

NuScaleTRRaisPEm Resource

From: Cranston, Gregory
Sent: Sunday, July 30, 2017 1:24 PM
To: RAI@nuscalepower.com
Cc: NuScaleTRRaisPEm Resource; Lee, Samuel; Skarda, Raymond; Karas, Rebecca; Schmidt, Jeffrey; Chowdhury, Prosanta; Bovol, Bruce
Subject: Topical Report Thermal Hydraulic Stability - Request for Additional Information Letter No. 8945 (eRAI No. 8945)
Attachments: Request for Additional Information No. 8945 (eRAI No. 8945).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: 42

Mail Envelope Properties (681dbbad0128418d9f3d8c6d5f1a6c65)

Subject: Topical Report Thermal Hydraulic Stability - Request for Additional Information
Letter No. 8945 (eRAI No. 8945)
Sent Date: 7/30/2017 1:24:13 PM
Received Date: 7/30/2017 1:24:16 PM
From: Cranston, Gregory

Created By: Gregory.Cranston@nrc.gov

Recipients:

"NuScaleTRRaisPEm Resource" <NuScaleTRRaisPEm.Resource@nrc.gov>

Tracking Status: None

"Lee, Samuel" <Samuel.Lee@nrc.gov>

Tracking Status: None

"Skarda, Raymond" <Raymond.Skarda@nrc.gov>

Tracking Status: None

"Karas, Rebecca" <Rebecca.Karas@nrc.gov>

Tracking Status: None

"Schmidt, Jeffrey" <Jeffrey.Schmidt2@nrc.gov>

Tracking Status: None

"Chowdhury, Prosanta" <Prosanta.Chowdhury@nrc.gov>

Tracking Status: None

"Bavol, Bruce" <Bruce.Bavol@nrc.gov>

Tracking Status: None

"RAI@nuscalepower.com" <RAI@nuscalepower.com>

Tracking Status: None

Post Office: HQPWMSMRS07.nrc.gov

Files	Size	Date & Time	
MESSAGE	302	7/30/2017 1:24:16 PM	
Request for Additional Information No. 8945 (eRAI No. 8945).pdf			88169

Options

Priority: Standard

Return Notification: No

Reply Requested: No

Sensitivity: Normal

Expiration Date:

Recipients Received:

Request for Additional Information No. 8945 (eRAI No. 8945)

Issue Date: 07/30/2017
Application Title: NuScale Topical Report
Operating Company: NuScale
Docket No. PROJ0769
Review Section: 01 - Introduction and Interfaces
Application Section: 1

QUESTIONS

01-26

Title 10 of the Code of Federal Regulations (CFR), Part 50, Appendix A, General. Design Criterion (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. GDC 12 – Suppression of reactor power oscillations, states that the reactor core and associated coolant, control, and protection system shall be designed to assure that power oscillation which can result in conditions exceeding SAFDLs are not possible or can be reliably and readily detected and suppressed. The Standard Review Plan (SRP) 15.0.2 acceptance criteria with respect to evaluation models specifies that the chosen mathematical models and the numerical solution of those models must be able to predict the important physical phenomena reasonably well from both qualitative and quantitative points of view.

Section 4.3.1, "Static Instabilities," of topical report, TR-0516-49417-P, discusses flow pattern transitions as a mode of instability; however, it does not address the phenomenon of vortex development in various primary flow circuit components such as the riser.

In order to make an affirmative finding, NRC staff requests NuScale provide a discussion of the vortex phenomena.