NuScaleTRRaisPEm Resource

From: Cranston, Gregory
Sent: Friday, June 30, 2017 2:25 PM
To: RAI@nuscalepower.com
Cc: NuScaleTRRaisPEm Resource; Lee, Samuel; Skarda, Raymond; Karas, Rebecca; Schmidt, Jeffrey; Chowdhury, Prosanta; Bavol, Bruce
Subject: RE: Topical Report (TR-0516-49417-P) - Request for Additional Information Letter No. 8870 (eRAI No. 8870)
Attachments: Request for Additional Information No. 8870 (eRAI No. 8870).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: 31

Mail Envelope Properties (ea9d5ae672f346e99e22efc4f66ec6a5)

Subject: RE: Topical Report (TR-0516-49417-P) - Request for Additional Information Letter No. 8870 (eRAI No. 8870)
Sent Date: 6/30/2017 2:24:49 PM
Received Date: 6/30/2017 2:24:50 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: HQPWMSMRS08.nrc.gov

Files	**Size**	**Date & Time**	
MESSAGE	307	6/30/2017 2:24:50 PM	
Request for Additional Information No. 8870 (eRAI No. 8870).pdf			88430

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

Request for Additional Information No. 8870 (eRAI No. 8870)

Issue Date: 06/30/2017
Application Title: NuScale Topical Report
Operating Company: NuScale
Docket No. PROJ0769
Review Section: 01 - Introduction and Interfaces
Application Section: 1

QUESTIONS

01-14

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 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.

Bullet 2 of Section 5.2, “Assumptions and Limitations,” of the topical report (TR), TR-0516-49417-P, states that the core bypass flow cannot be modeled. This section correctly states that this will impact the predicted rate of subcooled boiling, and hence void fraction in the riser section. The TR indicates a parametric study could be performed to account for the impact of the neglected core bypass flow on riser void fraction. However details of such a proposed parametric sensitivity study and how the core bypass effect is captured by such a study are not clear.

In order to make an affirmative finding associated with the above regulatory requirement important to safety, NRC staff requests NuScale to describe how the core bypass flow effect is captured by a parametric sensitivity study, and clarify if it intends to carry out such a study as part of the stability analysis methodology.