

## NuScaleDCRaisPEm Resource

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**From:** Cranston, Gregory  
**Sent:** Saturday, August 05, 2017 8:25 AM  
**To:** RAI@nuscallepower.com  
**Cc:** NuScaleDCRaisPEm Resource; Lee, Samuel; Chowdhury, Prosanta; Samaddar, Sujit; Roche-Rivera, Robert; Vera Amadiz, Marieliz  
**Subject:** RE: Request for Additional Information No. 130, RAI 8968 (3.8.4)  
**Attachments:** Request for Additional Information No. 130 (eRAI No. 8968).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 20 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

**Hearing Identifier:** NuScale\_SMR\_DC\_RAI\_Public  
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**Subject:** RE: Request for Additional Information No. 130, RAI 8968 (3.8.4)  
**Sent Date:** 8/5/2017 8:25:08 AM  
**Received Date:** 8/5/2017 8:25:11 AM  
**From:** Cranston, Gregory

**Created By:** Gregory.Cranston@nrc.gov

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**Post Office:** HQPWMSMRS08.nrc.gov

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**Options**

**Priority:** Standard

**Return Notification:** No

**Reply Requested:** No

**Sensitivity:** Normal

**Expiration Date:**

**Recipients Received:**

## **Request for Additional Information No. 130 (eRAI No. 8968)**

Issue Date: 08/05/2017

Application Title: NuScale Standard Design Certification - 52-048 Operating  
Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 03.08.04 - Other Seismic Category I Structures Application  
Section: 3.8.4

### QUESTIONS

#### 03.08.04-8

10 CFR 50, Appendix A, GDC 1, 2, and 4, provide requirements to be met by SSC important to safety. In accordance with these requirements, DSRS Section 3.8.4 provides review guidance pertaining to the design of seismic Category I structures, other than the containment. Consistent with DSRS Section 3.8.4, the staff reviews description of the structures, loads and loading combinations, and design and analysis procedures.

While FSAR Sections 3.7.3 and 9.1.5 describe analysis and design aspects for the Reactor Building Crane (RBC), the staff review did not find design details pertaining to the rails supporting the RBC. To assist the staff in its evaluation of the structural adequacy of the RBC rails, the staff request the applicant to provide the following information and include such information in the FSAR.

- a) Provide the loads (including impact loads both in the vertical and horizontal directions), load combinations, design criteria, assumptions, and resulting dimensions of the steel rails that support the reactor building crane.
- b) Describe how the rails, which support the RBC, are supported. Describe the design of the supports and provide figures with design details of the rails and supports.
- c) Describe the magnitude of forces and bending moments on the rail supports, and how these forces and bending moments are transmitted down to the basemat.

#### 03.08.04-9

10 CFR 50, Appendix A, GDC 1, 2, and 4, provide requirements to be met by SSC important to safety. In accordance with these requirements, DSRS Section 3.8.4 provides review guidance pertaining to the design of seismic Category I structures, other than the containment. Consistent with DSRS Section 3.8.4, the staff reviews description of the structures, loads and loading combinations, and design and analysis procedures.

FSAR section 9.1.4.1 refers to Sections 3.7 and 3.8 for information pertaining to the analysis, design, and criteria associated with establishing the ability of seismic Category I structures housing the fuel handling equipment (FHE) and supporting systems to withstand the effects of natural phenomena such as the safe shutdown earthquake. However, staff review did not find design details pertaining to the rails supporting the fuel handling machine (FHM). To assist the staff in its evaluation of the structural adequacy of the FHM rails, the staff request the applicant to provide the following information and include such information in the FSAR.

- a) Provide the loads (including impact load both in the vertical and horizontal directions), load combinations, design criteria, assumptions, and resulting dimensions of the steel rails that support the refueling machine.

- b) Describe how the rails, which support the refueling machine, are supported. Describe the design of the supports and provide figures with design details of the supports.
- c) Describe the magnitude of forces and bend moments on the rail supports, and how these forces and bending moments are transmitted down to the basemat.