

NuScaleDCRaisPEm Resource

From: Chowdhury, Prosanta
Sent: Tuesday, May 1, 2018 11:26 AM
To: Request for Additional Information
Cc: Lee, Samuel; Cranston, Gregory; Franovich, Rani; Karas, Rebecca; Schmidt, Jeffrey; NuScaleDCRaisPEm Resource
Subject: Request for Additional Information No. 448 eRAI No. 9506 (15)
Attachments: Request for Additional Information No. 448 (eRAI No. 9506).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

Hearing Identifier: NuScale_SMR_DC_RAI_Public
Email Number: 479

Mail Envelope Properties (BN7PR09MB26091FF190B73FC11BB1FC2D9E810)

Subject: Request for Additional Information No. 448 eRAI No. 9506 (15)
Sent Date: 5/1/2018 11:25:53 AM
Received Date: 5/1/2018 11:25:57 AM
From: Chowdhury, Prosanta

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Post Office: BN7PR09MB2609.namprd09.prod.outlook.com

Files	Size	Date & Time
MESSAGE	556	5/1/2018 11:25:57 AM
Request for Additional Information No. 448 (eRAI No. 9506).pdf		47855

Options

Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Request for Additional Information No. 448 (eRAI No. 9506)

Issue Date: 05/01/2018

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 15 - Introduction - Transient and Accident Analyses

Application Section:

QUESTIONS

15-8

10 CFR 50, Appendix A, General Design Criteria for Nuclear Power Plants, states,

"Under the provisions of § 50.34, an application for a construction permit must include the principal design criteria for a proposed facility. Under the provisions of 10 CFR 52.47, 52.79, 52.137, and 52.157, an application for a design certification, combined license, design approval, or manufacturing license, respectively, must include the principal design criteria for a proposed facility. The principal design criteria establish the necessary design, fabrication, construction, testing, and performance requirements for structures, systems, and components important to safety; that is, structures, systems, and components that provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public.

These General Design Criteria establish minimum requirements for the principal design criteria for water-cooled nuclear power plants similar in design and location to plants for which construction permits have been issued by the Commission. The General Design Criteria are also considered to be generally applicable to other types of nuclear power units and are intended to provide guidance in establishing the principal design criteria for such other units."

As the return to power analysis in FSAR 15.0.6 can occur, assuming a stuck rod, within a few hours from either an AOO or postulated accident initiating event, the AOO acceptance criteria of GDC 10 applies. GDC 10, Reactor design, requires that the reactor core and associated coolant, control, and protection systems be designed with appropriate margin to assure that SAFDLs are not exceeded during any condition of normal operation, including the effects of AOOs.

In FSAR Section 15.0.6 and Section 15.2.1, Technical Basis for the GDC 27 exemption, the applicant makes the statement that a return to power only occurs under very low decay heat levels. The basis of this statement is unclear for the scenario when DC power to the ECCS valves is available leading to a DHRS cooldown. As demonstrated in EE-000-4820, one of the analyses which supports FSAR Section 15.0.6, return to power occurred for a range of decay heat assumptions. The staff is requesting additional information which supports that very low decay heat levels are needed to return to power for a DHRS cooldown scenario and revise FSAR Section 15.0.6 and Technical Basis Section 15.2.1 of the exemption to GDC 27 as necessary.