

January 18, 2018

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 THE DECEMBER 19, 2017, PUBLIC MEETING  
WITH NUSCALE POWER, LLC, TO DISCUSS THE U.S.  
NUCLEAR REGULATORY COMMISSION STAFF QUESTIONS  
RELATED TO THE INITIAL TEST PROGRAM FOR THE ENABLE  
NONSAFETY CONTROL SWITCH AND VARIOUS  
PROTECTION SYSTEM TESTS

On December 19, 2017, representatives of the U.S. Nuclear Regulatory Commission (NRC) and NuScale Power, LLC (NuScale) held a public teleconference meeting to discuss the NRC staff's questions related to the Initial Test Program for the Enable Nonsafety Control Switch and various protection system tests, as they relate to the Chapter 7, "Instrumentation and Controls," of the NuScale Design Certification Application (DCA). A complete copy of NuScale's DCA is available on the NRC public Web page at <https://www.nrc.gov/reactors/new-reactors/design-cert/nuscale/documents.html>.

Enclosure 1 captures the summary of the topics discussed during the teleconference. The agenda and list of meeting attendees are included in Enclosures 2 and 3, respectively. The meeting notice for this meeting is available in Agencywide Documents Access and Management System under Accession No. ML17292B031.

Docket No. 52-048

Enclosures:

1. Meeting Summary
2. Agenda
3. Attendee

CONTACT: Omid Tabatabai, NRO/DNRL  
301-415-6616

SUBJECT: SUMMARY OF THE DECEMBER 19, 2017, PUBLIC MEETING WITH NUSCALE POWER, LLC, TO DISCUSS THE U.S. NUCLEAR REGULATORY COMMISSION STAFF QUESTIONS RELATED TO THE INITIAL TEST PROGRAM FOR THE ENABLE NONSAFETY CONTROL SWITCH AND VARIOUS PROTECTION SYSTEM TESTS DATED:

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DATE	1/11/2018	1/17/2018	1/17/2018	1/18/2018	1/18/2018

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**U.S. NUCLEAR REGULATORY COMMISSION**  
**SUMMARY OF THE DECEMBER 19, 2017, TELECONFERENCE**  
**WITH NUSCALE POWER, LLC**

1. System Level Test No. 63-3

The U.S. Nuclear Regulatory Commission (NRC) staff discussed NuScale's Power, LLC (NuScale) Initial Test Program (ITP). Specifically, the NRC staff discussed Table 14.2-63, "Module Protection System Test," No. 63-3. This test verifies interlock and permissive functions. During the public meeting, the NRC staff asked the applicant to provide an explanation as to why the F-1 interlock is not included in Design Control Document (DCD), Part 2 – Tier 1. The applicant stated that a change had been processed and communicated to the NRC staff for DCD, Part 2 – Tier 1, Table 2.5-2, which now includes the F-1 interlock. The applicant agreed to provide the reference of this change to the NRC staff.

2. System Level Test No. 63-4

The NRC staff discussed Table 14.2-63, No. 63-4. This test method states that all combinations of the two-out-of-four logic are tested for each reactor trip and engineered safety features (ESF) actuation. During the public meeting, the NRC staff asked whether all combinations of logic included logic combinations of the permissive signal being in and out. The applicant stated that the logic combinations including the permissive were not included and will be tested during the site acceptance testing (SAT). Completion of SAT by the combined license holder is encompassed in inspections, tests, analyses, and acceptance criteria (ITAAC) 2.5.2 (DCD, Part 2 – Tier 1, Section 2.5, Table 2.5-7, Item No. 1). The NRC staff determined that further discussion is needed on whether a prerequisite is required for the preoperational test that depends upon the completion of SAT activities.

