April 20, 2017

MEMORANDUM TO: Samuel 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 APRIL 17, 2017, PUBLIC MEETING WITH NUSCALE POWER, LLC, TO DISCUSS THE SAFETY EVALUATION REPORT RELATED TO NUSCALE TOPICAL REPORT ON SAFETY CLASSIFICATION OF PASSIVE NUCLEAR POWER PLANT ELECTRICAL SYSTEMS (CAC RQ6002)

On April 17, 2017, representatives of the U.S. Nuclear Regulatory Commission (NRC) staff and NuScale Power, LLC, (NuScale) held a public teleconference meeting at the NRC headquarters located at 11545 Rockville Pike, Rockville, Maryland 20852. The purpose of the meeting was for NuScale to provide additional information related to Condition 4.5 in the NRC staff's safety evaluation report (SER) related to NuScale's topical report (TR) on safety classification of passive nuclear power plant electrical systems. A non-proprietary version of the SER is available in the NRC's Agencywide Documents Access and Management System (ADAMS) under Accession No. ML17055A643.

The agenda and list of meeting attendees are included in Enclosures 1 and 2, respectively. The meeting notice is available in ADAMS with Accession No. ML17102A866. NuScale handouts used at the meeting are available in ADAMS with Accession Nos. ML17102A772 and ML17100A753. NuScale submitted its additional information to NRC via an electronic mail from Mr. Steven Mirsky to Mr. Omid Tabatabai on April 10, 2017 (ADAMS Accession No. ML17100A735).

Staff's Technical Basis for Establishing Condition 4.5 in the SER

Based on the evaluation of NuScale information in the TR, the NRC staff concluded that NuScale small modular reactor design's reliance on the containment during an abnormal operational occurrence (AOO) may not be consistent with the underlying defense-in-depth purpose of Title 10 of the *Code of Federal Regulations,* Appendix A, "General Design Criteria" (GDC) 15, "Reactor Coolant System Design." The NRC staff's concern is due to the fact that, by definition, an AOO is expected to occur one or more times during the life of the nuclear power plant. To alleviate this concern, the NRC staff established Condition 4.5 in the SER to

require applicants wishing to use the TR to address reliability requirements for the system(s) necessary to retain reactor coolant within the reactor coolant pressure boundary (RCPB.) The staff's current Condition 4.5 requires an applicant referencing the TR to:

> *demonstrate that system(s) necessary to retain reactor coolant within the RCPB are designed with sufficient reliability such that a challenge to containment does not occur with the frequency of an AOO. Alternatively, an applicant or licensee referencing the TR can demonstrate that a failure of the containment would not impede the ability to maintain decay heat removal and radioactive material containment for the long term.*

Furthermore, based on considerations for the overpressure protection of the RCPB and pursuant to Condition 4.5, the NRC staff found that Condition of Applicability I.1.g, in Table 3-1, "Conditions of Applicability," of the TR, is necessary and sufficient only for determining that Class 1E power is not required to satisfy GDC 15.

NuScale Position

During the meeting, NuScale agreed that the NRC staff's Condition 4.5 addresses defense-in-depth issue, however, NuScale believes that the NRC staff SER, Section 3.2, "Safe Shutdown, Core Colling, and Reactor Coolant Pressure Boundary Integrity," should be re-written to remove the tie between Condition 4.5 in the SER and GDC 15. NuScale further stated that the interpretation of GDC 15 (as described at March 24, 2017, presentation to the Advisory Committee on Reactor Safeguards) that ties GDC 15 to defense-in-depth and event escalation can be a compliance issue for NuScale. Specifically, NuScale stated that in the areas of Chapter 15, "Transients and Accidents Analysis", in the final safety analysis report, there are example events where the emergency core cooling system (ECCS) is actuated for AOOs, and that at 24 hours after the onset of an AOO, the ECCS will actuate on the loss of direct current power.

The NRC staff agreed to further review and internally discuss the additional information provided by NuScale and hold a follow up discussion with NuScale if needed. The NRC staff will publically notice any future interactions with NuScale on this issue.

Docket No. 52-048

Enclosures:
1. Meeting Agenda
2. Attendees

cc: NuScale DC Listserv

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ADAMS Accession No.: ML17108A677 ***via email** **NRC-001**

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PUBLIC MEETING WITH NUSCALE POWER, LLC, TO DISCUSS THE SAFETY EVALUATION REPORT RELATED TO NUSCALE TOPICAL REPORT ON SAFETY CLASSIFICATION OF PASSIVE NUCLEAR POWER PLANT ELECTRICAL SYSTEMS (CAC RQ6002)

Meeting Agenda

Monday, April 17, 2017

Time	**Topic**
10:00 a.m.	Opening Remarks
10:05 a.m.	Discussion of Staff SER Condition 4.5
11:00 a.m.	Adjourn

Enclosure 1

LIST OF ATTENDEES

U.S. Nuclear Regulatory Commission

Two Whit Flint North, Room 7-A03, Rockville, Maryland 20852

April 17, 2017

NAME	AFFILIATION
Stephanie Seely	NuScale Power
Steve Mirsky	NuScale Power
Steve Unikewicz	NuScale Power
Derick Botha	NuScale Power
Gary Becker	NuScale Power
Ted Hough	NuScale Power
Wayne Massie	NuScale Power
Zack Rad	NuScale Power
Robert Gamble	NuScale Power
Omid Tabatabai	NRC/NRO
Tim Drzewiecki	NRC/NRO
Jeff Schmidt	NRC/NRO
Becky Karas	NRC/NRO
Sam Lee	NRC/NRO