

May 22, 2017

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

SUBJECT: REVIEW SCHEDULE FOR THE NUSCALE POWER, LLC, STANDARD DESIGN  
CERTIFICATION OF A SMALL MODULAR REACTOR

Dear Mr. Bergman:

NuScale Power, LLC (NuScale) submitted a design certification application (DCA) to the U.S. Nuclear Regulatory Commission (NRC) on January 6, 2017, pursuant to the requirements of Title 10 of the *Code of Federal Regulations*, Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17013A229). After completing its acceptance review, the NRC accepted the application for docketing, and documented its conclusion in a letter to you, dated March 23, 2017 (ADAMS Accession No. ML17074A087).

This letter transmits the NuScale DCA review schedule. The NRC's goal is to conduct a high quality safety review that is transparent and timely and the documented schedule is expected to support this goal. The safety review supports issuance of a final safety evaluation report by September 2020. The milestones for the six phases of the review are provided in the Enclosure. To support this schedule the NRC staff is employing every means available to conduct an effective and efficient safety focused review. As you are aware, the staff has engaged NuScale on technical and regulatory issues via public meetings, regulatory audits, and Requests for Additional Information (RAIs) to identify and address these issues in the early part of the review process. We will continue to use these means in our efforts to meet or better our review schedule. In addition, the NRC staff is using contractors to supplement its workforce in support of the staff's review of the application, especially for the topical reports that are being reviewed in parallel. The principal factors considered in developing the schedule are discussed in the Enclosure.

As part of our review process, we continue to look for efficiencies that could lead to a shorter review schedule. Conversely, we also note that significant changes or additions to the DCA documentation could adversely impact scheduled milestone completion dates, including the overall schedule. The NRC staff will review and revise this schedule, as needed, at the end of Phase 2. At that time, the NRC staff will have a better idea of the number and complexity of open items and the schedule for completing those open items.

T. Bergman

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If you have any questions, please contact Gregory Cranston at (301) 415-0546 or via e-mail at [Gregory.Cranston@nrc.gov](mailto:Gregory.Cranston@nrc.gov).

Sincerely,  
*/RA/*

Francis M. Akstulewicz, Director  
Division of New Reactor Licensing  
Office of New Reactors

Docket No.: 52-048

Enclosure: As stated

cc: NuScale Power LLC Listserv

**SUBJECT: REVIEW SCHEDULE FOR THE NUSCALE POWER, LLC, STANDARD DESIGN  
CERTIFICATION OF A SMALL MODULAR REACTOR DATED**

DATE: May 22, 2017

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**ADAMS Accession No.: ML17103A380**

**\*via e-mail**

**NRO-002**

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<b>NAME</b>	BBavol	MBrown	GCranston (sign)	SLee	TMcGinty*
<b>DATE</b>	05/02/2017	4/13/2017	05/10/2017	05/01/2017	05/08/2017
<b>OFFICE</b>	NRO/DSRA: D	NRO/DEIA: D (A)	NRO/DSEA: D	NSIR/DPR: D(A)	NSIR/DPCP: D
<b>NAME</b>	JMonninger	BCaldwell*	RTaylor*	SCoffin*	JAnderson*
<b>DATE</b>	05/15/2017	05/08/2017	05/09/2017	05/09/2017	05/05/2017
<b>OFFICE</b>	NRR/DE: DD (A)	NRR/DSSA: DD	NRO/DNRL: D	NRO/OD (A)	
<b>NAME</b>	KCoynne*	SHelton*	FAkstulewicz	VOrdaz	
<b>DATE</b>	05/05/2017	05/05/2017	05/15/2017	05/22/2017	

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## **NuScale 6 Phase Schedule Milestones / Licensing, Policy, and Technical Issues**

The table below presents the NRC's schedule for reviewing the NuScale design certification application (DCA).

<b>Task</b>	<b>Task Name</b>	<b>End date</b>
Phase 1	Preliminary Safety Evaluation Report (SER) and Request for Additional Information	04/16/18
Phase 2	SER with Open Items	05/16/19
Phase 3	ACRS Review of SER with Open Items	08/27/19
Phase 4	Advanced SER with No Open Items	12/12/19
Phase 5	ACRS Review of Advanced SER with No Open Items	06/23/20
Phase 6	Final SER with No Open Items	09/08/20

The schedule above has been developed considering three factors. First, the submittal of six topical reports that document the methodologies used to demonstrate the overall safety of the NuScale design concurrent with the submittal of the design certification application is not consistent with the previous agreement of submitting this information well in advance of the DCA (Agencywide Document Access and Management System (ADAMS) Accession No. ML15111A203). The above milestone schedule factors in the additional time required to review these topical reports in parallel with the design certification application. The concurrent review of the topical reports and application was a significant contributor in developing the schedule milestones.

Second, based on our review to date, the NRC has identified some design-specific critical path issues (examples provided below) that the agency believes will require at least one more round of Requests for Additional Information (RAIs) than traditionally included in technical review schedules. The additional round of RAIs in critical path review areas was a significant contributor in developing the Phase 2 milestone.

The critical licensing, technical, and policy issues that the staff has identified to date that could impact the review schedule, particularly in Phases 1 and 2, are as follows:

- Design and seismic analysis information associated with the reactor vessel flange tool.
- Level of detail demonstrating that the Three Mile Island action items are met regarding (1) providing a capability to obtain and analyze samples from the reactor coolant system post-accident and (2) performing radiation and shielding design reviews of spaces around systems that may contain accident source term radioactivity.
- Basis for assumption for design basis failed fuel fraction as compared to the Design Specific Review Standard and its effect on the development of the source term for radiation protection design features.

Enclosure

- The separate effects testing related to the Comprehensive Vibration Assessment Program to provide benchmarking data that is essential to establish operating parameters for the reactor vessel internal response due to dynamic flow conditions to predict the resulting vibration conditions.
- The control rod drive mechanism drop and control rod alignment tests are planned for late CY2017 and CY2018 which could challenge the review schedule.
- The General Design Criteria (GDC) 27, “Combined Reactivity Control Systems Capability” exemption could involve high level policy decisions.
- Event escalation/defense-in-depth philosophy of the NuScale design; the use of non-safety components to mitigate certain design basis events; and potential design basis events not considered or analyzed which could involve complex analysis.
- Determination of rupture locations and dynamic effects associated with the postulated rupture of piping.

Finally, NuScale requested a 60-day RAI response time which is an extension from the normal 30-day response time per the staff’s process (ADAMS Accession No. ML15111A203). The application of the 60-day response time has a minor effect on the overall schedule but does reflect an impact as discussed in our previous correspondence.