

## NuScaleDCRaisPEm Resource

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**From:** Cranston, Gregory  
**Sent:** Saturday, August 12, 2017 6:55 AM  
**To:** RAI@nuscalepower.com  
**Cc:** NuScaleDCRaisPEm Resource; Lee, Samuel; Chowdhury, Prosanta; Lupold, Timothy; Scarbrough, Thomas; Vera Amadiz, Marieliz  
**Subject:** Request for Additional Information No. 165, RAI 8958 (3.9.6)  
**Attachments:** Request for Additional Information No. 166 (eRAI No. 8958).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.

The NRC Staff recognizes that NuScale has preliminarily identified that the response to one or more questions in this RAI is likely to require greater than 60 days. NuScale is expected to provide a schedule for the RAI response by email within 14 days.

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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**From:** Cranston, Gregory

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**Options**

**Priority:** Standard

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## **Request for Additional Information No. 166 (eRAI No. 8958)**

Issue Date: 08/12/2017

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 03.09.06 - Functional Design Qualification and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints

Application Section: 3.9.6

### QUESTIONS

#### 03.09.06-26

The NRC specified its policy for new reactors with passive emergency cooling systems in several Commission papers and staff memoranda, such as SECY-93-087, SECY-94-084, and SECY-95-132, with their applicable SRMs, and an NRC staff public memorandum dated July 25, 1995. For example, SECY-93-087 states that passive reactor designs include nonsafety-grade active systems to provide defense-in-depth capabilities for reactor coolant makeup and decay heat removal that serve as the first line of defense in the event of transients or plant upsets to reduce challenges to the passive systems. SECY-93-087 states that uncertainties remain concerning the performance of the unique passive features and the overall performance of core and containment heat removal because of a lack of a proven operational performance history. SECY-93-087 indicates that the staff's review of passive designs requires an evaluation of not only the passive safety systems, but also the functional capability and availability of the active nonsafety systems to provide significant defense-in-depth and accident and core damage prevention capability. These nonsafety-related active systems are commonly referred to as Regulatory Treatment of Non-Safety Systems (RTNSS) equipment.

FSAR Tier 2, Section 19.3 asserts that there is no RTNSS equipment in the NuScale Power Plant design. However, NuScale FSAR Tier 2, Section 3.9.6.6, "Augmented Valve Testing Program," states that components not required by ASME OM Code, ISTA-1100, but with augmented quality requirements similar to ISTA-1100 are included in an augmented IST program. Section 3.9.6.6 states that components not meeting ISTA-1100 but having augmented requirements for the nonsafety-related functions are included in the augmented IST program and tested to the intent of the OM Code commensurate with their augmented requirements. NuScale FSAR Tier 2, Table 3.9-24, "NuScale Power Plant Augmented Inservice Testing Plan," Table 3.9-25, "Example Augmented Inservice Testing Valve Program – Chemical and Volume Control System," and Table 3.9-26, "Example Augmented Inservice Testing Valve Program – Reactor Coolant System," provide examples of the planned augmented IST program. Further, the staff has prepared other RAIs regarding RTNSS equipment that could provide information applicable to the NRC review of this FSAR section.

Identify the active pumps and valves that are within the scope of the Commission papers for active nonsafety-related systems that provide the first line of defense for the passive emergency cooling system. Describe the provisions to be applied to provide assurance of the capability of those pumps and valves to perform their intended functions. Describe the augmented IST program for the applicable pumps and valves to clarify the statement in NuScale FSAR Tier 2, Section 3.9.6.6 that the components will be tested to the intent of the ASME OM Code.