

NuScaleTRRaisPEm Resource

From: Cranston, Gregory
Sent: Sunday, July 30, 2017 12:57 PM
To: RAI@nuscallepower.com
Cc: NuScaleTRRaisPEm Resource; Lee, Samuel; Skarda, Raymond; Karas, Rebecca; Schmidt, Jeffrey; Chowdhury, Prosanta; Baval, Bruce
Subject: RE: Topical Report Thermal Hydraulic Stability - Request for Additional Information Letter No. 8944 (eRAI No. 8944)
Attachments: Request for Additional Information No. 8944 (eRAI) No. 8944.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. (The NRC Staff recognizes that NuScale has preliminarily identified that the response to one or more questions in this RAI is likely to require greater than 60 days. NuScale is expected to provide a schedule for the RAI response by email within 14 days.)

If you have any questions, please contact me.

Thank you.

Hearing Identifier: NuScale_SMR_DC_TR_Public
Email Number: 41

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Subject: RE: Topical Report Thermal Hydraulic Stability - Request for Additional Information Letter No. 8944 (eRAI No. 8944)
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From: Cranston, Gregory

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Options

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Request for Additional Information No. 8944 (eRAI) No. 8944

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

01-25

Title 10 of the Code of the Federal Regulations (CFR), Part 50, Appendix A, General Design Criterion (GDC) 10 – Reactor Design, states 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 (SAFDLs) are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences (AOOs). Title 10 of the Code of Federal Regulations (CFR), Part 50 Appendix A, General Design Criteria (GDC) 12-Suppression of reactor power oscillations requires that oscillations be either not possible or reliably detected and suppressed. The Standard Review Plan (SRP) 15.0.2 and Regulatory Guide (RG 1.203) indicate that closure relationships and the information required for their use should be evaluated to ensure they adequately cover the range of conditions and accident scenarios. This is especially true of empirical correlations that are derived directly from experimental data without recourse to any physical modeling.

The evaporation and condensation correlations in Section 5.5.6.5, "Evaporation and Condensation," of the topical report, TR-0516-49417-P, include an empirical factor, gamma, which is defined as a user-provided boiling coefficient. A default value for gamma is given in Section 5.5.6.5, however, it is not clear what value of gamma is used in the stability analysis.

In order to make an affirmative finding, NRC staff requests NuScale:

- 1) Provide the value and/or range of values for gamma that are used for stability analyses
- 2) Provide the basis for selecting values of gamma.