

## NuScaleDCRaisPEm Resource

---

**From:** Chowdhury, Prosanta  
**Sent:** Monday, March 19, 2018 9:03 PM  
**To:** Request for Additional Information  
**Cc:** Lee, Samuel; Cranston, Gregory; Murray, Demetrius; Kent, Lauren; Green, Brian; NuScaleDCRaisPEm Resource  
**Subject:** Request for Additional Information No. 391 eRAI No. 9370 (18)  
**Attachments:** Request for Additional Information No. 391 (eRAI No. 9370).pdf

Attached please find NRC staff's request for additional information (RAI) 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.

Prosanta Chowdhury, Project Manager  
Licensing Branch 1 (NuScale)  
Division of New Reactor Licensing  
Office of New Reactors  
U.S. Nuclear Regulatory Commission  
301-415-1647

**Hearing Identifier:** NuScale\_SMR\_DC\_RAI\_Public  
**Email Number:** 421

**Mail Envelope Properties** (DM6PR09MB26181794655CDD118E80677F9EAB0)

**Subject:** Request for Additional Information No. 391 eRAI No. 9370 (18)  
**Sent Date:** 3/19/2018 9:02:42 PM  
**Received Date:** 3/19/2018 9:02:46 PM  
**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  
"Murray, Demetrius" <Demetrius.Murray@nrc.gov>  
Tracking Status: None  
"Kent, Lauren" <Lauren.Kent@nrc.gov>  
Tracking Status: None  
"Green, Brian" <Brian.Green@nrc.gov>  
Tracking Status: None  
"NuScaleDCRaisPEm Resource" <NuScaleDCRaisPEm.Resource@nrc.gov>  
Tracking Status: None  
"Request for Additional Information" <RAI@nuscalepower.com>  
Tracking Status: None

**Post Office:** DM6PR09MB2618.namprd09.prod.outlook.com

Files	Size	Date & Time
MESSAGE	556	3/19/2018 9:02:46 PM
Request for Additional Information No. 391 (eRAI No. 9370).pdf		116175

**Options**

**Priority:** Standard  
**Return Notification:** No  
**Reply Requested:** No  
**Sensitivity:** Normal  
**Expiration Date:**  
**Recipients Received:**

## **Request for Additional Information No. 391 (eRAI No. 9370)**

Issue Date: 03/20/2018

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 18 - Human Factors Engineering

Application Section:

### **QUESTIONS**

18-25

Title 10 of the *Code of Federal Regulations* (10 CFR) Section 52.47(a)(8) requires an applicant for a design certification to provide an FSAR [Final Safety Analysis Report] which includes the information necessary to demonstrate compliance with any technically relevant portions of the Three Mile Island requirements set forth in 10 CFR 50.34(f), with certain exceptions. Section 10 CFR 50.34(f)(2)(ii) requires an applicant to "Establish a program, to begin during construction and follow into operation, for integrating and expanding current efforts to improve plant procedures. The scope of the program shall include.....human factors engineering..." The current NRC guidance for developing a human factors engineering (HFE) program is NUREG-0711, Rev 3, "Human Factors Engineering Program Review Model."

NUREG-0711 criterion 4.4(6) states:

*"The applicant's FA (function allocation) should consider not only the primary allocations to personnel, those functions for which personnel have the primary responsibility, but also their responsibilities to monitor automatic functions, detect degradations and failures, and to assume manual control when necessary."*

Section 1.2 "Scope," of the FRA (functional requirements analysis)/FA results summary report states: "The FRA /FA scope involves analyzing each NuScale system that requires direct operator interaction."

The term "direct operator actions" is not clearly defined. It is unclear if the term refers to only to physical actions taken by operators (such as pressing a button or clicking a mouse) or if it includes non-physical operator actions (such as monitoring the plant and detecting automation failures).

Please clarify the scope of the FRA/FA process as it relates to this criterion and describe any clarifications that may be planned for the results summary report.