

NuScaleDCRaisPEm Resource

From: Cranston, Gregory
Sent: Sunday, July 30, 2017 8:52 AM
To: RAI@nuscalepower.com
Cc: NuScaleDCRaisPEm Resource; Lee, Samuel; Chowdhury, Prosanta; Wang, George; Franovich, Rani; Samaddar, Sujit
Subject: RE: Request for Additional Information No. 113, RAI 8986 (19)
Attachments: Request for Additional Information No. 113 (eRAI No. 8986).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: 135

Mail Envelope Properties (b8f5d34cd3dd4199b325dd00fc4819ad)

Subject: RE: Request for Additional Information No. 113, RAI 8986 (19)
Sent Date: 7/30/2017 8:51:47 AM
Received Date: 7/30/2017 8:51:50 AM
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

"Wang, George" <George.Wang@nrc.gov>

Tracking Status: None

"Franovich, Rani" <Rani.Franovich@nrc.gov>

Tracking Status: None

"Samaddar, Sujit" <Sujit.Samaddar@nrc.gov>

Tracking Status: None

"RAI@nuscalepower.com" <RAI@nuscalepower.com>

Tracking Status: None

Post Office: HQPWMSMRS07.nrc.gov

Files	Size	Date & Time
MESSAGE	559	7/30/2017 8:51:50 AM
Request for Additional Information No. 113 (eRAI No. 8986).pdf		95249

Options

Priority: Standard

Return Notification: No

Reply Requested: No

Sensitivity: Normal

Expiration Date:

Recipients Received:

Request for Additional Information No. 113 (eRAI No. 8986)

Issue Date: 07/30/2017

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 19 - Probabilistic Risk Assessment and Severe Accident Evaluation

Application Section: 19.5

QUESTIONS

19-19

10 CFR 50.150 (a) (1) requires the applicant to perform a design-specific assessment of the effects on the facility of the impact of a large, commercial aircraft.

The staff uses the guidance from Standard Review Plan (SRP) Sections 19.5.III.1 and 19.5.III.2 for the review of the aircraft impact assessment (AIA), and finds that the Final Safety Analysis Report (FSAR) lacks the information on qualifications of the personnel who perform the AIA assessment.

The staff requests the applicant to include in the FSAR a discussion that specifies the AIA is performed by qualified personnel, and provide their qualifications per SRP Sections 19.5.III.1 and 19.5.III.2.

19-20

10 CFR 50.150 (a) (1) requires the applicant to perform a design-specific assessment of the effects on the facility of the impact of a large, commercial aircraft. 10 CFR 50.150 (b) requires that the applicant include a description of the design features and function capabilities identified in the design-specific assessment and how these design features and function capabilities identified in the design-specific assessment meet the assessment requirements in 10 CFR 50.150 (a) (1).

The applicant described in FSAR Section 19.5.5.7 that the locations and functions of the main control room and remote shutdown station are key design features that allow monitoring and control of the plant, However, in FSAR Sections 19.5.3, the applicant described that no credit is taken for the Control Building (CRB) and the RXB is the only structure of concern and only structure evaluated for aircraft impact. Because the main control room is located in the CRB, the staff requests the applicant to explain how not taking credit for the CRB, protects the functions of the main control room.

19-21

10 CFR 50.150 (a) (1) requires the applicant to perform a design-specific assessment of the effects on the facility of the impact of a large, commercial aircraft. 10 CFR 50.150 (b) requires that the applicant include a description of the design features and function capabilities identified in the design-specific assessment and how these design features and function capabilities identified in the design-specific assessment meet the assessment requirements in 10 CFR 50.150 (a) (1).

- a. In FSAR Section 19.5.5.4, the applicant described that the spent fuel pool (SFP) design is a key design feature that prevents SFP perforation and maintains SFP integrity. However, this description lacks sufficiently detailed information about the specific characteristics of the SFP, and its components, that are credited to maintain SFP integrity. The staff requests the applicant to provide a more detailed description in FSAR about the walls, liner and support structure for the SFP credited for maintaining SFP integrity, and describe how any leakage below the required minimum water level of the SFP is avoided.
- b. In FSAR Section 19.5.5.3, the applicant described that SFP cooling is provided by the large water mass of the ultimate heat sink (UHS), and the integrity of the UHS is ensured by the RXB structure as described in Section 19.5.5.5. Based on 10 CFR 50.150 (b), the staff requests the applicant to provide a description of the key design features (i.e. material, size, thickness, and liner etc.) for the UHS and address how these key design features are utilized in maintaining UHS integrity.
- c. In FSAR Section 19.5.5.6, the applicant described that the general arrangement of the structures, specifically the location of the Radwaste Building (RWB), is a key design feature that limits potential strike locations to the west end of the RXB. However, this description lacks sufficiently detailed information about the extent of the west wall of the RXB that is protected by the RWB. Therefore, the staff requests the applicant to provide a more detailed description in FSAR about the extent of protection provided by the RWB to the west wall of the RXB.

19-22

10 CFR 50.150 (a) (1) requires the applicant to perform a design-specific assessment of the effects on the facility of the impact of a large, commercial aircraft. 10 CFR 50.150 (b) requires that the applicant include a description of the design features and function capabilities identified in the design-specific assessment and how these design features and function capabilities identified in the design-specific assessment meet the assessment requirements in 10 CFR 50.150 (a) (1).

In DCD Section 19.5.4.2 "Shock Damage," the applicant states "There are no [systems, structures or components (SSCs)] susceptible to shock (sensitive electronics or active components) on the [NuScale Power Modules (NPMs)] that would interrupt or prevent successful core cooling". The staff requests the applicant to provide a discussion of the evaluation process that led to this conclusion. The applicant should in addition address the same for the SSCs associated with spent fuel pool cooling.