



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

August 4, 2021

MEMORANDUM TO: Getachew Tesfaye, (Acting) Chief
New Reactor Licensing Branch
Division of New and Renewed Licenses
Office of Nuclear Reactor Regulation

FROM: Alina Schiller, Project Manager */RAI/*
New Reactor Licensing Branch
Division of New and Renewed Licenses
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF A PUBLIC MEETING WITH NUSCALE POWER,
LLC ON JUNE 15, 2021

The U.S. Nuclear Regulatory Commission (NRC) staff conducted an observation public meeting/teleconference with NuScale Power, LLC (NuScale) on June 15, 2021. The purpose of the meeting was to discuss the NRC staff observations on NuScale's proposed response to the staff Request for Additional Information (RAI) 9828 regarding NuScale Topical Report 0915-17772, "Methodology for Establishing the Technical Basis for Plume Exposure Emergency Planning Zones," Revision 2 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20217L422).

The meeting notice can be found in ADAMS under Accession No. ML21162A326. The meeting notice was also posted on the NRC public website.

Enclosed are the meeting summary (Enclosure 1), meeting agenda (Enclosure 2), and list of attendees (Enclosure 3). The documents referenced during the discussion can be found under ADAMS accession nos. given below.

RAI 9828	ML21116A110
NuScale presentation material for June 15, 2021 public meeting	ML21162A251
NRC presentation slides for the June 15, 2021, public meeting with NuScale	ML21160A170

Docket No. 99902043

Enclosures:

1. Meeting Summary
2. Meeting Agenda
3. List of Attendees

cc w/encl.: DC NuScale Power, LLC Listserv

CONTACT: Alina Schiller, NRR/DNRL
301-415-8177

SUBJECT: SUMMARY OF A PUBLIC MEETING WITH NUSCALE POWER, LLC ON
JUNE 15, 2021 DATED: AUGUST 4, 2021

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ADAMS Accession No.:

MEMO: ML21196A378

Package: ML21160A160

***via email**

NRR-106

OFFICE	DNRL/NRLB: PM	DNRL/NRLB: LA	DNRL/NRLB: (a) BC	DNRL/NRLB: PM
NAME	ASchiller	SGreen*	GTesfaye*	ASchiller*
DATE	07/2/2021	07/15/2021	07/14/2021	08/04/2021

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U.S. NUCLEAR REGULATORY COMMISSION (NRC)
OBSERVATION PUBLIC TELECONFERENCE WITH NUSCALE POWER, LLC (NUSCALE)
ON NUSCALE'S TOPICAL REPORT TR-0915-17772, REVISION 2

June 15, 2021 Meeting Summary

On June 15, 2021, the U.S. Nuclear Regulatory Commission (NRC) staff held an observation public teleconference meeting with NuScale Power, LLC, (NuScale) to discuss the staff observations on NuScale's proposed Request for Additional (RAI) 9828 response on NuScale Topical Report (TR), TR-0915-17772, "Methodology for Establishing the Technical Basis for Plume Exposure Emergency Planning Zones," Revision 2. RAI 9828 is available in Agencywide Documents Access and Management System (ADAMS) under Accession No. ML21116A110.

The public meeting commenced with opening remarks and an introduction of participants.

The NRC staff provided background on the TR, such as submission of Revision 2 on August 4, 2020, and information on the improved proposed RAI response process and on the coordination of the NRC Office of Nuclear Reactor Regulation (NRR) with the Offices of Nuclear Security and Incident Response (NSIR), and Nuclear Regulatory Research (RES).

NuScale stated they are working towards finding a common ground on the technical acceptance criteria for their presentation material. NuScale proceeded with a presentation (ADAMS Accession No. ML21162A251) on the proposed response to RAI 9828 Questions 1.05-43 – 1.05-46 and 1.05-48, and the NRC staff provided observations on each question response (ADAMS Accession No. ML21160A170). A summary of the discussion follows.

Question 1.05-43: Justify that the aggregate of screened-out sequences does not cause the quantitative health objectives (QHOs) to be exceeded

NuScale stated, as part of their response: the emergency planning (EP) is a defense-in-depth (DID) feature that does not impact the assessment of large release frequency (LRF); per SECY-2013-0029, if the LRF is less than 1E-6/year, the QHOs are met, and LRF guideline is more conservative than the QHOs; and Section 3.2 of the TR highlights the applicant is expected to show the risk to the public already meets the QHOs.

The NRC staff provided the following items for NuScale to consider: the design certification (DC) and combined operating license (COL) applications do not require a seismic probabilistic risk assessment (PRA) for certification; therefore, the COL/DC applicants do not aggregate risk from all initiators to demonstrate that the QHOs are met; and COL/DC PRAs are not acceptable for risk-informed applications because they are not required to meet the PRA standard in its entirety.

