

NuScaleTRRaisPEm Resource

From: Baval, Bruce
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To: NuScaleTRRaisPEm Resource
Subject: RE: NuScale Topical Report (TR) Requests for Additional Information - eRAI No. 8814
Attachments: RAI 8814.docx

TR-0516-49417-P, "Evaluation Methodology for Stability Analysis of the NuScale Power Module" RAI 8814

Bruce M. Baval

Project Manager
NuScale, Licensing Projects Branch 1
Office of New Reactors
Nuclear Regulatory Commission
Work Phone: (301) 415-6715
Email: Bruce.Baval@nrc.gov

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TR-0516-49417-P, "Evaluation Methodology for Stability Analysis of the NuScale Power Module"

RAI 8814 Question (29768)

(Question 29768) 15.09 - DSRS NuScale Thermal Hydraulic Stability

Title 10 Code of Federal Regulations, Part 50, Appendix A, General Design Criterion (GDC) 12-Suppression of reactor power oscillations, requires that oscillations be either not possible or reliably detected and suppressed. The Design-Specific Review Standard (DSRS), 15.9.A, "Design-Specific Review Standard for NuScale SMR Design, Thermal Hydraulic Stability Review Responsibilities," indicates that the applicant's analyses should correctly and accurately identify all factors that could potentially cause instabilities and their consequences. The analyses should also demonstrate that design features that are implemented prevent unacceptable consequences to the fuel.

Section 8.2 of topical report, TR-0516-49417-P, states that decreases in primary system flow rate are not considered credible for stability analysis. During postulated anticipated operational occurrences (AOOs), the staff considers that event sequences could exist that could involve inadvertent operation of components related to the chemical and volume control system (CVCS) that could lead to reduced or increased primary system flow (such as CVCS pump overspeed, or pump trip). Since the CVCS is essentially external to the primary flow circuit, such AOOs could impact reactor coolant system flow without other effects.

Based on the docketed information, the staff is unable to determine the acceptability of the completeness of the applicant's identified scenarios that could cause instabilities. The staff requests the applicant to provide additional justification for the rationale for considering changes in flow events as incredible, considering mal-operation of the CVCS as an initiator for an AOO.