



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

MEMORANDUM TO: Walter Kirchner, Lead
NuScale Subcommittee
Advisory Committee on Reactor Safeguards

FROM: Matthew Sunseri, Member
Advisory Committee on Reactor Safeguards

SUBJECT: INPUT FOR ACRS REVIEW OF THE NUSCALE STANDARD
DESIGN APPROVAL (SDA) APPLICATION – SAFETY
EVALUATION REPORT FOR CHAPTER 10, “STEAM AND
POWER CONVERSION SYSTEM”

In response to the Subcommittee’s request, I have reviewed the NRC staff’s safety evaluation report (SER) provided to support ACRS review of the SDA application, and the associated section of the applicant’s submittal for Chapter 10, “Steam and Power Conversion System.” The following is my recommended course of action concerning further review of this chapter and the staff’s associated safety evaluation.

Background

Chapter 10 of the SER documents the staff’s review of the steam and power conversion system. The steam and power conversion system removes thermal energy from the reactor coolant system and transfers it to the main turbine generator where it is converted into electric energy. The main elements of the steam and power conversion system include the main steam, turbine generator, turbine bypass, air-cooled condenser, condensate polishing, feedwater treatment, condensate and feedwater, and auxiliary boiler systems. The steam and power conversion systems are not safety related and are not required for safe shutdown. The main steam and feedwater systems do not have piping that penetrates containment.

SER Summary

The SER documents the staff’s evaluation of the applicant’s design for compliance with applicable regulations and standards, including Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, Subpart E, “Standard Design Approvals.” The NRC staff evaluated the descriptions and discussions of NuScale’s proposed steam and power conversion system. Based on the above determinations, the NRC staff found that the descriptions and discussions in Chapter 10 are sufficient and meet the applicable regulatory requirements and guidance, and acceptance criteria, for the issuance of a standard design approval.

Concerns

I did not identify any specific deficiencies or concerns in my review.

Recommendation

As lead reviewer for NuScale SDA application, Chapter 10, I recommend that no additional committee review is necessary.

References

1. U. S. Nuclear Regulatory Commission, "Safety Evaluation of NuScale SDAA Chapter 10, 'Steam and Power Conversion System'," March 11, 2024 (ML24011A133).
2. NuScale Power, LLC, "Standard Design Approval Application, Part 2, Chapter 10, 'Steam and Power Conversion System'," Revision 1, October 31, 2023 (ML23304A357).

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