3. System Level Test No. 63-6

The NRC staff discussed Table 14.2-63, No. 63-6. This test verifies manual and automatic actuation of the ESF equipment. During the public meeting, the NRC staff asked the applicant to provide an explanation on how all functionality of the enable nonsafety switch is being tested. The applicant proposed to revise Test No. 63-6 to add a step after item (ii).b. to attempt to operate the ESF equipment from the main control room (MCR), thus testing that control from the MCR via the Module Control System cannot be completed unless the enable nonsafety control switch is used. The applicant agreed to provide a markup to System Level Test No. 63-6 by January 2018 that describes this clarification. Additionally, the applicant stated that the rest of the MPS-related MCR control functions will be tested during SAT.

4. System Level Test No. 63-7

The NRC staff discussed Table 14.2-63: No. 63-7. This test verifies stroke time of containment isolation valves (CIVs). Test Method refers to Table 6.2-10, however the NRC staff was not able to find Table 6.2-10 in the NuScale design certification application. Table 6.2-4, "Containment Penetrations," list stroke times for CIVs, but does not appear to include all CIVs. During the public meeting, the NRC staff asked the applicant what the correct reference for the CIV stroke times should be. The applicant stated that the correct table is DCD Tier 2,

Table 6.2-5, "Containment Isolation Valve Design Information." The applicant agreed to provide a markup to System Level Test No. 63-7 by January 2018 that describes this clarification.

#### 5. System Level Test No. 63-8

The NRC staff discussed Table 14.2-63, No. 63-8. This test verifies response times for ESF and reactor trip functions. Response time from signal generation to component actuation is broken up into two tests. Test No. 63-7 tests the stroke time of the CIVs, while Test No. 63-8 test the de-energization of the solenoid valves. DCD Tier 2, Table 7.1-6, "Design Basis Event Actuation Delays Assumed in the Plant Safety Analysis," list the actuation delays times. It is unclear to the NRC staff on how the applicant is testing the response time from signal generation to component actuation. During the public meeting, the NRC staff asked the applicant where the verification of the complete system response time was completed. The applicant is to provide a response at a later date.

#### 6. System Level Test No. 63-9

The NRC staff discussed Table 14.2-63, No. 63-9. This test verifies controls in place for tunable parameters. The NRC staff discussed the following three topics with the applicant:

- a) Test does not define which parameters can be modified.
- b) Test does not verify indication in control room for when the maintenance work station communication is enabled.
- c) Test does not include controls in place regarding calibration of the module protection system.

During the public meeting, the applicant committed to provide the NRC staff with a discussion on how tunable parameters are defined and whether Test No. 63-9 includes the correct reference for actions required for an operator to modify tunable parameters.

#### 7. Plant Protection System Test No. 64

The NRC staff discussed Table 14.2-64, "Plant Protection System (PPS) Test No. 64." This test verifies functionality of the PPS for control room habitability system. DCD Tier 2, Chapter 7 does not describe functions of the PPS. During the public meeting, the NRC staff asked the applicant to provide a reference to where the PPS functions are described. The applicant stated that the PPS functions are described in DCD Tier 2, Section 9.4, "Air Conditioning, Heating, Cooling, and Ventilation System," but would verify upon receipt of NRC's question via email.

**U.S. NUCLEAR REGULATORY COMMISSION**  
**SUMMARY OF THE DECEMBER 19, 2017, TELECONFERENCE**  
**WITH NUSCALE POWER, LLC**

MEETING AGENDA

1:00-1:10 p.m.	Meeting Introductions
1:10-1:20 p.m.	Discussion of Initial Test Program for the Enable Nonsafety Control Switch
1:20-1:50 p.m.	Discussion of Various Module Protection System Tests
1:50-2:00 p.m.	Meeting Conclusion

**U.S. NUCLEAR REGULATORY COMMISSION**  
**SUMMARY OF THE DECEMBER 19, 2017, TELECONFERENCE**  
**WITH NUSCALE POWER, LLC**

LIST OF ATTENDEES

**NuScale**

Carl Dumsday  
Steve Pope  
Steve Mirsky  
Scott Patterson  
Rufino Ayala  
Chris Maxwell

**NRC Staff**

Luis Betancourt  
Dinesh Taneja  
Joseph Ashcraft  
Ashley Ferguson  
Aaron Armstrong  
Taylor Lamb