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

August 23, 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 JULY 26, 2018, CATEGORY 1 PUBLIC TELECONFERENCE TO DISCUSS NUSCALE POWER, LLC RESPONSES TO REQUESTS FOR ADDITIONAL INFORMATION ASSOCIATED WITH THE NUSCALE DESIGN CERTIFICATION APPLICATION

The U.S. Nuclear Regulatory Commission (NRC) held a Category 1 public teleconference on July 26, 2018, to discuss responses to the NRC staff requests for additional information associated with the NuScale Power, LLC (NuScale) design certification application. Participants included personnel from NuScale and a member of the general public.

The public meeting notice dated July 26, 2018, can be found in the NRC's Agencywide Documents Access and Management Systems under Accession No. ML18213A035. This meeting notice was also posted on the NRC public Web site.

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

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DATED: August 23, 2018

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OFFICE	DLSE/LB1:PM	DLSE /LB1:LA	DLSE/RPAC	DNRL/LB1:PM
NAME	GTesfaye	SGreen	EStutzcage*	GTesfaye (signed)
DATE	8/02/2018	8/22/2018	8/10/2018	8/23/2018

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U.S. NUCLEAR REGULATORY COMMISSION

CATEGORY 1 PUBLIC TELECONFERENCE TO DISCUSS NUSCALE POWER, LLC RESPONSES TO REQUESTS FOR ADDITIONAL INFORMATION ASSOCIATED WITH THE NUSCALE DESIGN CERTIFICATION APPLICATION

MEETING AGENDA

July 26, 2018

1:00 – 1:15 PM

Introductions and Identification of topics

1:15 – 2:30 PM

Discussion of U.S. Nuclear Regulatory Commission Staff's Questions regarding NuScale Power, LLC's Responses to Requests Additional Information (RAI) 9303 and 9294.

2:30 – 2:45 PM

Public Comments/Questions

2:45 – 3:30 PM

Discussion of NuScale Power LLC's Responses to RAI 9270 (Closed meeting)

3:30

Meeting Closure

U.S. NUCLEAR REGULATORY COMMISSION

CATEGORY 1 PUBLIC TELECONFERENCE TO DISCUSS NUSCALE POWER, LLC RESPONSES TO REQUESTS FOR ADDITIONAL INFORMATION ASSOCIATED WITH THE NUSCALE DESIGN CERTIFICATION APPLICATION

LIST OF ATTENDEES

July 26, 2018

Name	Organization
Getachew Tesfaye	U.S. Nuclear Regulatory Commission (NRC)
Ronald LaVera	NRC
Zachary Gran	NRC
Michael Dudek	NRC
Edward Stutzcage	NRC
Carrie Fosaaen	NuScale Power, LLC (NuScale)
Chris Maxwell	NuScale
Edan Engstrom	NuScale
Jon Bristol	NuScale
Scott Harris	NuScale
Mark Shaver	NuScale
Elizabeth English	NuScale
Jim Osborn	NuScale
Sara Fields	Member of the public

U.S. NUCLEAR REGULATORY COMMISSION

OVERVIEW OF THE JULY 26, 2018, TELECONFERENCE TO DISCUSS THE NUSCALE POWER, LLC RESPONSES TO REQUESTS FOR ADDITIONAL INFORMATION ASSOCIATED WITH THE NUSCALE DESIGN CERTIFICATION APPLICATION

The purpose of this teleconference was to discuss the results of the U.S. Nuclear Regulatory Commission (NRC) staff's review of NuScale Power, LLC's (NuScale) Responses to Requests for Additional Information (RAI) 9303, 9294, and 9270.

The following is the summary of the NRC staff's feedback and agreed upon next steps for the resolution of the remaining issues.

1. RAI 9303, Question 12.03-52:

    a. NRC Feedback: In the response to RAI 9303, Question 12.03-52, NuScale indicates that an Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) verifying that the NuScale radioactive waste systems are designed and constructed in accordance with Regulatory Guide (RG) 1.143, is unnecessary because:

        - The NuScale radioactive waste systems do not have any safety-related or risk-significant functions.

        - The NuScale radioactive waste systems do not support the safety or risk-significant functions of another system.

        - The radioactive waste systems do not contain top-level design features, as described in Final Safety Analysis Report (FSAR) Section 14.3.2.1.1, for shielding that protects the health and safety of workers.

        - The health and safety of the public is protected by ITAAC that ensure high radiation will be contained within the Radioactive Waste Building (RWB). The related ITAAC verifies the following top-level design features:

            - High radiation liquid in the liquid radioactive waste system (LRWS) is automatically isolated from the environment by containing the liquid in the LRWS.

