NuScaleDCRaisPEm Resource

From:	Chowdhury, Prosanta
Sent:	Tuesday, May 1, 2018 2:21 PM
To:	Request for Additional Information
Cc:	Lee, Samuel; Cranston, Gregory; Franovich, Rani; Karas, Rebecca; Schmidt, Jeffrey; NuScaleDCRaisPEm Resource
Subject:	Request for Additional Information No. 450 eRAI No. 9498 (15)
Attachments:	Request for Additional Information No. 450 (eRAI No. 9498).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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Licensing Branch 1 (NuScale)
Division of New Reactor Licensing
Office of New Reactors
U.S. Nuclear Regulatory Commission
301-415-1647

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Request for Additional Information No. 450 (eRAI 9498)

Issue Date: 05/01/2018
Application Title: NuScale Standard Design Certification - 52-048
Operating Company: NuScale Power, LLC
Docket No. 52-048
Review Section: 15 - Introduction - Transient and Accident Analyses
Application Section:

QUESTIONS

15-9

Appendix A to Part 50 - General Design Criteria (GDC) for Nuclear Power Plants states, "...The principal Design Criteria establish the necessary design, fabrication, construction, testing and performance requirements for structures, systems and components important to safety..." The categorization of the Design Basis Events (DBEs) specified for the NuScale design in Final Safety Analysis Report (FSAR) Section 15.0 determines, in part, which of the GDCs apply to which events. NuScale DSRS Section 15.0 notes that the staff must ensure that the applicant's selection and assembly of the plant transient and accident analyses represent a sufficiently broad spectrum of transients and accidents, or initiating events. In particular, initiating events are categorized according to expected frequency of occurrence and by type to provide a basis for selection of the applicable analysis acceptance criteria and to provide a basis for comparison between events, which makes it possible to identify and evaluate the limiting cases.

The staff finds the reference to not applicable (N/A) in Table 15.0-1, Design Basis Events, confusing. Some events, such as startup of an inactive loop or boiling water reactor (BWR) specific events, are not possible based on the lack of design features. In these instances, N/A is appropriate. However, N/A also appears when specific design features exist such that the event falls into a beyond design basis category. For example, the NuScale Power Module (NPM) drop, described in FSAR section 15.7.6, appears to state that specific design features of the NPM movement system are single failure proof, and hence NPM drop is categorized as a beyond design basis event.

1) The staff is requesting the applicant modify FSAR Table 15.0-1 to clarify and distinguish events that are not applicable based on a lack of design features from events that are considered beyond design basis based on component or system design features. Further, the staff seeks to understand why station blackout is not included in the special events section of Table 15.0-1, since FSAR Section 15.0.0.2 defines "special events" as beyond design bases events that are explicitly defined by regulation.

2) The staff also requests the long-term, return to power scenario described in FSAR Section 15.0.6, and the computer codes used to evaluate the event, be added to denote its design basis event classification since the scenario can occur within 72 hours following an abnormal operating occurrence or postulated accident using design basis assumptions.