

NuScaleDCRaisPEm Resource

From: Cranston, Gregory
Sent: Sunday, January 28, 2018 3:55 PM
To: RAI@nuscalepower.com
Cc: NuScaleDCRaisPEm Resource; Lee, Samuel; Chowdhury, Prosanta; Jackson, Diane; Travis, Boyce; Tabatabai, Omid
Subject: Request for Additional Information No. 353 RAI No. 9304 (6.2.1.3)
Attachments: Request for Additional Information No. 353 (eRAI No. 9304).pdf

Attached please find NRC staff's request for additional information 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
301-415-0546

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Request for Additional Information No. 353 (eRAI No. 9304)

Issue Date: 01/28/2018

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 06.02.01.03 - Mass and Energy Release Analysis for Postulated Loss-of-Coolant
Accidents (LOCAs)

Application Section: 6.2.1.3

QUESTIONS

06.02.01.03-1

General Design Criterion (GDC) 50, "Containment Design Basis," requires in part that the containment be designed with sufficient margin, and that the containment and its associated systems be designed to accommodate, without exceeding the design leakage rate, the calculated pressure and temperature conditions resulting from any loss-of-coolant accident (LOCA). Part of this demonstration involves a calculation of the mass and energy release into containment.

Section 8.0 of TR-0516-49084, "Containment Response Analysis Methodology Technical Report," provides tabulated appendices of important modeling inputs for the mass and energy release calculations, including the actual mass and energy release values over time for selected cases. The TR states that cases are provided for the limiting LOCA, limiting peak containment pressure case, and limiting secondary side break case. However, staff only found data for the limiting peak pressure and secondary side break cases. Additionally, the data sets did not appear to have a robust time step sampling, especially early in the transient. Staff understands that this is an artifact of the chosen data for display, and that the NRLEAP5 calculation has additional data (as the data set is not being passed between codes). In order to come to a finding regarding the suitability of the mass and energy release cases presented in the TR and to assist the staff in performing confirmatory analysis with a separate containment code, staff requests that NuScale update TR-0516-49084 to: 1) include a mass and energy release table for the limiting peak pressure case (Case 5 in the TR), the limiting LOCA temperature case (Case 2 in the TR), and the limiting secondary side release (the MSLB); and 2) demonstrate the tables provided have sufficiently resolved time step sampling for the duration of the break (i.e. by showing that the NRELAP5 mass and energy release does not substantially differ from the provided data points).