August 15, 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 AUGUST 1, 2017, PUBLIC MEETING WITH NUSCALE POWER, LLC, TO DISCUSS VARIOUS TOPICS RELATED TO CHAPTER 7, INSTRUMENTATION AND CONTROLS," OF THE NUSCALE DESIGN CERTIFICATION APPLICATION (DOCKET NO. 52-048)

On August 1, 2017, representatives of the U.S. Nuclear Regulatory Commission (NRC) and NuScale Power, LLC, (NuScale) held a public teleconference meeting. The purpose of this meeting was to discuss several topics related to Chapter 7, "Instrumentation and Controls," of the NuScale Design Certification Application (DCA). Specifically, the NRC and NuScale staffs discussed two topics; (1) Hazard Analysis (HA) and Failure Modes and Effect Analysis (FMEA) for the Neutron Monitoring System and module protection system, and (2) NuScale's June 29, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17180B492) letter, which provided a markup of Figure 7.0-1, "Overall Instrumentation and Controls System Architecture Diagram." A complete copy of NuScale's DCA is available on the NRC public Webpage at https://www.nrc.gov/reactors/new-reactors/design- ert/nuscale/documents.html.

Enclosure 1, "Summary of the August 1, 2017 Teleconference between the NRC Staff and NuScale," captures the summary of the two 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 the NRC's ADAMS Accession No. ML17172A182. There were no handouts used during this meeting.

Docket No.: 52-048

Enclosures:
1. Summary of the August 1, 2017 Teleconference Between the NRC Staff and NuScale
2. Agenda
3. Attendees

CONTACT: Omid Tabatabai, NRO/DNRL
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ADAMS Accession No.: ML17221A559 *via email NRC-001

OFFICE	NRO/DNRL/LB1: PM	NRO/DNRL/LB1: LA	NRO/DEI/ICEB: BC	NRO/DNRL/LB1: PM
NAME	OTabatabai	SGreen*(BAbeywickrama for)	IJung (DTaneja* for)	OTabatabai (sign)*
DATE	8/9/2017	8/10/2017	8/14/2017	8/15/2017

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SUMMARY OF THE AUGUST 1, 2017

TELECONFERENCE BETWEEN THE NUCLEAR REGULATORY

COMMISSION STAFF AND NUSCALE POWER, LLC

TOPIC 1:

Hazard Analysis and Failure Modes and Effect Analysis

During the telecon, the NRC staff noted that there are several statements in NuScale Power, LLC (NuScale) Design Control Document (DCD), Part 2 – Tier 2, Chapter 7, "Instrumentation and Controls," where the applicant references the Hazard Analysis (HA) and Failure Modes and Effects Analysis (FMEA) for the neutron monitoring system (NMS) and module protection system (MPS) to demonstrate compliance with certain regulatory requirements. For example, DCD, Part 2 – Tier 2, Section, "Reliability Characteristics," states in part that:

> No failure modes of the MPS were identified in the FMEA or hazard analysis that were undetectable or prevented the MPS from performing its Reactor Trip System, Engineered Safety Feature Actuation System and post-accident monitoring (PAM) functions.

The NRC staff stated that if the applicant intended to use the FMEAs and HAs methodologies to meet a regulatory requirement, then these statements need to be revised to state how the applicant used the methodologies in the MPS and NMS design. For example, the NRC staff noted that the purpose of the HA was to present the results of the system HA for the MPS and NMS in conjunction with plant safety analyses, FMEAs, diversity and defense-in-depth analysis, and multi-discipline design reviews as an additional means of ensuring the correctness and completeness of the requirements for the MPS and NMS. NuScale agreed with the NRC staff's observation and agreed to modify the statements in NuScale DCD Chapter 7 to state the purpose and objective of the methodologies.

TOPIC 2:

Modification to DCD Figure 7.0-1

In the letter dated June 29, 2017 (ADAMS Accession No. ML17180B492), the applicant provided a markup of DCD Figure 7.0-1, "Overall Instrumentation and Controls System Architecture Diagram," to add notes describing the bidirectional communication interfaces on the MPS backplane connections. Specifically, the applicant added Note 3, which states:

> Note 3: Includes individual component operation originating from module control system (MCS) or plant control system (PCS) as appropriate through enable nonsafety control switch.

Note 3 is referenced in the hard-wired modules of the MPS and the plant protection system (PPS). During the public meeting, the NRC staff stated that Note 3 may mislead the reader to assume there is a direct connection of the PCS to the MPS, or from the MCS to the PPS. NuScale clarified that there are no direct connections between the MPS and the PPS, and

between the MCS and PPS. NuScale agreed to modify Note 3 to distinguish the connections between the MPS and MCS, and between the PPS and PCS.

MEETING AGENDA

Tuesday, August 1, 2017

Time	Topic	Speaker
1:00 pm – 1:10 pm	Introductions	NRC/NuScale
1:10 pm – 2:45 pm	Discussion of staff questions	NRC/NuScale
2:45 pm – 2:55 pm	Public Comments	All
2:55 pm – 3:00 pm	Meeting Conclusion	NRC/NuScale

Enclosure 2

LIST OF ATTENDEES

NuScale

Brian Arnholt
Rufino Ayala
Russell Goff
Jeff Kosky
Darrell Gardner
Brian Gardes

NRC Staff

Omid Tabatabai
Luis Betancourt
Dinesh Taneja
Joseph Ashcraft
Dawnmathews Kalathiveettil
Ian Jung
Derek Halverson
Sergiu Basturescu