

NuScaleDCRaisPEm Resource

From: Cranston, Gregory
Sent: Saturday, August 05, 2017 1:06 PM
To: RAI@nuscalepower.com
Cc: NuScaleDCRaisPEm Resource; Lee, Samuel; Chowdhury, Prosanta; Samaddar, Sujit; Wang, George; Vera Amadiz, Marieliz
Subject: RE: Request for Additional Information No. 144, RAI 8979 (3.3.1)
Attachments: Request for Additional Information No. 144 (eRAI No. 8979).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

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From: Cranston, Gregory

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Options

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Request for Additional Information No. 144 (eRAI No. 8979)

Issue Date: 08/05/2017

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 03.03.01 - Wind Loading

Application Section: 3.3.1, 3.3.2 and 3.3.3

QUESTIONS

03.03.01-1

10 CFR 50, Appendix A, GDC 2 requires, in part, that SSCs important to safety shall be designed to withstand the effects of natural phenomena such as tornadoes and hurricanes without loss of capability to perform their safety functions.

In DCD Section 3.3.1.2 “Determination of Severe Wind Forces,” and 3.3.2.2 “Determination of Tornado and Hurricane Forces,” the applicant defines several factors used in the determination of wind, tornado, and hurricane forces.

a. The applicant states that the velocity pressure coefficient used is not less than 0.85; however, the SRP Section 3.3.1 recommends a velocity pressure coefficient of not less than 0.87. The staff requests the applicant to justify the use of a velocity pressure coefficient of less than 0.87.

b. The applicant defines z as the building height. The staff requests the applicant to provide a reference for the building height, i.e. “above the ground level”.

c. The applicant states that the gust-effect factor, G , is greater than or equal to 0.85. The staff requests the applicant to clarify if the gust factor is greater than 0.85 and if so, was it calculated using the formula in ASCE 7-05.

d. The applicant defines C_p as the external pressure coefficient equal to 1.0; however, the coefficient for the leeward walls and side walls could be negative and/or different values. Also, the applicant defines GC_p as the internal pressure coefficient equal to 0.18, however, the value could be positive or negative as determined in ASCE 7-05. Therefore, the staff requests the applicant to clarify if the values are computed in accordance with ASCE 7-05.

03.03.01-2

10 CFR 50, Appendix A, GDC 2 requires, in part, that SSCs important to safety shall be designed to withstand the effects of natural phenomena such as tornadoes and hurricanes without loss of capability to perform their safety functions.

In DCD Section 3.3.3 “Interaction of Non-Seismic Category I Structures with Seismic Category I Structures,” the applicant stated that the seismic Category II portion of the CRB was analyzed with the seismic Category I portion of the structure and can withstand the severe and extreme winds. The staff requests the applicant to clarify whether the seismic Category II portion of the CRB was evaluated for severe and extreme wind loads using the same methodology as the seismic Category I portion of the structure.