

NuScaleDCRaisPEm Resource

From: Cranston, Gregory
Sent: Friday, January 12, 2018 2:26 PM
To: RAI@nuscalepower.com
Cc: NuScaleDCRaisPEm Resource; Lee, Samuel; Chowdhury, Prosanta; Lavera, Ronald; Dudek, Michael; Markley, Anthony
Subject: Request for Additional Information No. 336 RAI No. 9289 (12.3)
Attachments: Request for Additional Information No. 336 (eRAI No. 9289).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

Hearing Identifier: NuScale_SMR_DC_RAI_Public
Email Number: 365

Mail Envelope Properties (CY4PR09MB128795D72ED4A5768289F1AF90170)

Subject: Request for Additional Information No. 336 RAI No. 9289 (12.3)
Sent Date: 1/12/2018 2:25:40 PM
Received Date: 1/12/2018 2:25:46 PM
From: Cranston, Gregory

Created By: Gregory.Cranston@nrc.gov

Recipients:

"NuScaleDCRaisPEm Resource" <NuScaleDCRaisPEm.Resource@nrc.gov>
Tracking Status: None
"Lee, Samuel" <Samuel.Lee@nrc.gov>
Tracking Status: None
"Chowdhury, Prosanta" <Prosanta.Chowdhury@nrc.gov>
Tracking Status: None
"Lavera, Ronald" <Ronald.LaVera@nrc.gov>
Tracking Status: None
"Dudek, Michael" <Michael.Dudek@nrc.gov>
Tracking Status: None
"Markley, Anthony" <Anthony.Markley@nrc.gov>
Tracking Status: None
"RAI@nuscalepower.com" <RAI@nuscalepower.com>
Tracking Status: None

Post Office: CY4PR09MB1287.namprd09.prod.outlook.com

| Files | Size | Date & Time |
|--|------|----------------------|
| MESSAGE | 556 | 1/12/2018 2:25:46 PM |
| Request for Additional Information No. 336 (eRAI No. 9289).pdf | | 104307 |

Options

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

Request for Additional Information No. 336 (eRAI No. 9289)

Issue Date: 01/12/2018

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 12.03-12.04 - Radiation Protection Design Features

Application Section: 12.3

QUESTIONS

12.03-10

Regulatory Basis

10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," Section VI.2(a)(i), requires radiation monitoring systems for reactor coolant radioactivity, containment radiation level, condenser air removal radiation level, and process radiation monitor levels. This regulation states that the Emergency Response Data System (ERDS) is a direct near real-time electronic data link between the licensee's onsite computer system and the NRC Operations Center that provides for the automated transmission of a limited data set of selected parameters.

The acceptance criteria of NuScale DSRS Section 12.3-12.4, "Radiation Protection Design Features," state that compliance with the requirements of 10 CFR Part 50, Appendix E, Section VI.2(a)(i), ensures the provision of accurate and timely data needed to determine core and coolant system conditions well enough to assess the extent or likelihood of core damage and to determine the conditions inside the containment vessel well enough to assess the likelihood and consequence of its failure. The area radiation monitoring system should meet the criteria of 10 CFR 50.34(f)(2)(xvii), 10 CFR Part 50 Appendix E VI.2(a)(i), Item II.F.1(3) of NUREG-0737, RG 1.97 using the NuScale-specific source term.

Background

DCD Tier 2 12.3.4.1, "Design Bases," states that the radiological monitoring equipment is designed to provide monitoring of plant area and airborne radiation levels for use in the emergency response data system (ERDS), conforming to 10 CFR Part 50, Appendix E, VI.2(a). DCD Section 12.3.4.2, "Fixed Area Radiation Monitoring Instrumentation," states that fixed area radiation monitoring data is capable of being supplied to the NRC Operations Center through the ERDS via a secure direct electronic data link in the event of an emergency. The ERDS connection is discussed in DCD Section 7.2. DCD Section 12.3.4.3, "Airborne Radioactivity Monitoring Instrumentation," states that fixed Continuous Airborne Monitors (CAM) data are capable of being supplied to the NRC Operations Center through the ERDS via a secure direct electronic data link in the event of an emergency. The ERDS connection is discussed in DCD Section 7.2.

DCD Section 12.3.4.3 states that Table 12.3-10, "Fixed Area and Airborne Radiation Monitors Post-Accident Monitoring Variables," provides information about selected fixed CAMs support accident condition response and are Post-accident monitoring (PAM) system variables. DCD Section 12.3.4.2 Table 12.3-12, "Fixed Area Radiation Monitors," provides information about the area radiation monitors used including the location and design features and the type of radiation monitored and the associated principle isotope(s), instrument ranges, and the identification of monitors that serve a PAM function.

DCD Tier 2 Revision 0, Section 7.2.13.7, "Other Information Systems," states that there is a link from the plant network to the NRC emergency response data system via dedicated communication servers that connect to the plant network and provide data communication of required plant data to offsite emergency response facilities. The staff review of DCD Tier 2 Revision 0 Section 7.2 indicated that this section of the application only stated that an ERDS connection would be provided, and it did not provide any information about which specific devices would be used to provide data to ERDS.

Key Issue

While DCD Section 12.3.4, "Area Radiation and Airborne Radioactivity Monitoring Instrumentation," states that area and airborne radiation monitors can provide information to the ERDS, and DCD Section 7.2 states that the ERDS system will provide the interconnection to the NRC emergency data system, neither DCD Section 12.3 nor DCD Section 7.2 state which specific instruments will be used to satisfy the requirements of 10 CFR Part 50, Appendix E, Section VI.2(a)(i).

Question

To facilitate staff understanding of the application information sufficient to make appropriate regulatory conclusions with respect to radiation monitoring requirements in 10 CFR Part 50, Appendix E, Section VI.2(a)(i), the staff requests that the applicant:

- Describe which radiation monitor(s) are provided for meeting the radiation monitor requirements of 10 CFR Part 50, Appendix E, Section VI.2(a)(i),
- As necessary, revise section DCD Section 12.3, to reflect any changes to the DCD needed to identify the radiation monitors satisfying 10 CFR Part 50, Appendix E, Section VI.2(a)(i) requirements,

OR

Provide the specific alternative approaches used and the associated justification.