by updates to the safety analysis methodology and changes to the associated thermal-hydraulic code. The staff anticipates further engagement with NuScale on each of these issues, and others, over the coming months with a goal of either resolving them or identifying a resolution path supporting their conversion to Open Items before the Phase 2 milestone.

If you have any questions, please contact me at (301) 415-1634 or via e-mail at robert.taylor@nrc.gov.

Sincerely,

/RA/

Robert M. Taylor, Director
Division of Licensing, Siting,
and Environmental Analysis
Office of New Reactors

Docket No. 52-048

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ADAMS Accession No.: ML19008A270 ***via email** **NRO-002**

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