

November 14, 2017

MEMORANDUM TO: Samuel S. Lee, Chief
Licensing Branch 1
Division of New Reactor Licensing
Office of New Reactors

FROM: Omid Tabatabai, Senior Project Manager /RA/
Licensing Branch 1
Division of New Reactor Licensing
Office of New Reactors

SUBJECT: SUMMARY OF THE OCTOBER 25, 2017, U.S. NUCLEAR
REGULATORY COMMISSION MEETING WITH NUSCALE
POWER, LLC REGARDING THE NRC STAFF'S SAFETY
EVALUATION REPORT FOR NUSCALE TOPICAL REPORT, TR-
0815-16497, "SAFETY CLASSIFICATION OF PASSIVE
NUCLEAR POWER PLANT ELECTRICAL SYSTEMS"

On October 25, 2017, representatives of the U.S. Nuclear Regulatory Commission (NRC) and NuScale Power, LLC, (NuScale) held a public teleconference meeting to discuss NuScale's concerns related to the NRC staff's safety evaluation report (SER) for NuScale topical report, TR-0815-16497, "Safety Classification of Passive Nuclear Power Plant Electrical Systems." The NRC staff's SER for TR-0815-16497 is available in the NRC's Agencywide Documents Access and Management System (ADAMS) under Accession No. ML17170A201.

Enclosure 1, "Summary of the October 25, 2017, Teleconference between the NRC Staff and NuScale," 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 is available in ADAMS under Accession No. ML17291A436.

Docket No. 52-048

Enclosures:

1. Summary of the October 25, 2017, Teleconference between the NRC Staff and NuScale
2. Agenda
3. Attendees

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SUMMARY OF THE OCTOBER 25, 2017, U.S. NUCLEAR REGULATORY COMMISSION STAFF MEETING WITH NUSCALE POWER, LLC REGARDING THE NRC STAFF'S SAFETY EVALUATION REPORT FOR NUSCALE TOPICAL REPORT, TR-0815-16497, "SAFETY CLASSIFICATION OF PASSIVE NUCLEAR POWER PLANT ELECTRICAL SYSTEMS," DATED: 11/14/2017

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NuScale DC Listserv

ADAMS Accession No.: ML17131A531

*via email

NRC-001

OFFICE	NRO/DNRL/LB1:PM	NRO/DNRL/LB1:LA*	NRO/DSRA/SRSB:BC*	NRO/DNRL/LB1:PM
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DATE	11/13/2017	11/13/2017	11/14/2017	11/14/2017

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**SUMMARY OF THE OCTOBER 25, 2017, TELECONFERENCE BETWEEN THE U.S.
NUCLEAR REGULATORY COMMISSION STAFF AND NUSCALE POWER, LLC**

By letter dated October 12, 2017, NuScale Power, LLC (NuScale) requested a public meeting with the U.S. Nuclear Regulatory Commission (NRC) staff to discuss the NRC staff's Condition 4.5 in the safety evaluation report (SER) for NuScale Topical Report TR-0815-16497, "Safety Classification of Passive Nuclear Power Plant Electrical Systems." NuScale's October 12, 2017, letter is available in NRC's Agencywide Documents Access and Management System under Accession No. ML17285B418.

At the beginning of the meeting, the NRC staff requested that NuScale identify and explain the areas where their design would have difficulty meeting Condition 4.5 in the staff SER.

NuScale identified the following concerns:

1. Condition 4.5 may preclude normal, planned opening of emergency core cooling system (ECCS) valves with the reactor coolant system pressure and temperature at significantly reduced values,
2. Condition 4.5 may preclude opening of the ECCS valves during a 24-hour loss of alternating current (AC) power event,
3. Condition 4.5 may pose compliance challenges with Regulatory Guide (RG) 1.189, "Fire Protection for Nuclear Power Plants," as a fire, considered an anticipated operation occurrence in RG 1.189, could result in the loss of all direct current (DC) power and open the ECCS valves,
4. Condition 4.5 may inhibit mitigation strategies for beyond design basis events, and
5. Condition 4.5 may impose new requirements on the design basis transient and accident analyses (i.e., FSAR Chapter 15 analyses) as these analyses do not credit electrical power.

