



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

November 1, 2018

MEMORANDUM TO: Samuel S. Lee, Chief  
Licensing Branch 1  
Division of Licensing, Siting,  
and Environmental Analysis  
Office of New Reactors

FROM: Omid Tabatabai, Senior Project Manager /RA/  
Licensing Branch 1  
Division of Licensing, Siting,  
and Environmental Analysis  
Office of New Reactors

SUBJECT: SUMMARY OF THE OCTOBER 15, 2018, CLOSED MEETING  
WITH NUSCALE POWER, LLC, TO DISCUSS THE DESIGN OF  
NUSCALE'S CONTAINMENT VESSEL

On October 15, 2018, representatives of the U.S. Nuclear Regulatory Commission (NRC) and NuScale Power, LLC (NuScale) held a closed teleconference meeting to discuss the staff's questions related to Nucale's Containment design. Specifically, the meeting participants discussed NuScale power module design changes and the containment peak pressure calculation model revision; limiting containment peak pressure case result; containment peak pressure technical specification changes; and containment vessel peak pressure.

Enclosure 1 captures the summary of the topics discussed during the teleconference. The agenda and list of meeting attendees are included in Enclosures 2 and 3, respectively. The meeting notice for this meeting is available in the Agencywide Documents Access and Management System (ADAMS) under Accession No. ML18275A430.

Docket No. 52-048

Enclosures:

1. Meeting Summary
2. Agenda
3. Attendees

CONTACT: Omid Tabatabai, NRO/DLSE  
301-415-6616

SUBJECT: SUMMARY OF THE OCTOBER 15, 2018, CLOSED MEETING WITH NUSCALE  
POWER, LLC, TO DISCUSS TO DISCUSS THE DESIGN OF NUSCALE'S  
CONTAINMENT VESSEL  
DATED: NOVEMBER 1, 2018.

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NRC-001

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## U.S. NUCLEAR REGULATORY COMMISSION

### SUMMARY OF THE OCTOBER 15, 2018, CLOSED MEETING WITH NUSCALE POWER, LLC, TO DISCUSS TO DISCUSS THE DESIGN OF NUSCALE'S CONTAINMENT VESSEL

The topics of discussions for this meeting were; NuScale power module design changes and the containment peak pressure calculation model revision; limiting containment peak pressure case result; containment peak pressure technical specification changes; and containment vessel peak pressure; and updates related to the staff's request for additional information (RAI) 9304, 9357, 9380, and 9482. The meeting was closed to public due to the proprietary nature of the information and design. On October 15, 2018, NuScale submitted a proprietary version of the meeting presentation slides to the NRC. NuScale's cover letter and affidavit are available in ADAMS under Acession No. ML18295A193.

During the meeting, NuScale presented their information with respect to changes related to their new containment peak pressure. The NRC staff several questions during the meeting. Of note, the staff provided the comments to further the discussion, including:

#### Staff Comment #1, related to pool level

NuScale presented a change in the initial pool level from 55 to 65 feet. Staff provided comments related to the nature reactor pool connections and components that were not Seismic Category I and may adversely affect the reactor pool level during a design basis event. As a result, NuScale indicated they could provide a sensitivity study to examine the effect of an initial level of 65 feet in the pool, followed by a transient analysis run at 55 feet. This sensitivity would provide staff with an analysis more aligned with staff understanding of the design basis.

#### Staff Comment #2, related to pool temperature

NuScale presented a change in the initial bulk pool water temperature from 140 F to 110 F. Staff inquired about how this value was being reflected in the containment peak pressure analysis (specifically, how it would be reflected in the containment wall temperature profile due to mixing effects). Staff expects that the updated analysis will include a detailed explanation to support the initial containment wall temperature profile calculated by NuScale. Additionally, the effects from relevant heat transfer mechanisms should be addressed, including both the convection from the containment vessel and mixing in the pool region; and radiation and convection in the annular region between the reactor vessel and containment vessel. NuScale already responded to a question in its response to a related topic in RAI 6.2.1-1 (eRAI 8793). Staff expects NuScale to follow their statement, "Temperatures at specific locations [in the UHS] will be evaluated based on consideration of the location of the temperature sensor, the volume of pool water whose temperature is represented by the sensors, and other physical effects and configuration issues," or inform the staff of changes in this approach.

#### Staff Comment #3, related to downstream analysis effects

NuScale's presentation identified a number of design and analysis changes. Many of these may have downstream impacts on other analyses, and subsequent impacts on the FSAR,

technical reports, and topical reports, including but not limited to: impacts on Chapter 15 and related topical reports due to the MPS actuation conditions and any changes to level sensors; impacts due to the UHS technical specification changes; structural impacts of the containment vessel, and impacts in Chapter 3 and various technical reports due to the revised design pressure.

Staff expects NuScale will evaluate the effects of these changes and disposition them accordingly. As part of closure, NuScale should provide a schedule for identifying and assessing the downstream impacts, and for providing staff the outcome of the assessment, markups of the affected documents, and the final versions of the affected reports and documentation.

Staff Comment #4, related to containment free volume

NuScale stated they plan to use a minimum containment free volume value of 6000 cu-ft to account for RCS thermal expansion and an allowance for piping, valves, cabling and miscellaneous components such as platforms and ladders (RAI 9482, Question 06.02.01.01.A-19). Staff expects that the design value for the containment free volume be reflected throughout FSAR Tier 2, and identify whether the documented value is “nominal” or the minimum conservative value, in particular for the containment peak pressure analyses.

Staff Comment #5, related to the Revision of CNV ASME Design Pressure Limit to 1075 psia

NuScale presented the design change to raise the CNV ASME design pressure limit to 1075 psia. Staff expects NuScale to include a full explanation in accordance with the ASME code of the newly proposed CNV design limit under the design basis event.

NuScale agreed to respond to the staff's questions at the next meeting. The NRC staff believes additional technical interactions with NuScale are needed to fully understand the implications of design changes and the detailed supporting calculations and analyses. A follow-up meeting will be scheduled to continue the discussions.

**U.S. NUCLEAR REGULATORY COMMISSION**

**SUMMARY OF THE OCTOBER 15 , 2018, CLOSED MEETING WITH NUSCALE POWER,  
LLC, TO DISCUSS CHANGES TO THE DESIGN OF NUSCALE'S CONTAINMENT VESSEL**

**MEETING AGENDA**

Introduction	1:00 – 1:10 pm
Discussion of containment design changes (CLOSED MEETING)	1:10 – 3:00 pm

**U.S. NUCLEAR REGULATORY COMMISSION**

**SUMMARY OF THE OCTOBER 15, 2018, CLOSED TELECONFERENCE WITH NUSCALE**

**LIST OF ATTENDEES**

**NuScale Power, LLC**

Robert Gamble  
Greg Myers  
Karl Gross  
Paul Infanger  
Marty Bryan  
Jennie Wike  
Andy Lingenfelter  
Ben Bristol  
Scott Barnes  
JJ Arthur  
Xu Heqin  
Brian Wolf

**U.S. Nuclear Regulatory Commission Staff**

Omid Tabatabai  
Syed Haider  
Boyce Travis  
John Monninger  
Shanlai Lu  
Anne-Marie Grady  
Clint Ashley  
Raul Hernandez  
Greg Cranston  
Craig Harbuck  
Mohsen Khatib-Rahbar (ERI)  
Alfred Krall (ERI)  
Marvin Smith (NUMARC)  
Donald Rowe (NUMARC)