

NuScaleTRRaisPEm Resource

From: Cranston, Gregory
Sent: Friday, June 23, 2017 5:24 PM
To: RAI@nuscalepower.com
Cc: NuScaleTRRaisPEm Resource; Lee, Samuel; Skarda, Raymond; Karas, Rebecca; Schmidt, Jeffrey; Chowdhury, Prosanta; Baval, Bruce
Subject: Topical Report (TR-0516-49417-P) - Request for Additional Information Letter No. 8848 (eRAI No. 8848)
Attachments: Request for Additional Information No. 8848 (eRAI No. 8848).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: 25

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Subject: Topical Report (TR-0516-49417-P) - Request for Additional Information Letter
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From: Cranston, Gregory

Created By: Gregory.Cranston@nrc.gov

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Request for Additional Information No. 8848 (eRAI No. 8848)

Issue Date: 06/23/2017

Application Title: NuScale Topical Report

Operating Company: NuScale

Docket No. PROJ0769

Review Section: 01 - Introduction and Interfaces

Application Section: 1

QUESTIONS

01-8

In accordance with 10 CFR 50 Appendix A GDC 10, "Reactor design," 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. 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 5.5.6.2.1, "Single-Phase Friction Factor," of the topical report, TR-0516-49417-P, describes the model for single phase friction factor. This section of the topical report provides numerical values for certain parameters. It is not clear what the basis for the Reynold's number transition point is, nor it is clear the fuel-design-specific geometry is considered in the core friction factor calculation.

In order to make an affirmative finding associated with the above regulatory requirement important to safety, NRC staff requests NuScale to clarify the single phase friction numbers in the licensing calculations and justify any assumptions in deriving the friction factors.

01-9

In accordance with 10 CFR 50 Appendix A GDC 10, "Reactor design," 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. 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 5.5.6.2.2. "Two-Phase Friction Factor," of the topical report, TR-0516-49417-P, describes the two phase friction factor model. It is not clear from this section how the two phase friction factor model is assessed.

In order to make an affirmative finding associated with the above regulatory requirement important to safety, NRC staff requests NuScale to describe the qualification and assessment of the two phase friction factor model.