The staff further stated they may write a condition of use that the PRA used to support this TR, considering the aggregate risk including seismic risk, shall show that the LRF meets the Commission Goals for new reactors; or NuScale's response may specify that the PRA used to support this TR meets the QHOs considering aggregate risk from all hazards.

NuScale stated that their methodology requires a full scope PRA that considers all hazards, which means that a seismic PRA is required to employ the methodology and reiterated they would have a seismic PRA required at the COL stage.

Question 1.05-44: Justify why external events screening is different than internal events and why external events that could exceed the QHOs are being screened

The NRC staff provided the following items for NuScale to consider: NuScale did not provide a technical justification for why the screening criterion for internal events is not equivalent to external events. Screening external events with initiator frequencies less than 1E-5/year could miss important core damage/ large release sequences for this risk-informed TR. Per Regulatory Guide (RG) 1.174, if the hazard or mode is important to the decision, it should be evaluated. The screening criteria for de-commissioned plants are not applicable to operating plants. NuScale's response may include screening criteria that is equivalent for internal and external events or specify a conservative or bounding quantitative approach to demonstrate that screening at the 1E-5/year frequency threshold does not impact the decision.

NuScale responded that: as shown in the response to question 1.05-43, they assumed that QHOs have already been demonstrated to have been satisfied, hence the 1E-5/year external event screening does not impact the design's ability to meet the QHOs; LRF does not take into account any benefits from emergency planning (EP); the reason why NuScale looked at external events differently is because any extreme external hazard that is severe enough to cause a release from an advanced design will result in catastrophic consequences to the surrounding areas (infrastructure, communications) and, in that context, it seems that any EP is not appropriate and would not add any value.

NuScale agreed to re-classify internal fires and internal floods from external events to internal events in the context of accident sequence screening.

The NRC staff mentioned they would provide NuScale with examples where the 1E-7/year is used for design basis guidance for floods.

Question 1.05-45: Discuss how numerical uncertainties (e.g., parameter uncertainty, model uncertainty) are to be considered against the numerical thresholds

As part of their response, NuScale stated the impact of uncertainties in the application of the PRA on sequence screening are also addressed through deterministic aspects of the EPZ methodology that are required to be evaluated independent of the results of the screening, referring to Sections 3.3 and 3.7 of the TR.

The NRC staff affirmed there is not any guidance in the TR on how numerical uncertainties are considered against the screening threshold, mentioning NUREG-1855, "Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decisionmaking, Final Report."

NuScale acknowledged NUREG-1855 is not referenced in the TR and mentioned RG 1.200. NuScale stated that the EPZ itself is a DID layer on top of the QHOs, the EPZ is in fact addressing uncertainty in the protection of the health and safety of the public, and NuScale screening thresholds of 10E-7 incorporate some level of uncertainty by being so low. NuScale's position is that the QHOs are already met so they are not screening out

any sequences that would have an impact on QHOs. Further, NuScale stated the method is evaluating credible events for EP and the uncertainty in events at the 1E-5/year is something to consider.

With respect to the NRC's Background slide 3, NuScale responded: the scope of their method is not limited to Part 52, they do not see the difference between Parts 50 and 52 as material to the application of this methodology, and when an applicant submits their application, it has to be technically adequate; the fact that Part 50 does not require a PRA is not material either because this methodology does require the PRA and goes beyond the DC and COL application PRAs. NuScale agreed with the NRC that the design details submitted under Part 50 would be commensurate with the detail's applicants submit under Part 52, even though they were not sure it would be good to be used under Part 50.

Question 1.05-46: Address: the need for the PRA peer review; the need for the COL applicant to address hazards/modes not covered by the standards; and the need for the PRA to be Capability Category (CC) II with exceptions identified and justified for

NuScale referred to Section 3.1 in the TR that requires a technically adequate PRA for use in their methodology, providing RG 1.200 as an example to demonstrate technical adequacy, which is not required in their methodology. NuScale highlighted: NEI 17-07, which provides guidance for conducting a PRA peer review, and Section 3.4 in the TR that specifies the EPZ methodology requires the use of full scope all hazards PRA to implement the sequence screening and, in case there is not an NRC endorsed PRA standard for one of the hazards they are evaluating, the applicant will need to demonstrate the basis of why their method is technically adequate.

NuScale agreed with the NRC staff's statement that for an applicant that chooses not to use RG 1.200, which is extensive guidance, the applicant would provide additional justification that the PRA is comparable in depth, scope, and modeling to RG 1.200, which could require substantially increased staff review and adjusted schedule.

NuScale stated they would include a condition of use for a technically acceptable PRA.