            - High radiation gas in the gaseous radioactive waste system (GRWS) is automatically isolated from the environment by containing the gas in the GRWS.

            - High radiation gas in the RWB is contained and precluded from leakage to the outside environment by keeping the RWB pressure negative relative to the outside environment.

- The as-built RW-IIa RWB maintains its structural integrity under the design basis loads.

The NRC staff has reviewed NuScale's response and has determined that even though the radwaste systems are nonsafety-related, they process and contain radioactive waste generated from all NuScale units in the plant and contain some of the most radioactive components in the plant outside of the containment (other than spent fuel). In addition, the ITAAC ensuring that the LRWS and GRWS isolates does not provide any assurance that the systems are designed and constructed to the design criteria in RG 1.143 and does not ensure that releases will not occur due to potential failures of the equipment. In addition, the staff notes that the proposed draft standardized ITAAC sent to NuScale (see Agencywide Documents Access and Management Systems Accession Nos. ML16096A132 for letter and ML16097A123 for the draft standard ITAAC tables), contains ITAAC "R07," which is an ITAAC to verify that the systems are designed and constructed in accordance with the RG 1.143 criteria. As such, the staff reiterated its position that an ITAAC ensuring that the radwaste systems are designed and constructed in accordance with RG 1.143. The NRC staff requested that NuScale to re-evaluate its response to RAI 9303, Question 12.03-52 in order to minimize the potential releases to the public and the environment and to minimize exposure to workers.

b. Next Step: NuScale understood the NRC staff's question and disagreed with the staff regarding the need for ITAAC. NuScale stated that the structure is designed in accordance with the RG 1.143 design criteria and the commitment to the RG is clearly spelled out in the FSAR. They further stated that there are several mechanisms other than ITAAC that the commitment can be verified during construction including NRC's construction inspection program and the licensee's quality assurance program. NuScale's position is based on the nonsafety-related radwaste system structure not meeting the Tier 1/ITAAC First Principle (Nuclear Energy Institute (NEI) 15-02) to require an ITTAC. The staff informed NuScale that NRC has not endorsed the NEI First Principle. The NRC staff will further discuss NuScale's position internally and will interact with NuScale if needed.

2. RAI 9294, Question 12.03-23:

   a. NRC Staff Feedback:

      1. In the response to Question 12.03-23, the applicant indicates that the LRWS processing skids are vendor packages that will incorporate integral shielding, as required by equipment specification. Because these processing skid designs are not finalized, and equipment specifications are not yet written, the RWB shielding analysis modeled additional shielding. Specifically, the shielding analysis for the RWB utilizes an additional one-inch thick plate of steel covering the LRWS ion exchange and charcoal bed cubical, and an additional two-inch thick plate of steel covering the drum dryer skid cubicals. However, the applicant did not provide any Interface Requirements, as described in SRP Section 14.3 and as required by 10 CFR 52.47(a)(25), and would need to address 10 CFR 52.47(a)(26) for any interface requirements developed. Therefore, the staff requested NuScale to update the response to

provide interface requirements for shielding that was not included as part of the design control document (DCD).

As an alternative, the staff requested that NuScale revise the responses to Questions 12.3-23 and 12.03-27, in all of the notes to Tier 2, Table 12.3-7 and Tier 1, Table 3.12-1, replace the words “credited” with “provided.” For example, Note 2 in Table 3.12-1 would state, “An additional one inch of steel on top of the low-conductivity waste demineralizers and granulated activated charcoal processing skid inside the liquid radioactive waste mobile processing area is provided.” This would ensure that the shielding is provided when the plant is built, instead of the shielding just being credited in the calculations, and would negate the need for an interface requirement.

2. For clarification, Table 12.3-6 shows the notes being added on FSAR pages 12.3-34 and 12.3-40. In the next DCD revision, please specify whether the notes will be added to the heading row on all pages and not just pages 12.3-34 and 12.3-40?

b. Next Step:

Item 1 - NuScale agreed to submit a supplemental responses to Questions 12.3-23 and 12.03-27, by replacing the words “credited” with “provided” in the notes for Tier 2, Table 12.3-7 and Tier 1, Table 3.12-1.

Item 2 - NuScale confirmed that the notes are added to the heading row on all pages and not just pages 12.3-34 and 12.3-40 that will be submitted in the next DCD revision.

