NuScaleTRRaisPEm Resource

From:	Chowdhury, Prosanta
Sent:	Saturday, March 31, 2018 2:26 PM
To:	Request for Additional Information
Cc:	Lee, Samuel; Cranston, Gregory; Karas, Rebecca; Skarda, Raymond; Bavol, Bruce; NuScaleTRRaisPEm Resource
Subject:	Request for Additional Information Letter No. 9438 (eRAI No. 9438) Topical Report, Thermal Hydraulic Stability, 15.09, SRSB
Attachments:	Request for Additional Information No. 9438 (eRAI No. 9438).pdf

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

Please submit your technically correct and complete 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.

Prosanta Chowdhury, Project Manager
Licensing Branch 1 (NuScale)
Division of New Reactor Licensing
Office of New Reactors
U.S. Nuclear Regulatory Commission
301-415-164

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From: Chowdhury, Prosanta

Created By: Prosanta.Chowdhury@nrc.gov

Recipients:
"Lee, Samuel" <Samuel.Lee@nrc.gov>
Tracking Status: None
"Cranston, Gregory" <Gregory.Cranston@nrc.gov>
Tracking Status: None
"Karas, Rebecca" <Rebecca.Karas@nrc.gov>
Tracking Status: None
"Skarda, Raymond" <Raymond.Skarda@nrc.gov>
Tracking Status: None
"Bavol, Bruce" <Bruce.Bavol@nrc.gov>
Tracking Status: None
"NuScaleTRRaisPEm Resource" <NuScaleTRRaisPEm.Resource@nrc.gov>
Tracking Status: None
"Request for Additional Information" <RAI@nuscalepower.com>
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Request for Additional Information No. 9438 (eRAI No. 9438)

Issue Date: 04/02/2018
Application Title: NuScale Topical Report
Operating Company: NuScale
Docket No. PROJ0769
Review Section: 15.09 - A.DSRS NuScale Thermal Hydraulic Stability
Application Section:

QUESTIONS

15.09-5

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. Appendix A GDC 12, "Suppression of reactor power oscillations," requires that oscillations be either not possible or reliably detected and suppressed. The SRP 15.0.2 acceptance criteria with respect to evaluation models includes the requirement 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.

The staff reviewed the response to the original RAI, RAI 8870, and found that the response was insufficient for the staff to reach a conclusion regarding the adequacy of the stability analysis methodology. The following supplemental information is therefore requested:

- Provide a summary listing of the numerical results of the sensitivity studies described by the original RAI response. It is acceptable to respond to this request by providing these results as a table that in one column indicates the user input parameter for the subcooled boiling and a second column that provides the decay ratio.

- Explain how the variation in the input parameter for subcooled boiling covers a sufficient range to account for the impact of bypass flow.

- Compare the sensitivity of the decay ratio to the decay ratio uncertainty.