Question 1.05-48: Address the evaluation of potential radiological releases due to non-core damage events that would necessitate protective actions

As part of their response, NuScale highlighted Section 3.3 in the TR, which requires non-core damage event releases to be evaluated, and stated any beyond-design-basis events that are non-core damage events and outside the PRA are considered other risks and are evaluated consistent with Section 3.5 of the TR.

The staff noted no non-core damage events that could have potential releases are specified in the TR and NRR is working with Research and NSIR to evaluate this response.

NuScale stated Section 3.5 does not specifically use the term non-core damage events, it highlights that such risks outside those evaluated in previous sections can exist for the design and should be evaluated. NuScale proposed some criteria for evaluating other risks in the TR and provided specific examples of spent fuel accidents and severe accident phenomena, but they are not limiting the section to only those two risks.

NuScale stated they would revise Section 3.5 to include clarifying wording.

At the conclusion of the discussion, there was an opportunity for the public to provide comments and ask questions.

Edwin Lyman of Union of Concerned Scientists expressed his disappointment with NuScale's presentation and commented that the NRC staff raised very good questions and needs good answers, because what NuScale is proposing is an invitation to chaos.

Sarah Fields of Uranium Watch had a few comments on the design that does not have operational history and agreed with Mr. Lyman's comments, expressing the concern with how the reductions in EPZ for SMRs play out in reality, such as eliminating FEMA's involvement, placing sirens in the community, etc. Ms. Fields concluded the NRC has to consider the risks associated with reducing the EPZ.

Chip Perkins mentioned he lived many years in the EPZ of nuclear power plants and commented: NuScale is providing great leadership in providing a next generation design that has even a greater DID than existing nuclear reactors; we have never needed to use EPZ to protect the public in the United States and there is no need to spend public's money to extend the EPZ beyond the site boundary; and NuScale is giving a sound base for that. Mr. Perkins understands some people are afraid and encouraged the staff to have an objective view of the facts and of what we really need.

Sola Talabi of Pittsburgh Technical, referring to the RAI question addressing uncertainty, commented that the question addressed the need of using more advanced methods than 40 years ago and there is a lot of built-in conservatism already, and NuScale's approach is conservative. Mr. Talabi indicated sirens were used 40 years ago, however nowadays people rely on cell phones.

AGENDA FOR PUBLIC MEETING
U.S. NUCLEAR REGULATORY COMMISSION (NRC)
OBSERVATION PUBLIC TELECONFERENCE WITH NUSCALE POWER, LLC (NUSCALE)
ON NUSCALE'S TOPICAL REPORT TR-0915-17772, REVISION 2

June 15, 2021
2:00 p.m. – 4:00 p.m. EST

<u>OPEN</u>		
<u>Time</u>	<u>Topic</u>	<u>Led By</u>
2:00 p.m. EST	Opening Remarks	NRC
2:10 pm. EST	Discussion of Identified Topics	NRC/NuScale
	Opportunity for Public Comment	NRC/Public
	Open Portion Concludes	
<u>CLOSED</u>	(If needed)	NRC/NuScale
4:00 p.m. EST	Adjourn	

PUBLIC MEETING
U.S. NUCLEAR REGULATORY COMMISSION (NRC)
OBSERVATION PUBLIC TELECONFERENCE WITH NUSCALE POWER, LLC (NUSCALE)
ON NUSCALE'S TOPICAL REPORT TR-0915-17772, REVISION 2

June 15, 2021
List of Attendees

Name	Organization
Getachew Tesfaye	NRC
Robert Caldwell	
Michael Dudek	
Mike Franovich	
Marie Pohida	
Alissa Neuhausen	
Stacey Rosenberg	
Elijah Dickson	
Mike Snodderly	
Alina Schiller	
Prosanta Chowdhury	
Carlos Navarro Alicea	
Kaylee Cunningham	
Nazila Tehrani	
Alfred Hathaway	
Shakur Walker	
Luis Betancourt	
Jennifer Whitman	
Sunwoo Park	
Steven Alferink	
Carrie Fosaaen	NuScale
Tom Bergman	
Liz English	
Gary Becker	
Deb Luchsinger	
Steve Mirsky	
Andy Lingenfelter	
Jeremiah Doyle	
Sarah Bristol	
Scott Weber	

Name	Organization
Mark Chitty	NuScale
Stephanie Terwilliger	
Ross Snuggerud	
Bill Galyean	
Robert Gamble	
Andy Lingenfelter	
Cindy Williams	
Cyrus Afshar	
Sarah Fields	Uranium Watch
David Daigle	Contingency Management Consulting Group, LLC
Edwin Lyman	Union of Concerned Scientists
Sola Talabi	Pittsburgh Technical
Leigh Ford	Snake River Alliance Idaho
Adam Stein	Xcel Energy
Chip Perkins	Semi-retired nuclear engineer

Note: All participated via teleconference.