



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001**

December 20, 2019

MEMORANDUM TO: Peter Riccardella, Chairman
Advisory Committee on Reactor Safeguards

FROM: Dennis C. Bley, Member **/RA/**
NuScale Subcommittee
Advisory Committee on Reactor Safeguards

SUBJECT: PROPOSED RECOMMENDATION FOR ACRS REVIEW
OF NUSCALE POWER, LLC, DESIGN CERTIFICATION
APPLICATION – SAFETY EVALUATION WITH NO OPEN
ITEMS FOR CHAPTER 8, “ELECTRIC POWER”

In response to the Committee’s request, I have reviewed the NRC staff’s safety evaluation report (SER) with no open items for Chapter 8, “Electric Power,” dated December 3, 2019 (ML19319A684). The following is my recommended course of action concerning further review of this chapter of the design certification application (DCA) and the staff’s associated safety evaluation.

SER Phase 4 Summary

Chapter 8 of the SER documents the staff’s review of Revision 2 of Chapter 8, “Electric Power,” of the NuScale DCA, Part 2, Tier 2 “Final Safety Analysis Report” (ML18310A326).

The NuScale DCA Chapter 8 describes the NuScale electric power system, references topical report TR 0815-16497-P-A, “Safety Classification of Passive Nuclear Power Plant Electrical Systems” for the acceptability of such a design, and states that their design meets the specifications of the topical report and its associated safety evaluation. The NuScale plant is designed such that it does not require onsite or offsite alternating current (AC) or direct current (DC) power to cope with design basis events. Safety systems are not reliant on AC or DC power for activation.

The staff evaluated the applicability of the topical report in SER Section 1.4.3.2, “Applicability of Topical Report TR 0815-16497-P-A.” The staff concluded that the NuScale design conforms to 1) the limitations and conditions described in Topical Report Section A, 2) the conditions of applicability described in Topical Report Section B (Table 3-1, Sections I and II), and 3) the augmented provisions described in Topical Report Section B (Table 3-2).” Therefore, our judgment on Chapter 8 will be contingent on our review of Section 1.4.3.2.

Based on the demonstration of the conditions and limitations in the topical report and the consequent non-Class 1E classification of the onsite and offsite electric power systems, and on analysis to support the findings required by 10 CFR 50.12, the staff recommends granting the exemption request regarding General Design Criterion (GDC) 17, GDC 18, and the electric power provisions of GDCs 33, 34, 35, 38, 41, and 44. The staff concludes that the proposed exemptions to GDC 17, GDC 18 and to the electric power provisions of GDCs 33, 34, 35, 38, 41, and 44 are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security.

The staff reconciled their earlier concerns about consistency with other sections of the DCA and SER.

Applicable Concerns from ACRS Phase 3 Letter Report

The Committee pointed out that the staff's SER for Chapter 8 had not yet resolved the significant open item of whether the DCA meets the specifications of topical report TR-0815-16497-P and its associated safety evaluation limitations and conditions.

Staff Response to ACRS Letter Report

The staff agreed with our single finding on Chapter 8 in our report on Chapters 7 and 8.

Open Items from Phase 3 Requiring Further ACRS Review

The one broad open item in Phase 3 was evaluated by the staff and found to be satisfied. They report that the basis for finding the NuScale design in compliance with the criteria of the topical report is provided in Section 1 of the SER, which we have yet to review.

Recommendation

As lead reviewer for NuScale Chapter 8, I recommend that the Committee not perform any additional Phase 5 review of this chapter, contingent on the Committee's future positive review of SER Section 1.4.3.2.

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