



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

August 31, 2018

MEMORANDUM TO: Samuel S. Lee, Chief
Licensing Branch 1
Division of Licensing, Siting,
and Environmental Analysis
Office of New Reactors

FROM: Getachew Tesfaye, Senior Project Manager /RA/
Licensing Branch 1
Division of Licensing, Siting,
and Environmental Analysis
Office of New Reactors

SUBJECT: SUMMARY OF THE AUGUST 9, 2018, CATEGORY 1 PUBLIC
TELECONFERENCE TO DISCUSS ACCIDENT SOURCE TERM
METHODOLOGY ASSOCIATED WITH THE NUSCALE POWER,
LLC DESIGN CERTIFICATION APPLICATION

The U.S. Nuclear Regulatory Commission (NRC) held a Category 1 public meeting on August 9, 2018, to discuss the NuScale Power, LLC (NuScale) accident source term methodology associated with its design certification application. This teleconference was a follow-up to the June 7, 2017 and June 27, 2018, meetings on the same subject. Participants included personnel from NuScale and members of the general public that participated in-person and via bridgeline.

The public meeting notice dated August 9, 2018, can be found in the NRC's Agencywide Documents Access and Management Systems under Accession No. ML18220B439. This meeting notice was also posted on the NRC public Website.

Enclosed is the meeting agenda (Enclosure 1), list of participants (Enclosure 2), and overview (Enclosure 3).

Docket No. 52-048

Enclosures:

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

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

CONTACT: Getachew Tesfaye, NRO/DLSE
301-415-8013

SUBJECT: SUMMARY OF THE AUGUST 9, 2018, CATEGORY 1 PUBLIC MEETING TO
 DISCUSS ACCIDENT SOURCE TERM METHODOLOGY ASSOCIATED WITH
 THE NUSCALE POWER, LLC DESIGN CERTIFICATION APPLICATION
 DATED: AUGUST 31, 2018

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ADAMS Accession No.: ML18240A210**NRO-002**

*concurrent via email

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NAME	GTesfaye(c)	MMoore	MHart*	HPhan*	GTesfaye (s)
DATE	8/27/2018	8/28/2018	8/28/2018	8/29 /2018	8/31/2018

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U.S. NUCLEAR REGULATORY COMMISSION
CATEGORY 1 PUBLIC MEETING TO DISCUSS ACCIDENT SOURCE TERM
METHODOLOGY ASSOCIATED WITH THE NUSCALE POWER, LLC DESIGN
CERTIFICATION APPLICATION

MEETING AGENDA

August 9, 2018

11:00 – 11:15 AM

Introductions and Identification of topics

11:15 – 12:20 PM

Discussion of Accident Source Term Methodology

12:20 – 12:30 PM

Public Comments/Questions

12:30

Meeting Closure

**U.S. NUCLEAR REGULATORY COMMISSION CATEGORY 1 PUBLIC MEETING TO
DISCUSS ACCIDENT SOURCE TERM METHODOLOGY ASSOCIATED WITH THE
NUSCALE POWER, LLC DESIGN CERTIFICATION APPLICATION**

LIST OF ATTENDEES

August 9, 2018

Name	Organization
Getachew Tesfaye	U.S. Nuclear Regulatory Commission (NRC)
Jason Schaperow	NRC
Hanh Phan	NRC
Michelle Hart	NRC
John Monninger	NRC
Shawn Campbell	NRC
James Corson	NRC
Michael Salay	NRC
Edward Stutzcage	NRC
Ronald LaVera	NRC
Robert Taylor	NRC
Joseph Anderson	NRC
Kenneth Thomas	NRC
Anne-Marie Grady	NRC
Kevin Coyne	NRC
Marie Pohida	NRC
Prosanta Chowdhury	NRC
Samuel Lee	NRC
Dan Barss	NRC
Amanda Marshall	NRC
Zackary Rad	NuScale Power, LLC (NuScale)
Paul Infanger	NuScale
Gary Becker	NuScale
Cindy Williams	NuScale
Paul Guinn	NuScale
Jennie Wike	NuScale
Mark Shaver	NuScale
Scott Weber	NuScale
Patrick Conley	NuScale
Sarah Bristol	NuScale
Russell Goff	NuScale
Robert Gamble	NuScale
Tom Bergman	NuScale
Bill Galyean	NuScale
Dan Stout	Member of the public
Kati Austgen	Member of the public
Mark Holbrick	Member of the public
Wayne Moe	Member of the public

