

NuScaleDCRaisPEm Resource

From: Chowdhury, Prosanta
Sent: Tuesday, April 3, 2018 3:58 PM
To: Request for Additional Information
Cc: Lee, Samuel; Cranston, Gregory; Karas, Rebecca; Nolan, Ryan; NuScaleDCRaisPEm Resource
Subject: Request for Additional Information No. 407 eRAI No. 9468 (21.0)
Attachments: Request for Additional Information No. 407 (eRAI No. 9468).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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Request for Additional Information 407 (eRAI 9468)

Issue Date: 04/03/2018

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 21.0 - Multi-Module Design Considerations (NuScale SMR design)

Application Section:

QUESTIONS

21.0-2

General Design Criterion (GDC) 5, "Sharing of structures, systems and components," requires structures, systems, and components important to safety not be shared unless it can be shown that such sharing will not significantly impair their ability to perform their safety functions.

GDC 10, "Reactor design," requires that the reactor core and associated coolant, control, and protection systems shall be designed with appropriate margin to assure that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences.

DSRS 15.0 states, "The reviewer evaluates licensees' claims that individual AOOs [Anticipated Operational Occurrences] and postulated accidents, including IEs [Infrequent Events], are limiting or nonlimiting, or bounded by other AOOs, IEs and postulated accidents, with particular attention to the bases used for comparison."

FSAR Tier 2, Section 21.2.3 states Table 21-2, "Shared System Interactions (Mechanical Systems)," identifies and evaluates shared systems that have the potential for an adverse system interaction or an undesirable multi-module interaction. In several locations, Table 21-2 states that an event is evaluated [considered, included, or captured] in the "safety analysis." Typically, the staff would interpret this as the safety analysis for design basis events located in Chapter 15 of the FSAR. However, the staff could not verify most of these statements. For example, Table 21-2 states, "A [Module Heatup System] MHS heat exchanger tube rupture or loss of the auxiliary boiler system (ABS) steam may result in an addition of cooler water to the reactor coolant system (RCS). This is a single-module event that is evaluated in the safety analysis." The staff reviewed FSAR Chapter 15 and Section 9.3.4, but could not find a discussion regarding the impact a MHS heat exchanger tube rupture would have on the RCS.

Therefore, the applicant is requested to substantiate statements made in Table 21-2 when referring to multi-module events that are evaluated as part of the safety analysis. The applicant is requested to revise the FSAR as necessary to include the absent evaluation or reference to a specific section in the FSAR where such an evaluation of the event already exists.