



April 15, 2019

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 Response to NRC Request for Additional Information No. 520 (eRAI No. 9642) on the NuScale Design Certification Application

**REFERENCE:** U.S. Nuclear Regulatory Commission, "Request for Additional Information No. 520 (eRAI No. 9642)," dated March 20, 2019

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

The Enclosure to this letter contains NuScale's response to the following RAI Question from NRC eRAI No. 9642:

- 16-66

The response for the remaining questions of RAI No. 520, eRAI No. 9462 will be provided by May 20, 2019.

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](mailto:cfosaaen@nuscalepower.com).

Sincerely,

Zackary W. Rad  
Director, Regulatory Affairs  
NuScale Power, LLC

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Enclosure 1: NuScale Response to NRC Request for Additional Information eRAI No. 9642



**Enclosure 1:**

NuScale Response to NRC Request for Additional Information eRAI No. 9642

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

**eRAI No.:** 9642

**Date of RAI Issue:** 03/20/2019

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**NRC Question No.:** 16-66

Paragraph (a)(11) of 10 CFR 52.47 and paragraph (a)(30) of 10 CFR 52.79 state that a design certification (DC) applicant and a combined license (COL) applicant, respectively, are to propose technical specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. 10 CFR 50.36 sets forth requirements for TS to be included as part of the operating license for a nuclear power facility.

This question is a followup of RAI 472-9445 (ML18130A984), Question 16-43, to which the applicant has responded ((ML18163A417).

NuScale's methodology to set the AXIAL OFFSET (AO) (LCO 3.2.2) and Power Dependent Insertion Limits (PDILs) (LCO 3.1.6) is dependent upon TR-0516-49422, "Loss-of-Coolant Accident Evaluation Model" and TR-0716-50350, "Rod Ejection Accident Methodology," in addition to the other methodologies listed. Also, CHF is used as acceptance criteria in LOCA and rod-ejection analyses. Accordingly, the staff believes the following changes need to be made to paragraph b of GTS 5.6.3:

The applicant is requested to update References 1, 3, and 4 to include TR-0516-49422, "Loss-of-Coolant Accident Evaluation," and TR-0716-50350, "Rod Ejection Accident Methodology."

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### **NuScale Response:**

References 1, 3, and 4 of specification 5.6.3, Core Operating Limits Report (COLR) were modified to include TR-0516-49422, "Loss-of-Coolant Accident Evaluation," and TR-0716-50350, "Rod Ejection Accident Methodology."



**Impact on DCA:**

The Technical Specifications have been revised as described in the response above and as shown in the markup provided in this response.

## 5.6 Reporting Requirements

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### 5.6.3 Core Operating Limits Report (COLR) (continued)

1. [NuScale Standard Design Certification Analysis (DCA), Part 2, Tier 2, NuScale Final Safety Analysis Report (FSAR), Section 4.3, "Nuclear Design," Revision 1, March 2018; ~~and~~ TR-0516-49416, "Non-Loss-of-Coolant Accident Analysis Methodology," Revision 0, May 2016 (NuScale Proprietary); TR-0516-49422, "Loss-of-Coolant Accident Methodology," Revision 0, May 2016 (NuScale Proprietary); and TR-0716-50250, "Rod Ejection Accident Methodology," Revision 0, July 2016 (NuScale Proprietary).

(Methodology for Specifications 3.1.1 – SHUTDOWN MARGIN (SDM), 3.1.3 – Moderator Temperature Coefficient, 3.1.4 – Rod Group Alignment Limits, 3.1.5 – Shutdown ~~Bank~~~~Group~~ Insertion Limits, 3.1.6 - Regulating ~~Bank~~~~Group~~ Insertion Limits, and 3.1.8 - PHYSICS TESTS Exceptions.)]

2. [NuScale DCA, Part 2, Tier 2, NuScale FSAR, Section 9.3.4, "Chemical and Volume Control System," Revision 1, March 2018; ~~and~~ TR-0516-49416, "Non-Loss-of-Coolant Accident Analysis Methodology," Revision 0, May 2016 (NuScale Proprietary).

(Methodology for Specification 3.1.9 – Boron Dilution Control.)]

3. [NuScale DCA, Part 2, Tier 2, NuScale FSAR, Sections 4.3, "Nuclear Design," and 4.4, "Thermal and Hydraulic Design," Revision 1, March 2018; TR-0516-49416, "Non-Loss-of-Coolant Accident Analysis Methodology," Revision 0, May 2016 (NuScale Proprietary); ~~and~~ TR-0915-17564-A, "Subchannel Analysis Methodology," Revision ~~2~~~~4~~, ~~September~~~~February~~ 2019~~5~~ (NuScale Proprietary); TR-0516-49422, "Loss-of-Coolant Accident Methodology," Revision 0, May 2016 (NuScale Proprietary); and TR-0716-50250, "Rod Ejection Accident Methodology," Revision 0, July 2016 (NuScale Proprietary).

(Methodology for Specifications 3.2.1 – Enthalpy Rise Hot Channel Factor (F $\Delta$ H), and 3.2.2 – AXIAL OFFSET (AO).)]

4. [NuScale DCA, Part 2, Tier 2, NuScale FSAR, Section 4.4, "Thermal and Hydraulic Design," Revision 1, March 2018; ~~and~~ TR-0516-49416, "Non-Loss-of-Coolant Accident Analysis Methodology," Revision 0, May 2016 (NuScale Proprietary); TR-0516-49422, "Loss-of-Coolant Accident Methodology," Revision 0, May 2016 (NuScale Proprietary); and TR-0716-50250, "Rod Ejection Accident Methodology," Revision 0, July 2016 (NuScale Proprietary).