In regards to concern 1, the NRC staff clarified that Condition 4.5 is not intended to preclude the opening of the ECCS valves during normal planned plant maneuvers, including plant recovery following an anticipated operational occurrence (AOO), where the reactor coolant system (RCS) pressure has been reduced significantly below the inadvertent actuation block (IAB) pressure setpoint. NRC staff stated that, in addressing Condition 4.5, their expectation is that the applicant provide a realistic analysis to demonstrate that the ECCS is not required to mitigate an AOO and that the ECCS is not realistically expected to actuate in response to an AOO.

In regards to concern 2, the NRC staff clarified that they do not expect a 24-hour station blackout to occur on the frequency of an AOO. This expectation is based on information in the Electric Power Research Institute (EPRI) utility requirements document (URD) for passive plants (Volume III, Chapter 1, Section 6.3.3), the NRC staff's SER on the EPRI URD for passive plants, and the licensing basis for currently licensed passive nuclear power plants.

In regards to concern 3, the NRC staff stated that, similar to the currently operating nuclear power plants, it is the NRC staff's expectation that the plant be designed such that fires resulting

in the loss of multiple trains of DC power are not expected, and therefore such fires are not AOOs. However, because this was the first time NuScale presented such a concern, the NRC staff stated they would need to consider the issue further. Following the public meeting, the NRC staff further evaluated the NuScale concern regarding Condition 4.5 posing compliance issues with RG 1.189. The information provided in NuScale FSAR Chapter 9, "Auxiliary Systems," describes the DC power system as being split up into several separate fire areas that are separated by 3-hour fire rated barriers. Based on this information, NRC staff does not realistically expect a fire to result in the failure of the DC system, resulting in the opening of the ECCS valves.

In regards to concern 4, the NRC staff stated that Condition 4.5 is not applicable to the mitigation of beyond design basis events, because these events are not expected to occur on the frequency of an AOO.

In regards to concern 5, the NRC staff stated that, in addressing Condition 4.5, their expectation is that the applicant provide a realistic analysis to demonstrate that the ECCS is not required to mitigate an AOO and that ECCS is not realistically expected to actuate in response to an AOO. The NRC staff clarified that Conditions 4.5 does not intend to impose additional acceptance criteria in the design basis transient and accident analyses (i.e., FSAR Chapter 15 analysis). The NRC staff inquired as to whether NuScale expects the ECCS to actuate, at the IAB setpoint, during the lifetime of the plant. NuScale responded that ECCS actuation at the IAB setpoint is not realistically expected to occur during the lifetime of the plant.

At the conclusion of the meeting, the NRC staff informed NuScale that the staff would revise the SER as needed to incorporate the additional clarifications as discussed during the meeting and captured in this meeting summary.

MEETING AGENDA

Wednesday, October 25, 2017

1:00-1:15 p.m.	Welcome and Introductions
1:15-2:00 p.m.	Discussion of the U.S. Nuclear Regulatory Commission Staff's Safety Evaluation Report
2:00-2:10 p.m.	Public Questions and Comments
2:10-2:15 p.m.	Meeting Conclusion

LIST OF ATTENDEES

NuScale Power, LLC

Meghan McCloskey
Hughes Wike
Derick Botha
Kevin Griffith
Wayne Massie
Jim Curry
Gary Becker
Zack Rad
Darrell Gardner

U.S. Nuclear Regulatory Commission

Omid Tabatabai
Anne-Marie Grady
Samuel Lee
Raul Hernandez
Swagata Som
Clinton Ashley
Boyce Travis
Rebecca Karas
Jeff Schmidt
Tim Drzewiecki
Mike Franovich
Antonio Dias
John Monninger