



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

October 24, 2019

MEMORANDUM TO: Michael I. Dudek, Chief
New Reactor Licensing Branch
Division of New and Renewed Licenses
Office of Reactor Licensing Regulation

FROM: Cayetano Santos Jr., Project Manager */RA/*
New Reactor Licensing Branch
Division of New and Renewed Licenses
Office of Reactor Licensing Regulation

SUBJECT: SUMMARY OF THE SEPTEMBER 24, 2019, PUBLIC
TELECONFERENCE REGARDING THE INITIAL TEST
PROGRAM IN NUSCALE POWER, LLC'S DESIGN
CERTIFICATION APPLICATION

On September 24, 2019, a Category 1 public teleconference was held between the U.S. Nuclear Regulatory Commission (NRC) staff and NuScale Power, LLC (NuScale). The purpose of the meeting was to discuss Emergency Core Cooling System Test #47 as described in the initial test program of NuScale's design certification application. The meeting notice was posted on the NRC Web site and is also in the NRC's Agencywide Documents Access and Management System under Accession No. ML19217A113. The meeting summary is provided as Enclosure 1 which captures the summary of topics discussed. The meeting agenda and list of attendees are provided as Enclosures 2 and 3, respectively.

Docket No. 52-048

Enclosures:
As stated

cc w/encl: DC NuScale Power, LLC Listserv

CONTACT: Cayetano Santos Jr., NRR/DNRL
301-415-7270

SUBJECT: SUMMARY OF THE SEPTEMBER 24, 2019, PUBLIC TELECONFERENCE
REGARDING THE INITIAL TEST PROGRAM IN NUSCALE POWER, LLC'S
DESIGN CERTIFICATION APPLICATION
DATED: OCTOBER 24, 2019

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OFFICE	DNRL/NRLB:PM	DNRL/NRLB:LA	DNRL/NRLB:PM
NAME	*CSantos	*SGreen	*CSantos
DATE	10/24/2019	10/24/2019	10/24/2019

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PUBLIC TELECONFERENCE REGARDING
EMERGENCY CORE COOLING SYSTEM TEST #47
IN NUSCALE'S INITIAL TEST PROGRAM

MEETING SUMMARY

September 24, 2019

On October 3, 2019, the NRC issued Request for Additional Information (RAI) 9719 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19276D281) to NuScale Power, LLC (NuScale) regarding Emergency Core Cooling System (ECCS) Test #47 as proposed in the Initial Test Program.

NuScale noted that the regulatory basis for RAI 9719 includes General Design Criterion (GDC) 37, "Testing of Emergency Core Cooling System," and asked if this GDC is applicable to the as-built ECCS system. The staff responded that GDC 37 does apply, and tests similar to that requested in RAI 9719 have been included in other designs such as the AP1000.

NuScale asked how the performance of a preoperational test requested in RAI 9719 is consistent with a finding that the requirements of Title 10 *Code of Federal Regulations* (10 CFR) 50.43, "Additional Standards and Provisions Affecting Class 103 Licenses and Certifications for Commercial Power," have been met at the design certification stage. The staff stated that the RAI is requesting a test to demonstrate the acceptable performance of the as-built ECCS because it is a first-of-a-kind system and can be impacted by factors such as variations in as-built parameters and uncertainties in complex thermal-hydraulic phenomena. The 10 CFR 50.43 finding is focused on testing at the component level whereas GDC 37 is focused on an integrated test of the whole system. NuScale asked what thermal-hydraulic phenomena were of concern to the staff. The staff responded that there were no specific phenomena of concern but just identified this as an example of a factor that could impact the as-built performance of the system. NuScale stated that they did not agree that the test of the ECCS is a first-of-a-kind system test.

NuScale stated that the proposed hot functional test is not under design basis conditions so only limited circulation flows could be established. The staff asked if NuScale's analytical tools could be used to predict these flows to establish test acceptance criteria. NuScale responded that establishing acceptance criteria for this test is not straightforward because of conservative assumptions and other biases in the analyses. NuScale also stated that these tests could be performed but does not agree with the staff that the tests are needed.

The staff asked what value is added by the three acceptance criteria listed for ECCS Test #47:

1. Reactor pressure vessel (RPV) riser level remains above the top of the core
2. Containment vessel (CNV) pressure remains below design pressure
3. CNV temperature remains below design temperature

NuScale responded that no value is added in acceptance criteria #2 and #3, and it plans to delete these two criteria. NuScale added that criterion #1 is the only meaningful acceptance criterion because it is a fundamental feature of the NuScale design. The staff stated that it was unclear how acceptance criteria #1 is appropriate given that no fuel would be in the vessel when the test is performed.

NuScale commented that the test requested by the NRC staff would essentially validate the codes used in the safety analyses. The staff responded that the purpose of the test is not to validate these codes but to confirm that the as-built plant has been constructed as designed. The staff noted that for the AP1000, tests similar to what is requested in RAI 9719 were included as preoperational tests and the acceptance criteria were based on test conditions and not design basis conditions.

NuScale asked if the functional acceptance criteria could be that heat is removed from the system. The staff responded that it is looking for a test to demonstrate that the system performs as expected. NuScale asked if the test requested in RAI 9719 had to be done in-situ. The staff responded that it is looking for an integrated functional test.

NuScale agreed to consider the staff's comments and will need to have further internal discussions before responding to RAI 9719. The staff stated that additional discussions with appropriate management involvement could be arranged, if needed.

There was an opportunity for public comments:

- Sarah Fields commented that RAI 9719, its response, and today's meeting summary should be placed in ADAMS. Ms. Fields also stated that as the regulators the NRC should ask necessary questions and ensure that appropriate tests are performed.
- Marvin Lewis commented that an appropriate amount of testing, regardless of cost, should be done before a plant begins operation to ensure accidents do not occur.

MEETING AGENDA

September 24, 2019

1:30 p.m. – 3:30 p.m.

The purpose of this teleconference was for the U.S. Nuclear Regulatory Commission (NRC) staff to discuss Emergency Core Cooling System Test #47 as described in the initial test program.

<u>Time</u>	<u>Topic</u>	<u>Speaker</u>
1:30 p.m. – 1:35 p.m.	Introductions	All
1:35 p.m. – 3:15 p.m.	Discussion of RAI 9719 and ECCS Test #47 in the ITP	NRC/NuScale
3:15 p.m. – 3:30 p.m.	Public Comments	Public
3:30 p.m.	Adjourn	All

LIST OF ATTENDEES

September 24, 2019

1:30 p.m. – 3:30 p.m.

<u>Name</u>	<u>Organization</u>
Cayetano Santos	U.S. Nuclear Regulatory Commission (NRC)
Kerri Kavanagh	NRC
Kevin Coyne	NRC
Taylor Lamb	NRC
Ryan Nolan	NRC
Rebecca Karas	NRC
Timothy Drzewiecki	NRC
Jeffrey Schmidt	NRC
Nadja Joergensen	NuScale Power, LLC (NuScale)
Chris Maxwell	NuScale
Gary Becker	NuScale
Meghan McCloskey	NuScale
Jim Osborn	NuScale
Dustin Greenwood	NuScale
Mike Melton	NuScale
Chris Nighbert	NuScale
Sarah Fields	Member of the Public
Marvin Lewis	Member of the Public