

NuScaleDCRaisPEm Resource

From: Cranston, Gregory
Sent: Tuesday, June 20, 2017 10:32 AM
To: RAI@nuscalepower.com
Cc: NuScaleDCRaisPEm Resource; Lee, Samuel; Chowdhury, Prosanta; Jackson, Diane; Tabatabai, Omid; Ashley, Clinton
Subject: Request for Additional Information No. 65, RAI 8864
Attachments: Request for Additional Information No. 65 (eRAI No. 8864).pdf

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

Please submit your 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.

Gregory Cranston, Senior Project Manager
Licensing Branch 1 (NuScale)
Division of New Reactor Licensing
Office of New Reactors
U.S. Nuclear Regulatory Commission
301-415-0546

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Created By: Gregory.Cranston@nrc.gov

Recipients:

"NuScaleDCRaisPEm Resource" <NuScaleDCRaisPEm.Resource@nrc.gov>
Tracking Status: None
"Lee, Samuel" <Samuel.Lee@nrc.gov>
Tracking Status: None
"Chowdhury, Prosanta" <Prosanta.Chowdhury@nrc.gov>
Tracking Status: None
"Jackson, Diane" <Diane.Jackson@nrc.gov>
Tracking Status: None
"Tabatabai, Omid" <Omid.Tabatabai-Yazdi@nrc.gov>
Tracking Status: None
"Ashley, Clinton" <Clinton.Ashley@nrc.gov>
Tracking Status: None
"RAI@nuscalepower.com" <RAI@nuscalepower.com>
Tracking Status: None

Post Office: HQPWMSMRS07.nrc.gov

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Request for Additional Information No. 65 (eRAI No. 8864)

Issue Date: 06/20/2017

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 14.03.11 - Containment Systems and Severe Accidents - Inspections, Tests, Analyses, and Acceptance Criteria

Application Section: FSAR Tier 1 Sections 2.1 and 2.8; FSAR Tier 2 Section 14.3

QUESTIONS

14.03.11-1

According to standard ITAAC an inspection is performed to verify the piping length between the containment penetration and isolation valves located outside containment is minimized, as practical, in accordance with 10 CFR 50, Appendix A, GDC 55, 56, 57. NuScale FSAR Tier 1, Section 2.1, "NuScale Power Module," Table 2.1-1, "NuScale Power Module Piping Systems," contains a column to describe the length (i.e., feet) of containment piping from the containment nozzle to the outboard isolation valve. Specifying a length would be consistent with standard ITAAC. However, for many penetrations that contain containment isolation valves, the length is given as 'N/A' (not applicable) versus an actual length. In the NuScale design, the outboard containment isolation valves are connected to the vessel nozzles by 'safe-ends,' which can be considered a transition piece (functions as piping) that connects (by weld) the containment penetration to the isolation valve. The intent of the standard ITAAC is to identify the distance between the vessel penetration and valve. The length of a 'safe-end' is undefined. Absent length information, there is no means to confirm that the ITAAC is satisfied consistent with guidance contained in the standard ITAAC. In addition, N/A is not inspectable in order to meet the Design Commitment associated with Table 2.1-4, "NuScale Power Module Inspections, Tests, Analyses, and Acceptance Criteria," item 9. Therefore, based on the regulations and guidance cited above, the staff request that the NuScale design certification applicant provide length information between each containment penetration and its associated outboard containment isolation valve. As part of the response, provide a mark-up of the FSAR to reflect these changes.

14.03.11-2

The NRC regulations in 10 CFR 52.47(b)(1) specify that the application must contain proposed inspections, tests, analyses, and acceptance criteria (ITAAC) that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a facility that incorporates the design certification has been constructed and will be operated in conformity with the design certification, the provisions of the Atomic Energy Act, and the NRC rules and regulations. Standard Review Plan 14.3, "Inspections, Test, Analyses, and Acceptance Criteria," discusses that Tier 1 requirements should, in part, be based on key design features of a system. Based on the above regulation and guidance, the staff have the following questions:

1. According to FSAR Tier 2 Section 6.2.4, "Containment Isolation," the containment isolation valve (CIV) trip solenoid valves (SVs) are safety related and a vital component to ensure proper functioning of the CIVs. Emergency core cooling system (ECCS) valves also use safety-related trip SVs. ECCS SVs are listed in FSAR Tier 1, Tables 2.1-2, "NuScale Power Module Mechanical Equipment and 2.1-3," and "NuScale Power Module Electrical Equipment." Despite similar safety features, CIV SVs are not listed in FSAR Tier 1 Tables 2.1-2 and 2.1-3. In addition, FSAR Tier 1 Section 2.8, "Equipment Protection," Table 2.8-1, "Module Specific Mechanical and Electrical/I7C Equipment," also lists the ECCS SVs but does not list the CIV SVs. Furthermore, FSAR Tier 1,

Section 2.5 discusses that the Module Protection System removes power from CIV trip solenoids, which, in effect, acknowledges that CIV SVs are important to safety. Based on the regulations and guidance discussed above, the staff requests that the NuScale applicant include the CIV SVs in Tier 1, as appropriate, or provide justification for their absence. As part of the response, provide a mark-up of the FSAR to reflect any changes.

2. Emergency core cooling system solenoid valves and the control rod drive system pressure relief valve are identified in FSAR Tier 1, Table 2.1-2, "NuScale Power Module Mechanical Equipment," as containment isolation valves (CIVs). However, these valves are not treated as CIVs in FSAR Tier 2 (e.g., Section 6.2.4 text, tables, or figures). Therefore, the staff request that the NuScale design certification applicant clarify the inconsistency between FSAR Tier 1 and FSAR Tier 2 related to these components. As part of the response, provide a mark-up of the FSAR to reflect any changes.