

NuScaleDCRaisPEm Resource

From: Cranston, Gregory
Sent: Friday, February 09, 2018 12:58 PM
To: RAI@nuscalepower.com
Cc: NuScaleDCRaisPEm Resource; Lee, Samuel; Chowdhury, Prosanta; Samaddar, Sujit; Neuhausen, Alissa; Franovich, Rani
Subject: RE: Request for Additional Information No. 367 RAI No. 9365 (19)
Attachments: Request for Additional Information No. 367 (eRAI No. 9365).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.

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301-415-0546

Hearing Identifier: NuScale_SMR_DC_RAI_Public
Email Number: 395

Mail Envelope Properties (CY4PR09MB128705596C26AFA487647AE790F20)

Subject: RE: Request for Additional Information No. 367 RAI No. 9365 (19)
Sent Date: 2/9/2018 12:58:17 PM
Received Date: 2/9/2018 12:58:22 PM
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Post Office: CY4PR09MB1287.namprd09.prod.outlook.com

Files	Size	Date & Time
MESSAGE	555	2/9/2018 12:58:22 PM
Request for Additional Information No. 367 (eRAI No. 9365).pdf		60277

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

Request for Additional Information No. 367 (eRAI No. 9365)

Issue Date: 02/08/2018

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

QUESTIONS

19-38

10 CFR 52.47(a)(27) states that a design certification application (DCA) must contain a Final Safety Analysis Report (FSAR) that includes a description of the design-specific probabilistic risk assessment (PRA) and its results. The staff uses guidance contained in SRP Chapter 19.0 Revision 3, "Probabilistic Risk Assessment and Severe Accident Evaluation for New Reactors," and design certification/combined operating license (DC/COL) interim staff guidance (ISG)20, "Implementation of a Probabilistic Risk Assessment-Based Seismic Margin Analysis for New Reactors." SRP Chapter 19.0 provides guidance for reviewing the PRA-based Seismic Margin Assessment (SMA) submitted in support of a DC or COL application. DC/COL-ISG-20 discusses post-DC activities to update the PRA-based SMA throughout the licensing process of new reactors, including COL action items and post-licensing activities, to ensure a coherent and consistent process for the quality of PRA-based SMA to adequately meet Title 10 of the *Code of Federal Regulations* (10 CFR) 52.47(a)(27), 10 CFR 52.79(a)(46), 10 CFR 52.79(d)(1), and 10 CFR 50.71(h). Specifically, the staff reviewed whether:

"The assumptions made in the applicant's PRA during design development and certification, in which a specific site may not have been identified or all aspects of the design (e.g., balance of plant) may not have been fully developed, are identified in the DC [design certification] application and either remain valid or are adequately addressed within the COL [combined license] application." The DC PRA-based SMA and insights rely on key assumptions that need to be appropriately evaluated and dispositioned during the COL phases to ensure that the PRA-based SMA and insights continue to remain valid.

In the response to request for additional information (RAI) 8899, Question 19.01-18, NuScale indicated that COL Items 19.1-7 and 19.1-8 are sufficient to update the SMA to reflect the as-built configuration.

The staff reviewed COL Item 19.1-7, which states that: "A COL applicant that references the NuScale Power Plant design certification will evaluate site-specific external event hazards, screen those for risk-significance, and evaluate the risk associated with external hazards that are not bounded by the design certification." Based on its review, for the seismic hazard, the staff has determined that a COL

applicant should confirm that the site-specific seismic hazard is bounded by the design certification and update the PRA-based SMA to include site specific (e.g. soil liquefaction and slope failure) and plant-specific information for the site. The existing docketed action statement does not provide adequate guidance to ensure that the results of the PRA-based SMA remain valid and reflect the site-specific (e.g., soil liquefaction and slope failure) and plant-specific information for the site.

The staff also reviewed COL Item 19.1-8, which states that: "A COL applicant that references the NuScale Power Plant design certification will confirm the applicability of assumptions and data and modify as necessary for the to the [*sic*] as-built/as-operated probabilistic risk assessment". Based on its review, the staff has determined that a COL must perform a seismic walkdown to meet the intent of COL Item 19.1-8 for PRA-based SMA assumptions. The existing docketed action statement does not provide adequate guidance (i.e., to perform a seismic walkdown) to ensure that key SMA assumptions, including those identified in FSAR Table 19.1-40 will be appropriately evaluated and dispositioned during the COL phases.

Additionally the response to RAI 8854, Question 19-4, specifically the markups to FSAR Section 19.1.5.1.1.5, "Effects of Seismically Failed SSCs on Surviving [systems, structures and components (SSCs)]," describes the potential for physical interaction between non-seismic Category I SSC and seismic Category I SSC. The FSAR needs to address verification by the COL applicant that site-specific or plant-specific updates do not impact the results of the PRA-based SMA or high confidence low probability of failure (HCLPF) values.

Therefore, the staff requests the applicant to revise the current COL items or provide new COL items addressing the aforementioned aspects which are to be verified by the COL applicant.