U.S. NUCLEAR REGULATORY COMMISSION

OVERVIEW OF THE AUGUST 9, 2018, PUBLIC MEETING TO DISCUSS ACCIDENT

SOURCE TERM METHODOLOGY ASSOCIATED WITH THE NUSCALE POWER, LLC

DESIGN CERTIFICATION APPLICATION

The purpose of this meeting was for the U.S. Nuclear Regulatory Commission (NRC) staff to continue the dialogue on NuScale Power, LLC's (NuScale) planned changes to the methodology for accident source term (AST) that was previously discussed in public meetings on June 7, 2018 (Agencywide Documents Management and Access System (ADAMS) Accession No. ML18173A260) and June 27, 2018 (ADAMS Accession No. ML18206A933).

NuScale gave a PowerPoint presentation (ADAMS Accession No. ML18222A193) that outlined additional options to address maximum hypothetical accident (MHA) to resolve post-accident sampling (PAS) and environmental qualification (EQ) issues. NuScale stated that the original overly conservative deterministic AST Methodology assumed significant core damage that was used as the design basis for PAS doses and EQ of in-containment instruments that required possible design changes without identifiable safety benefit. The NRC staff provided its initial observation during the meeting.

- A. To address the PAS and EQ issues, NuScale presented two categories of options and variations within each group:
- Group 1 options: Evaluation of design basis accidents, defense in depth, and risk insights to determine MHA source term:
 - Option 1A: Use iodine spike as MHA source term if Chapter 15 design basis accidents do not result in fuel failure, design incorporates defense in depth, and Chapter 19 confirms likelihood of severe accidents is very small. Otherwise, use core damage MHA source term.
 - Option 1B: Utilize both deterministic analysis and risk insights as proposed in "Accident Source Terms Regulatory Framework White Paper" (ADAMS Accession No. ML18136A850)
 - Group 2 options: Limit application of core damage MHA in the design basis
 - Option 2A: Analyze core damage MHA for offsite dose consequence purposes only.
 - Option 2B: Exclude core damage MHA from design basis of PAS and EQ.
 - Option 2C: Revise Post Accident Monitoring (PAM) and PAS capabilities under core damage MHA.

NuScale stated that under all options doses to public are shown acceptable for spectrum of postulated events, emergency preparedness remains last layer of defense in depth, and no significant differences in design.

B. The NRC staff made some observations during the meeting and NuScale provided clarification and took actions to provide additional clarifications for some of the observations. The following are summaries of the pertinent points discussed:

- The NRC staff asked what the driving force was for the challenge with core damage MHA. NuScale explained that unlike conventional light water reactors with large containments and large compartments, the containment and the area under the bioshield for the NuScale power module are substantially small. As a result, the inventory after a core melt does not disperse over a large volume resulting in a significantly higher dose for EQ. Instrument vendors and EQ experts have informed NuScale that instruments will have to be redesigned to meet the EQ requirements. NuScale does not see any benefit for such costly modification given the unlikely scenario these instruments are currently evaluated. Regarding PAS, NuScale stated that in order to meet the regulation, shielding would have to be provided. They rely on isolation and the rad monitors under the bioshield for monitoring. If they have to take sampling, they will have to unisolate which will result in a situation that is less safe by creating pathway for radiation to escape.
- The NRC staff asked if NuScale has looked into EQ for electrical penetration and if there are challenges in meeting the requirements. NuScale responded that they are not aware of any issues with the penetrations not meeting EQ requirements and took action to look into the matter closely.
- The NRC staff cautioned on the use of DC/COL-ISG-028 guidance for other than DC and combined license (COL) applications citing a statement from the guidance which states that the staff's positions presented in DC/COL-ISG-28 should not be relied on to address other types of applications. For other applications that use probabilistic risk assessment (PRA) results and insights, the PRA acceptability should be measured on a case-by-case basis.
- The NRC staff asked if NuScale intends to provide both core melt MHA and iodine spike MHA for Options 1A and 1B in the topical report. NuScale responded that both MHAs will be provided in the topical report as viable methods, but for a specific application, only one will be used. The design certification application (DCA) final safety analysis report will only have one MHA and COL applicants who intend to use the option that is not in the DCA will have to take a departure.
- The NRC staff asked if Option 2C will be extended to other equipment other than instrumentation such as electrical penetration. NuScale stated that they have not vetted the scope of this option fully and took action to address the staff's question.

C. Next step:

The NRC staff and NuScale agreed to continue the dialogue to reach alignment on a pathforward before the topical report revision is submitted. It was agreed to hold the next meeting the week of August 27, 2018.