3. RAI 9294, Question 12.03-25:

a. NRC Staff Feedback: In the response to Question 12.03-25, the applicant provided information on removable shielding used in the plant. However, there does not appear to be any information in the DCD regarding the radiation attenuation capabilities of the removable shielding, such as the ability to provide adequate attenuation to maintain the radiation zones specified.

The NRC staff asks NuScale to update the response and DCD, as appropriate to provide this information. Also, ensure that the response addresses the attenuation capabilities of the floor shield plugs for the high integrity container (HIC) Storage Room and HIC Filling Room, which are not identified in Chapter 12 (but are instead discussed in Chapter 11).

b. Next Step: NuScale understood the NRC staff’s question and agreed to submit supplemetal response with FSAR markup to address the concerns.

4. RAI 9294, Question 12.03-26:

a. NRC Staff Feedback:

1. In the response to Question 12.03-26, the applicant indicates that the FSAR Chapter 12 shielding evaluation for the revised bioshield design will be incorporated into Revision 2 of the FSAR in 2018. However, the response

provides no proposed DCD markups showing the proposed changes. NuScale is requested to supplement the response to provide the proposed DCD changes so that the staff can evaluate the changes and close the RAI. Having this information will facilitate the staff's ability to review the changes and facilitate closing this item. Otherwise, this item will remain open and in evaluation until after the changes can be evaluated in Revision 2.

2. As discussed in the response to Question 12.03-26, NuScale proposed to remove, the polyethylene is being removed from the bioshield design. However, DCD Section 12.3.2.2 states, "In addition to concrete, other types of materials such as steel, water, tungsten, and polymer composites are considered for both permanent and temporary shielding." The staff requests additional information regarding any additional shielding material using polyethylene? If not, "polymer composites" should be removed from DCD Section 12.3.2.2. If there are additional polymer composites being used, please describe where they are being used and how they are being protected from environmental conditions. Please update the response as appropriate.

3. In the response to Question 12.03-26, the applicant specifies that certain design details and materials related to shielding have not been finalized, therefore, the COL applicant will be responsible for providing information on the testing and inspection of potentially degradable shielding materials, for those areas. However, it is unclear from reviewing the response if there are any shielding materials within the scope of the DCD that could be subject to degradation due to environmental conditions. Please specify if there is any shielding being used within the scope of the DCD that could degrade due to environmental conditions? If so, the response should be updated to provide this information.

4. The response to Question 12.03-26 specifies that the radiation shielding design details and materials related to items, such as shield wall penetration shielding, have not been finalized. It also specifies that as the details of the design, testing, and inspection of potentially degradable shielding materials will be the responsibility of the COL applicant. The staff requests additional information on how information will be conveyed to the COL applicant regarding which shields and materials the COL applicant will have to ensure will not degrade due to environmental conditions. NuScale is requested to update the response to include this information.

b. Next Step:

Item 1 - NuScale acknowledged that a supplemental response with the missing FSAR markup is needed for the staff to complete its evaluation. However, they were unable to commit if that change would be included in the Revision 2 of the FSAR. The staff informed NuScale that this item will be tracked as an open item if the supplemental response with the FSAR markup is not submitted in time to support the Phase 2 chapter completion.

Item 2 - NuScale understood the NRC staff's question and provided further clarification. The NRC staff found the clarification acceptable and both agreed no further action is needed regarding this question.

Item 3 - NuScale understood the NRC staff's question and provided further clarification. The NRC staff found the clarification acceptable and both agreed no further action is needed regarding this question.

Item 4 - NuScale agreed to address this issue in a supplemental response to RAI 9295. The NRC staff will link RAI 9294, Question 12.03-26 to RAI 9295 internally for tracking purpose.

5. RAI No. 9270, Question 12.02-20 RCS tritium due to buildup (discussed in the closed portion of the meeting. Proprietary information redacted.)

   a. NRC Staff Feedback: In response to this RAI, NuScale added Table 11.1-8. In this table the value of [ ] is provided for the Primary Coolant Average Concentration (Tritium). Please discuss rational for using the average value as opposed to the peak value when calculating airborne activity.

      From which calculation sheet is the value of [ ] obtained? In EC-0000-3398_Rev3_0000_6075 Letdown, Cells B31/31 the Time Weighted and Peak tritium concentrations are [ ].

   b. Next Step: NuScale understood the NRC staff's question and gave a detailed explantion of their rational for using average value instead of peak value and why it is conservative. The staff stated that the NRC standard is to use peak value. Both the NRC staff and NuScale agreed to digest what they have heard and enagage at a later date if needed.