

## NuScaleDCRaisPEm Resource

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**Sent:** Thursday, January 04, 2018 12:57 PM  
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**Cc:** NuScaleDCRaisPEm Resource; Lee, Samuel; Chowdhury, Prosanta; Karas, Rebecca; Burja, Alexandra; Franovich, Rani; Schmidt, Jeffrey  
**Subject:** Request for Additional Information No. 321 RAI No. 9092 (15.4.1)  
**Attachments:** Request for Additional Information No. 321 (eRAI No. 9092).pdf

Attached please find NRC staff's request for additional information concerning review of the NuScale Design Certification Application.

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.

Gregory Cranston, Senior Project Manager  
Licensing Branch 1 (NuScale)  
Division of New Reactor Licensing  
Office of New Reactors  
U.S. Nuclear Regulatory Commission  
301-415-0546

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## **Request for Additional Information No. 321 (eRAI No. 9092)**

Issue Date: 01/04/2018

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 15.04.01 - Uncontrolled Control Rod Assembly Withdrawal from a Subcritical or Low Power Startup Condition

Application Section: 15.4.1

### **QUESTIONS**

15.04.01-3

Standard Review Plan (SRP) Section 15.4.1, "Uncontrolled Control Rod Assembly Withdrawal from a Subcritical or Low Power Startup Position;" SRP Section 15.4.2, "Uncontrolled Control Rod Assembly Withdrawal at Power;" and SRP Section 15.4.3, "Control Rod Misoperation (System Malfunction or Operator Error)," provide guidance for complying with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, "General Design Criteria [(GDC)] for Nuclear Power Plants," 10, "Reactor design;" 13, "Instrumentation and control;" 17, "Electric power systems;" 20, "Protection system functions;" and 25, "Protection system requirements for reactivity control malfunctions." Per the above SRP sections, the reviewer is to evaluate whether the initial conditions and parameter values selected for each analysis are justified. In addition, the reviewer is to evaluate the sequence of events to ensure it is justified based upon expected values of relevant monitored parameters and instrument indications.

Reactor coolant system (RCS) pressure is one acceptance criterion for anticipated operational occurrences. The staff notes that Final Safety Analysis Report (FSAR) Tier 2, Sections 15.4.1 through 15.4.3, evaluate limiting RCS pressure scenarios but do not provide the key inputs or the sequence of events for these scenarios. To enable the staff to evaluate whether the initial conditions/parameter values and sequence of events for the limiting RCS pressure scenarios are justified, please provide the following:

1. Key inputs for the limiting RCS pressure cases in FSAR Tier 2, Sections 15.4.1 through 15.4.3 (similar to those provided for the limiting maximum critical heat flux ratio (MCHFR) cases in FSAR Tier 2, Tables 15.4-2, 15.4-4, 15.4-6, and 15.4-8)
2. Sequence of events for the limiting RCS pressure cases in FSAR Tier 2, Sections 15.4.1 through 15.4.3 (similar to those for the limiting MCHFR cases in FSAR Tables 15.4-1, 15.4-3, 15.4-5, and 15.4-7).