

NuScaleDCRaisPEm Resource

From: Cranston, Gregory
Sent: Friday, June 02, 2017 4:35 PM
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Subject: RE: Request for Additional Information No. 45, RAI 8781
Attachments: Request for Additional Information No. 45 (eRAI No.8781).pdf

Attached please find NRC staff's request for additional information concerning review of the NuScale Design Certification Application.

Please submit your 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: 58

Mail Envelope Properties (b0c6e8499c5a4268b3b177441568857c)

Subject: RE: Request for Additional Information No. 45, RAI 8781
Sent Date: 6/2/2017 4:34:42 PM
Received Date: 6/2/2017 4:34:43 PM
From: Cranston, Gregory

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Files	Size	Date & Time
MESSAGE	527	6/2/2017 4:34:43 PM
Request for Additional Information No. 45 (eRAI No.8781).pdf		192446

Options

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

Request for Additional Information No. 45 (eRAI No.8781)

Issue Date: 06/02/2017

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 14.03.09 - Human Factors Engineering - Inspections, Tests, Analyses, and Acceptance Criteria

Application Section: 14.3

QUESTIONS

14.03.09-1

10 CFR 52.47(b)(1) requires a design certification application to contain the proposed inspections, tests, analyses, and acceptance criteria (ITAAC) that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a plant that incorporates the design certification is built and should operate in accordance with the design certification, the provisions of the Atomic Energy Act, and the NRC's regulations. This regulatory basis applies to all questions in this request for additional information (RAI).

NuScale DCD Tier 1, Table 3.15-1, "Human Factors Engineering Inspections, Tests, Analyses, and Acceptance Criteria", Item No.1 says, in part, that an integrated system validation (ISV) test will be performed. Additionally, DCD Tier 2, Chapter 18, "Human Factors Engineering," refers to ITAAC for the performance of an ISV test in the following sections:

- Section 18.0: Human Factors Engineering Overview, Page 18.0-2
- Section 18.10.2.3: Integrated System Validation, Page 18.10-5

However, DCD Tier 2, Table 18.1-1, "Human Factors Engineering Program and Design Activity Milestones," shows that NuScale will complete the verification and validation (V&V) activities, which include the ISV test, during the design certification review. If NuScale performs the ISV, the staff would like to understand why an ITAAC has been provided for a combined license holder to perform the ISV.

Please explain why ITAAC No. 1 has been included with the DC application, or please revise the DCD Tier 1, Table 3.15-1 and aforementioned sections of DCD Tier 2, Chapter 18 to remove ITAAC.

14.03.09-2

NuScale DCD Tier 1, Table 3.15-1, "Human Factors Engineering Inspections, Tests, Analyses, and Acceptance Criteria", Item No. 2 is identical to ITAAC H02 in the letter from the NRC to NuScale dated April 8, 2016 (ML16096A121), which contained a set of draft standard ITAAC that could be used in the design certification application, with one exception: Item No. 2 is missing the word "is" between the words "Interfaces" and "consistent" in the acceptance criteria column of Table 3.15-1. This word is necessary for the acceptance criteria to have its intended meaning.

Please revise DCD Tier 1, Table 3.15-1, "Human Factors Engineering Inspections, Tests, Analyses, and Acceptance Criteria," No. 2 to add the word "is."

14.03.09-3

The "Discussion" column in DCD Tier 2, Table 14.3-2, "Shared/Common SSCs and Non-SSCs, and components Based Design Features and ITAAC Cross Reference," for ITAAC No. 03.15.02 says that the ITAAC corresponds with DCD Tier 2, Section 18.10.2.2, "Design Verification".

As shown in DCD Tier 2, Table 18.1-1, "Human Factors Engineering Program and Design Activity Milestones," design verification is an activity performed as part of the verification and validation activities that NuScale intends to complete during the design certification review.

However, DCD Tier 2, Section 18.11, "Design Implementation," says the completion of design implementation activities is confirmed by an ITAAC, and this ensures that the as-built design conforms to the verified and validated design resulting from the HFE design process.

Please explain why DCD Tier 2, Table 14.3-2, ITAAC No. 03.15.02, refers to design verification instead of design implementation, or please revise DCD Tier 2, Table 14.3-2 to reflect that the ITAAC is verifying implementation to provide reasonable assurance that a plant that incorporates the design certification is built and should operate in accordance with the design certification.