NuScaleDCDocsPEm Resource

From: Vera Amadiz, Marieliz
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To: NuScaleDCDocsPEm Resource
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Attachments: NRC Staff Issue on NuScale FSAR Section 3.5.1.3.docx

NRC Staff Issue List Regarding NuScale, FSAR Section 3.5.1.3. Public Meeting April 21, 2017

Thanks
Marieliz Vera

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NRC Staff Issue List Regarding NuScale, FSAR Section 3.5.1.3

Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix A, General Design Criterion (GDC) 4, “Environmental and dynamic effects design bases,” states in part that structures, systems, and components (SCCs) important to safety shall be protected against environmental and dynamic effects, including the effects of missiles, that may result from equipment failure. NuScale turbines differ significantly from the current 1,800 revolutions per minute units used in nuclear plants and therefore will be reviewed on a case-by-case basis as discussed in RG 1.115, “Protection Against Turbine Missiles.” Because turbine rotors rotate at relatively high speeds during normal reactor operation, failure of a rotor may result in the generation of high-energy missiles. To satisfy GDC 4, these SSCs shall be appropriately protected against dynamic effects including, the effects of turbine missiles.

Issue 3.5.1.3-1

NuScale FSAR, Tier 2, Section 3.5.1.3 states that “The turbine generator rotor shafts are physically oriented such that the RXB [reactor building] and CRB [control building] are [[within]] the turbine low-trajectory hazard zone and considered to be [[unfavorably]] orientated with respect to the NPMs [NuScale power modules], as defined by RG 1.115, Revision 2.” Per NuScale FSAR, Tier 2, Section 1.2, information delineated by [[ ]] are conceptual design information (CDI) and is outside the scope of the NuScale certified design. Although the design of the turbine building may not be completed at this time, a bounding representation of the turbine building and the turbine location is needed to determine the acceptance criteria for the turbine missile analysis as discussed in RG 1.115, Revision 2, and the Design-Specific Review Standard (DSRS) For NuScale Small Modular Reactor Design, Section 3.5.1.3. The staff believes that the CDI information should be removed regarding turbine missiles so that appropriate bounding information concerning turbine missiles can be reviewed in accordance with RG 1.115 and DSRS 10.2.3.