



February 11, 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 Supplemental Response to NRC Request for Additional Information No. 473 (eRAI No. 9483) on the NuScale Design Certification Application

REFERENCES: 1. U.S. Nuclear Regulatory Commission, "Request for Additional Information No. 473 (eRAI No. 9483)," dated May 11, 2018
2. NuScale Power, LLC Response to NRC "Request for Additional Information No. 473 (eRAI No. 9483)," dated July 10, 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. 9483:

- 15.01.01-5

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 Paul Infanger at 541-452-7351 or at pinfanger@nuscalepower.com.

Sincerely,

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

Distribution: Gregory Cranston, NRC, OWFN-8H12
Samuel Lee, NRC, OWFN-8H12
Rani Franovich, NRC, OWFN-8H12

Enclosure 1: NuScale Supplemental Response to NRC Request for Additional Information eRAI No. 9483

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NuScale Supplemental Response to NRC Request for Additional Information eRAI No. 9483

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

eRAI No.: 9483

Date of RAI Issue: 05/11/2018

NRC Question No.: 15.01.01-5

GDC 10 requires that the reactor core and associated coolant, control, and protection systems shall be designed with appropriate margin to assure that SAFDLs are not exceeded during any condition of normal operation, including the effects of AOOs. One of the specific acceptance criteria in DSRS Section 15.1.1-15.1.4 to meet this requirement is that the values of the parameters used in the analytical model should be suitably conservative.

FSAR Tier 2, Table 15.1-2, "Decrease in Feedwater Temperature - Inputs (Limiting Minimum Critical Heat Flux Ratio Case)," lists inputs and initial conditions for the decrease in FW temperature event. However, the table does not include values for initial pressurizer level or steam generator (SG) heat transfer. Tables 15.1-4, "Increase in Feedwater Flow - Inputs (Limiting Minimum Critical Heat Flux Ratio Case)," and 15.1-6, "Increase in Steam Flow - Inputs (Limiting Minimum Critical Heat Flux Ratio Case)," are also missing these values, as well as the initial feedwater temperature. The staff notes that the values chosen for these parameters and their biases influence MCHFR. To demonstrate the use of suitably conservative values for these parameters, add the parameter values and biases for initial pressurizer level and SG heat transfer to Tables 15.1-2, 15.1-4, and 15.1-6, and add the value and bias for initial FW temperature to Tables 15.1-4 and 15.1-6.

NuScale Response:

The original NuScale response as submitted in NuScale correspondence RAIO-0718-60801 and dated July 10, 2018, is augmented with the following information.



Table 15.1-5 of the NuScale FSAR was changed to be consistent with the changes to the topical report TR-0516-49416, Non-Loss of Coolant Accident Methodology, Table 7-14 as submitted in the supplemental response to RAI 9351, question 15.00.02-32 submitted in NuScale correspondence RAIO-0219-64477 on February 11, 2019. The bias for steam generator heat transfer was changed from "nominal" to "varied" as indicated in the markup at the end of this response.

Impact on DCA:

Table 15.1-5 has been revised as described in the response above and as shown in the markup provided in this response.

RAI 15.01.01-5, RAI 15.01.01-5S1, RAI 15.01.01-8

Table 15.1-5: Increase in Feedwater Flow - Inputs (Limiting Minimum Critical Heat Flux Ratio Case)

Parameter	Nominal	Bias
Core power	160 MWt	+2%
Pressurizer pressure	1850 psia	+70psia
RCS flow rate	See Table 15.0-6 for range	1173 lbm/s
RCS average temperature	545 °F	+10 °F
SG pressure	500 psia	+35psia
Pressurizer level	60%	+8%
SG heat transfer	Nominal Varied	-30%
Feedwater temperature	300 °F	-10 °F
Reactor pool temperature	40 °F - 200 °F	Minimum (40 °F)
DHRS heat transfer	Nominal	+30%
MTC	EOC	Most Negative
DTC	BOC	Least Negative