

NuScaleTRRaisPEm Resource

From: Cranston, Gregory
Sent: Friday, July 07, 2017 7:09 AM
To: RAI@nuscalepower.com
Cc: NuScaleTRRaisPEm Resource; Lee, Samuel; Skarda, Raymond; Karas, Rebecca; Schmidt, Jeffrey; Chowdhury, Prosanta; Bovol, Bruce
Subject: RE: Topical Report Thermal Hydraulic Stability (TR-0516-49417-P) - Request for Additional Information Letter No. 8803 (eRAI No. 8803)
Attachments: Request for Additional Information No. 8803 (eRAI No. 8803).pdf

Attached please find NRC staff's request for additional information concerning review of the NuScale Topical Report.

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.

Hearing Identifier: NuScale_SMR_DC_TR_Public
Email Number: 35

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Subject: RE: Topical Report Thermal Hydraulic Stability (TR-0516-49417-P) - Request for Additional Information Letter No. 8803 (eRAI No. 8803)
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From: Cranston, Gregory

Created By: Gregory.Cranston@nrc.gov

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Options

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Request for Additional Information No. 8803 (eRAI No. 8803)

Issue Date: 07/07/2017

Application Title: NuScale Topical Report

Operating Company: NuScale

Docket No. PROJ0769

Review Section: 01 - Introduction and Interfaces

Application Section: 1

QUESTIONS

01-18

Title 10 of the Code of the Federal Regulations (CFR), Part 50, Appendix A, General Design Criterion (GDC) 12, suppression of reactor power oscillations requires that the reactor core and associated coolant, control, and protections systems be designed to assure that power oscillations which can result in conditions exceeding specified acceptable fuel design limits are not possible or can be reliably and readily detected and suppressed.

In Section 10.2, of the NuScale Stability Topical Report, TR-0516-49417-P, "Evaluation Methodology for Stability Analysis of the NuScale Power Module," it describes the potential for instability when two-phase flow occurs in the riser. As described in Section 4.3.1.5 and Section 15.0.6 of the final safety analysis report, subcriticality cannot be assured for the NuScale power module (NPM) following a design basis event using only safety related equipment when accounting for a stuck rod. NRC staff is concerned that a post trip return to power could occur when riser subcooling is low and stability of the NPM cannot be assured.

NRC staff needs to establish a finding that a post trip return to power cannot result in power oscillations. Accordingly, NRC staff request that NuScale provide evidence that the NPM is stable under the conditions encountered where a post trip return to power could occur.