

NuScaleDCRaisPEm Resource

From: Chowdhury, Prosanta
Sent: Thursday, May 10, 2018 10:19 AM
To: Request for Additional Information
Cc: Lee, Samuel; Cranston, Gregory; Franovich, Rani; Karas, Rebecca; Thurston, Carl; NuScaleDCRaisPEm Resource
Subject: Request for Additional Information No. 470 eRAI No. 9471 (15.06.05)
Attachments: Request for Additional Information No. 470 (eRAI No. 9471).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.

Prosanta Chowdhury, Project Manager
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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Request for Additional Information No. 470 (eRAI No. 9471)

Issue Date: 05/10/2018

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 15.06.05 - Loss of Coolant Accidents Resulting From Spectrum of Postulated Piping Breaks Within the Reactor Coolant Pressure Boundary

Application Section:

QUESTIONS

15.06.05-9

Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Appendix A, General Design Criterion (GDC) 35, "Emergency Core Cooling," requires that a system to provide abundant emergency core cooling shall be provided. The system safety function shall be to transfer heat from the reactor core following any loss of reactor coolant at a rate such that (1) fuel and clad damage that could interfere with continued effective core cooling is prevented and (2) clad metal-water reaction is limited to negligible amounts. DSRS Section 15.6.5 provides guidance for complying with GDC 35. It requires that evaluation models meet the requirements of 10 CFR 50.46, which states that the evaluation model must include sufficient supporting justification to show that the analytical technique realistically describes the behavior of the reactor system during a loss-of-coolant accident.

Section 3.3 of the Long-Term Cooling Methodology technical report, TR-0916-51299-P, Rev. 0, **a technical report supporting the DCD Chapter 15 analyses**, indicates that the minimum flow area is assumed for the RVVs and RRVs for the LTC calculations. The most restrictive for ECCS flow assumption may not be the conservative direction for maximum cooldown cases since increased heat transfer, due to increased ECCS flow, would result in more limiting cooldown conditions.

Please confirm that this assumption is applicable for input and produce minimum RCS temperatures and inventory and minimum collapsed liquid level above the active fuel for the LTC maximum cooldown event, and provide a summary of the results along with draft markups for any changes needed to the technical report.