NuScaleDCRaisPEm Resource

From: Chowdhury, Prosanta
Sent: Tuesday, February 27, 2018 10:34 AM
To: 'RAI@nuscalepower.com'
Cc: Lee, Samuel; Cranston, Gregory; Lupold, Timothy; Hansing, Nicholas; Murray, Demetrius; NuScaleDCRaisPEm Resource
Subject: Request for Additional Information No. 372 RAI No. 9364 (14.03.03)
Attachments: Request for Additional Information No. 372 (eRAI No. 9364).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.

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301-415-1647

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Request for Additional Information No. 372 (eRAI No. 9364)

Issue Date: 02/27/2018
Application Title: NuScale Standard Design Certification - 52-048
Operating Company: NuScale Power, LLC
Docket No. 52-048
Review Section: 14.03.03 - Piping Systems and Components - Inspections, Tests, Analyses, and Acceptance Criteria
Application Section:

QUESTIONS

14.03.03-8

10 CFR 52.47(b)(1) requires “The proposed inspections, tests, analyses, and acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a facility that incorporates the design certification has been constructed and will be operated in conformity with the design certification, the provisions of the [Atomic Energy] Act, and the Commission's rules and regulations.” In supporting this requirement, discrepancies have been identified in Tier 1 material. Furthermore, as the Tier 1 material becomes a part of the design certification rule, it is of the utmost importance that this information be free of errors. Below are some specific instances that should be addressed:

a) DCD Tier 1, Table 2.1-4, ITAAC #6 is inconsistent between Tier 1 and Tier 2. Specifically, Tier 2 states that the initial RPV beltline Charpy upper-shelf energy is no less than 75 ft-lb but Tier 1 states greater than 75 ft-lb. The inconsistency is impossible to reconcile in the event that the test results are exactly 75 ft-lb. Correct this inconsistency in the DCD.
b) Tier 1, Page 2.1-1 contains a typographical error: “The SG supports the RCS by suppling part of the RCPB” (should be supplying). Correct the typographical error.
c) ASME Piping ITAAC (Table 2.1-4, ITAAC #1, for instance) needs to have an Acceptance Criteria that relates back to the Design Commitment, namely that the Report exists and concludes that the system meets the requirements of ASME Code Section III. This is also consistent with the Tier 2 discussion in Table 14.3-1. The current Acceptance Criteria wording for Table 2.1-4, ITAAC #1 specifies that a Report meets the Section III requirements for a Report - this has no direct tie to what the Design Commitment entails, namely that the piping system complies with ASME Code Section III requirements. As an example, please see Table 2.2-3 ITAAC #1. Correct the affected ITAAC.
d) The definition of ASME Code presented in Tier 1 Section 1.1 does not contain the provisions for conditions and alternatives contained in 10 CFR 50.55a. A verbatim interpretation of the definition would not allow the phrase “ASME Code” to account for the conditions and alternatives provided in 10 CFR 50.55a. Clarification should be added to indicate that the phrase “ASME Code,” as used in the DCD, means “ASME Code, as endorsed in 10 CFR 50.55a.”
e) The narrative in Tier 2 Table 14.3-1 for DCD Tier 1 Table 2.8-2 ITAAC #2 is inconsistent with the Tier 1 material, as it discusses seismic Category I equipment rather than Class 1E equipment.

14.03.03-9

10 CFR 52.47(b)(1) requires “The proposed inspections, tests, analyses, and acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a facility that incorporates the design certification has been constructed and will be operated in conformity with the design certification, the provisions of the [Atomic Energy] Act, and the Commission's rules and regulations.” In supporting this requirement, the Tier 2 material provides important clarifications to the Tier 1 material and should therefore be as clear as possible with respect to referenced information. The staff notes that references to Tables in the narrative discussion for DCD Tier 2, Table 14.3-1 do not specify Tier 1 or Tier 2. This may provide confusion to a user of this document. For instance, “In accordance with Table 14.2-63, a preoperational test demonstrates that the ECCS safety-related valves listed in Table 2.1-2 stroke fully open…,” refers to both a Table in Tier 2 and Tier 1 without differentiation. Please provide clarification to the language in the DCD.

14.03.03-10

10 CFR 52.6 requires, in part, that information provided to the Commission by an applicant for a standard design certification be complete and accurate in all material respects. Guidance in SRP 14.3.3 suggests that the reviewer ensure that all Tier 1 information is consistent with Tier 2 information and that ASME code classification, safety classification, and seismic classification of the piping systems should be indicated clearly on the figures or described in the design descriptions and consistent with DCD Tier 2, Section 3.2. The reviewer should also ensure that system boundaries and interfaces are indicated clearly in Tier 1 and that the figures are in accordance with the legends.

DCD Tier 2, Figure 3.6-1, “Piping Systems Associated with the NuScale Power Module,” appears inconsistent with both DCD Tier 1, Figure 2.1-1 and DCD Tier 1, Table 2.1-1, “NuScale Power Module Piping Systems.” Specifically, the classification of the piping systems between the containment isolation valves and the NPM flange connection are depicted as ASME B31.1 in Tier 2, but appear to be ASME Code Section III Class 3 in Tier 1. Additionally, the DHRS penetrations are depicted as penetrations in the CNV head in Tier 2, but are depicted as penetrations in the CNV shell in Tier 1. Correct these inconsistencies.