

August 6, 2015

MEMORANDUM FOR: Mark Tonacci, 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 JULY 9, 2015, CLOSED MEETING WITH
NUSCALE POWER, LLC, TO DISCUSS VARIOUS TOPICS
RELATED TO SEISMIC DESIGN AND METHODOLOGY

On July 9, 2015, a closed meeting between representatives of the Nuclear Regulatory Commission (NRC) staff and NuScale Power, LLC, was held at NuScale Offices located at 11333 Woodglen Dr., Suite 205, Rockville, MD 20852. The purpose of this meeting was to: 1) update the NRC staff on the NuScale Power Module seismic design approach; and 2) discuss topics related to standard review plan (SRP) Sections 3.7, and 3.8; specifically regarding design methodology, parameters, and analysis of various Category I structures and foundations

NuScale began the meeting with an overview of the NuScale plant arrangement with a focus on the Nuclear Island, which includes the radioactive waste building, reactor building, and control building. NRC staff questioned NuScale about reactor pool liner plate seam-weld leak chase channel system blockage from boron deposits from leakage of borated reactor pool water. Specifically, the staff remarked that because of evaporation of reactor pool water and collection of boron deposits, these deposits may block the leak chase channels and, consequently, borated water may leak into the concrete foundation to initiate a corrosive environment around reinforcement steel. NuScale stated that the pool has a stainless steel (SS) liner with SS leak chase channels in the floor level only. NuScale also agreed to address the NRC staff's questions in more detail during future interactions on this topic.

The NRC staff stated that, in the design certification application, NuScale must also include an analysis of the structural impact of the staggered placement of modules, specifically, when a plant does not originally contain all the 12 modules. NRC staff questioned whether NuScale power spectra density (PSD) check on the synthetic time histories were performed, and NuScale confirmed that the necessary PSD checks were performed and could provide the time histories in digital format with the design certification document (DCD) submittal. NuScale also agreed that the DCD will include a table tabulating all the analysis cases such as soil profiles, stiffness variations, etc.

The staff asked for clarification and more information regarding water mass motions, both horizontal and vertical, as well as seismic analyses based on staggered installation of modules.

NuScale agreed to provide a more detailed presentation on these topics in future interactions with the NRC staff. NuScale also discussed the System for Analysis of Soil-Structure Interaction (SASSI) Code validation and verification with the NRC staff. NRC staff provided feedback to NuScale that the staff needs clarification between the SASSI model for the reactor module supports and the real world situation as SASSI may not be an appropriate model to use. The staff further expressed concerns about potential soil separation of walls, and NuScale agreed to look into this potential effect.

The NRC staff asked about the criteria that NuScale had used for selecting the critical sections of the Seismic Category I structures. NuScale will look into the selection criteria and update the staff during future meetings. NuScale provided no information regarding a fuel storage rack design or analysis. NuScale discussed their plan for seismic instrumentation and the staff informed NuScale that additional seismic instrumentation would be necessary due to the unique aspects of the NuScale design.

At the conclusion of the meetings, the NRC staff and NuScale acknowledged that further interactions on these topics is warranted.

The agenda and list of meeting attendees are included in Enclosures 1 and 2, respectively. The closed meeting notice is available in the NRC Agencywide Documents Access and Management System (ADAMS) with accession number ML15173A161. The proprietary presentation slides are available in ADAMS with accession numbers ML15182A206 and ML15182A206. A non-proprietary version of the NuScale presentations can be found in ADAMS at ML15182A205. Please direct any inquiries to Omid Tabatabai, at (301) 415-6616, or via email to omid.tabatabai@nrc.gov.

ADAMS is the system that provides text and image files of NRC's public documents and can be accessed at the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. If you do not have access to ADAMS or have problems accessing the documents located in ADAMS, contact the NRC Public Document Room staff at (800) 397-4209, (301) 415-4737, or pdr@nrc.gov.

Project No.: PROJ0769

Enclosure:

1. Meeting Agenda
2. Attendees

cc: NuScale DC Listserv

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NRC-001

OFFICE	PM:NRO/DNRL/LB1	PM:NRO/DNRL/LB1
NAME	OTabatabai	GCranston
DATE	8/6/2015	8/6/2015

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MEETING AGENDA

<u>Time</u>	<u>Topic</u>	<u>Speaker</u>
10:30 – 10:45 am	Introductions	All
10:45 – 11:00 am	Meeting Purpose and Background	NuScale
11:00 – 12:00 pm	DCD Section 3.7.1, 3.7.3	NuScale
12:00 – 1:00 pm	Lunch	All
1:00 – 2:00 pm	DCD Section 3.8.2, 3, 4, and 5	NuScale
2:00 – 2:30 pm	Other DCD Chapters and Sections	NuScale
2:30 – 3:00 pm	Meeting Conclusion and Questions	All

ATTENDEES

<u>Name</u>	<u>Affiliation</u>
Jim Xu	NRC
John Tappert	NRC
Jinsuo Nie	NRC
Alissa Neuhausen	NRC
Vladimir Graizer	NRC
Prosanta Chowdhury	NRC
Ata Istar	NRC
Steven Pope	NuScale
Daniel Chalk	DOE
Lily Ramadan	NuScale
Steven Mirsky	NuScale
Savannah Johnson	NRC
Mark Tonacci	NRC
Weijun Wang	NRC
John Price	NuScale phone/video
Row Williams	NuScale phone/video
Cyrus Afshar	NuScale phone/video
Tamas Liskai	NuScale phone/video
Josh Parker	NuScale phone/video
Jennie Wike	NuScale phone/video
Steve Strout	NuScale phone/video
Susan Farmsworth	NuScale phone/video
Frank Eppler	NuScale phone/video
Mohsin Khan	NuScale phone/video