



January 18, 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 Response to NRC Request for Additional Information No. 286 (eRAI No. 9223) on the NuScale Design Certification Application

REFERENCE: U.S. Nuclear Regulatory Commission, "Request for Additional Information No. 286 (eRAI No. 9223)," dated November 22, 2017

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. 9223:

- 05.02.02-1

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,

A handwritten signature in black ink, appearing to read "Zackary W. Rad".

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

Distribution: Gregory Cranston, NRC, OWFN-8G9A
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Enclosure 1: NuScale Response to NRC Request for Additional Information eRAI No. 9223



Enclosure 1:

NuScale Response to NRC Request for Additional Information eRAI No. 9223

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

eRAI No.: 9223

Date of RAI Issue: 11/22/2017

NRC Question No.: 05.02.02-1

Regulatory Basis:

10 CFR 52.47(c)(2) states, in part, that an application for certification of a nuclear power reactor design that differs significantly from the light-water reactor designs or uses simplified, inherent, passive, or other innovative means to accomplish its safety functions must provide an essentially complete nuclear power reactor design and must meet the requirements of 10 CFR 50.43(e).

Additionally, 10 CFR 50, Appendix A, General Design Criterion 14, “Reactor Coolant Pressure Boundary” requires that the reactor coolant pressure boundary shall be designed, fabricated, erected, and tested so as to have an extremely low probability of abnormal leakage, of rapidly propagating failure, and of gross rupture.

10 CFR 50, Appendix A, General Design Criterion 15, “Reactor Coolant System Design” requires that the reactor coolant system and associated auxiliary, control, and protection systems shall be designed with sufficient margin to assure that the design conditions of the reactor coolant pressure boundary are not exceeded during any condition of normal operation, including anticipated operational occurrences.

Question:

During the Chapter 19 audit, the staff reviewed NRELAP calculations developed to evaluate the Reactor Coolant System (RCS) overpressure resulting from Anticipated Transient Without Scram (ATWS) events. Many of the key inputs for the Reactor Safety Valves (RSVs) were assumed values, since the detailed design specifications were not complete. The RSVs are relied on for overpressure protection of the reactor coolant pressure boundary during normal operation and the anticipated operational occurrences addressed in Chapter 15. The assumed NRELAP input includes valve throat areas, flow coefficients (Cv), and stroke times. They have been appropriately identified as open design issues. Provide a description of the closure plan for resolution of these inputs, including the schedule, proposed means of assessment, potential “downstream” impacts, and any other considerations.

NuScale Response:

The assumed NRELAP reactor safety valve (RSV) input values documented in Revision 0 of the NuScale Reactor Module NRELAP5 Model were based on preliminary values from Revision A of the ASME Design Specification for Reactor Safety Valves, and identified as open design items.

When Revision A of the ASME Design Specification for Reactor Safety Valves was finalized to Revision 0, valve throat areas, flow coefficients (C_v), and stroke times did not change.

As a result, the open design items have been removed from Revision 1 of the Reactor Module NRELAP5 Model, with unchanged RSV throat area, flow coefficient (C_v), and stroke time values. Considering there were no changes to the values, there are no additional “downstream” impacts, outside of the removal of the open design item number from the Revision 1 model document, which has been completed.

Impact on DCA:

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