

NuScaleDCRaisPEm Resource

From: Chowdhury, Prosanta
Sent: Thursday, March 29, 2018 4:12 PM
To: Request for Additional Information
Cc: Lee, Samuel; Cranston, Gregory; Tabatabai, Omid; Lupold, Timothy; Huang, Jason; NuScaleDCRaisPEm Resource
Subject: Request for Additional Information No. 403 eRAI No. 9362 (03.08.02)
Attachments: Request for Additional Information No. 403 (eRAI No. 9362).pdf

Attached please find NRC staff's request for additional information (RAI) concerning review of the NuScale Design Certification Application.

Please submit your technically correct and complete response within 60 days of the date of this RAI to the NRC Document Control Desk.

If you have any questions, please contact me.

Thank you.

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Licensing Branch 1 (NuScale)
Division of New Reactor Licensing
Office of New Reactors
U.S. Nuclear Regulatory Commission
301-415-1647

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Options

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Request for Additional Information No. 403 (eRAI No. 9362)

Issue Date: 03/29/2018

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 03.08.02 - Steel Containment

Application Section:

QUESTIONS

03.08.02-15

Follow-up to RAI 8858, Question 03.08.02-1

10 CFR 52.47, "Contents of applications; technical information," requires the design certification applicant to include a description and analysis of the structures, systems, and components with sufficient detail to permit understanding of the system designs.

In relation with RAI 9315, Question 03.08.02-14, the DCD should be updated to include a drawing that clearly shows entire CNV pressure boundary, showing how it extends beyond the main CNV body to include the ECCS trip and reset solenoid valve assembly.

03.08.02-16

Follow-up to RAI 8858, Question 03.08.02-3

10 CFR 50, Appendix A, GDC 2 requires systems, structures, and components important to safety be designed to withstand appropriate combinations of the effects of normal and accident conditions with the effects of natural phenomena including earthquake. TR-0916-51502-P, "NuScale Power Module Seismic Analysis," Rev. 0, Section 8.4.3, "NuScale Power Module Seismic Analysis Results," describes the calculated displacement and acceleration time-histories, maximum relative displacements, in-structure response spectrum, and maximum forces and moments at representative component interfaces.

NuScale response to RAI 8911, Question 03.09.02-46, regarding nuclear power module (NPM) damping is currently expected 11/26/2018. Since this value would affect the seismic model used to generate loads on the containment vessel, it would also affect the conservatism of the CNV Limiting Level D stress intensities. The staff understands that the updated damping values will be available by the end of July 2018.

Following a review of the damping values, the staff requests NuScale to update the CNV Stress Report and inform the staff when completed, after which, the staff will perform an audit to review the CNV Limiting Level D stress intensities to make an assessment on ASME conformance.

03.08.02-17

Follow-up to RAI 8858, Question 03.08.02-8

In accordance with GDC 50 and 10 CFR 50.44, the reactor containment structure, including access openings, penetrations, and the containment heat removal system shall be designed so that the containment structure and its internal compartments can accommodate, without exceeding the design leakage rate and with sufficient margin, the calculated pressure and temperature conditions resulting from any loss-of-coolant accident.

In response to RAI 8858, Question 03.08.02-8, the applicant stated that, “during the hydrostatic test, the joints, connections, and regions of high stress, such as around openings and thickness transition sections, are examined for leakage. The CNV design specification does not allow for leakage, including gasketed joints.” However, ASME BPVC NB-6111 states, “Bolts, studs, nuts, washers, and gaskets are exempted from the pressure test. As the requirement in the CNV design specification specifies no leakage, including gasketed joints, add the hydrostatic test acceptance criteria from the CNV design specification to Tier 1, especially the portions that state that no leakage is allowed, including gasketed joints.