



September 05, 2018

Docket No. 52-048

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

SUBJECT: NuScale Power, LLC Supplemental Response to NRC Request for Additional Information No. 312 (eRAI No. 9267) on the NuScale Design Certification Application

REFERENCES: 1. U.S. Nuclear Regulatory Commission, "Request for Additional Information No. 312 (eRAI No. 9267)," dated December 22, 2017
2. NuScale Power, LLC Response to NRC "Request for Additional Information No. 312 (eRAI No.9267)," dated February 01, 2018

The purpose of this letter is to provide the NuScale Power, LLC (NuScale) supplemental response to the referenced NRC Request for Additional Information (RAI).

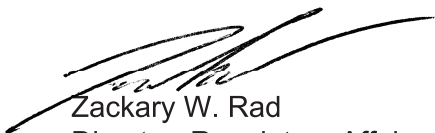
The Enclosure to this letter contains NuScale's supplemental response to the following RAI Question from NRC eRAI No. 9267:

- 12.02-7

This letter and the enclosed response make no new regulatory commitments and no revisions to any existing regulatory commitments.

If you have any questions on this response, please contact Carrie Fosaaen at 541-452-7126 or at cfosaaen@nuscalepower.com.

Sincerely,



Zackary W. Rad
Director, Regulatory Affairs
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Enclosure 1: NuScale Supplemental Response to NRC Request for Additional Information eRAI No. 9267

Enclosure 1:

NuScale Supplemental Response to NRC Request for Additional Information eRAI No. 9267

Response to Request for Additional Information Docket No. 52-048

eRAI No.: 9267

Date of RAI Issue: 12/22/2017

NRC Question No.: 12.02-7

Regulatory Basis

10 CFR 52.47(a)(5) requires applicants to identify the kinds and quantities of radioactive materials expected to be produced in the operation and the means for controlling and limiting radiation exposures within the limits set forth in 10 CFR Part 20.

10 CFR 20.1101(b) and 10 CFR 20.1003, require the use of engineering controls to maintain exposures to radiation as far below the dose limits in 10 CFR Part 20 as is practical. The DSRS Acceptance Criteria section of NuScale DSRS 12.2, "Radiation Sources," states that the applications should contain the methods, models and assumptions used as the bases for all sources described in DCD Section 12.2. The DSRS Acceptance Criteria section of DSRS 12.3-12.4, "Radiation Protection Design Features," states that the areas inside the plant structures, as well as in the general plant yard, should be subdivided into radiation zones, with maximum design dose rate zones and the criteria used in selecting maximum dose rates identified.

Background

NuScale DCD Tier 2, Revision 0 DCD Section 11.4.2.5.1, "Tanks," regarding "Spent Resin Storage Tanks," (SRST) states that there are two permanently installed SRSTs that are provided to receive spent resins from the chemical and volume control system (CVCS) and the Pool Clean Up System (PCUS) demineralizers.

DCD Tier 2, Revision 0 subsection 12.2.1.7, "Solid Radioactive Waste System," states that the assumed values used to develop the solid radioactive waste system (SRWS) source terms are listed in Table 12.2-18. NuScale DCD Tier 2, Revision 0 Table 12.2-18, "Solid Radioactive Waste System Component Source Term Inputs," list the dimensions of the SRST. DCD Table 12.2-19, "Solid Radioactive Waste System Component Source Terms – Radionuclide Content," lists the radionuclide inventory of the SRST. DCD Table 12.2-20: "Solid Radioactive Waste System Component Source Terms – Source Strengths," provides the Spent Resin Storage (SRST) gamma emission rate in photon/s.

Based on information made available to the staff during the RPAC Chapter 12 Audit, the model of the SRST contained in the analytical package reviewed by the staff appears to be significantly different than the model described in DCD Table 12.2-18. For instance, the height of the SRST as described in DCD Table 12.2-18 is 24.56 feet, however, based on the parameters used in the

analytical model, the tank height is 17.96 feet. Furthermore, the height of the resin comprising the actual source of radioactive material in the tank, is only 7.9 feet.

Key Issue 1:

The radionuclide concentrations listed in DCD subsection 12.2 are the basis of the information used to establish plant source terms. NuScale DSRS 12.2 Acceptance Criteria, states that all of the sources of radiation exposure to workers and members of the public (from contained sources) are to be identified, characterized, and considered in the design and operation of the facility. This section of the DSRS also states that unless described within other sections of the FSAR, source descriptions should include the methods, models, and assumptions used as the bases for all values provided in FSAR Section 12.2.

Question 1:

To facilitate staff understanding of the application information sufficient to make appropriate regulatory conclusions with respect to radiation exposures, the staff requests that the applicant:

- Describe the sources of radioactive material contained in the SRST, how many cubic feet from each source demineralizer and the decay period for assumed for each bed,
- As necessary, revise DCD Section 12.2 information needed to describe the source contained in the tank,

OR

Provide the specific alternative approaches used and the associated justification.

NuScale Response:

The updated source term and source strength values for the spent resin storage tank (FSAR Tables 12.2-19 and 12.2-20) are provided as part of the NuScale response to RAI 9264.

Impact on DCA:

There are no impacts to the DCA as a result of this response.