



**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: Gregory Halnon, Member
Advisory Committee on Reactor Safeguards

SUBJECT: INPUT FOR ACRS REVIEW OF THE NUSCALE STANDARD
DESIGN APPROVAL (SDA) APPLICATION – SAFETY
EVALUATION REPORT FOR CHAPTER 13, “CONDUCT OF
OPERATIONS”

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 13, “Conduct of Operations.” The following is my recommended course of action concerning further review of this chapter and the staff’s associated safety evaluation.

Background

Chapter 13 of the SER documents the staff’s review of the material provided in the SDA application chapter. This chapter is almost solely dependent on the Combined License (COL) material when submitted by a future applicant.

SER Summary

The SER documents the staff’s evaluation of the applicant’s operational structure 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.” Given that these operational programs are largely outside the scope of an SDA application, the staff devoted time to verify the carryover from the COL application will be sufficient to establish a compliant program. Some specific information was included in the SDA application regarding emergency planning and response facilities. Information related to building and ventilation design, location of Technical Support Center, communication networks, and time study of transit times was reviewed against applicable regulations and good practices. These all were sufficient and adequately reviewed by the staff. There is a strong connection to SDA application Chapter 18, “Human Factors Engineering (HFE),” to operator displays and interfaces. Although the HFE is still to be reviewed by the Committee, the staff found the objectives of the NuScale HFE design adequately translated to Chapter 13 portions for post-accident monitoring instrumentation and Technical Support Center displays. Finally, plant programs and procedures will be the burden of the COL applicant and assured through the COL item tables provided throughout Chapter 13. There is a change in COL Item 13.5-7 where in the approved design certification, the emergency

operating procedures (EOPs) were specifically called out and the generic technical guidelines (GTGs) were referenced as the basis for the Plant Specific Technical Guidelines (PSTGs) resulting in relatively standard EOPs. This text was removed from the SDA application section.

Concerns

In the present light-water reactor fleet, it was well established in NUREG-0737 after the Three Mile Island Unit 2 accident that vendors and licensees established design-specific EOPs. The standardization of these procedures led to many improvements in transient response, training, and downstream procedures. The removal of the GTGs and PSTGs language from the SDA application COL Item 13.5-7, builds a potential divergence in the approach to transient response. By removing the GTGs as a basis for the plant specific procedures may not be optimum for establishing standardized operations across not only different sites, but possibly within the same multi-module site. The principle of Nth-of-a-kind (NOAK) is largely based on the principle of standardization and consistency, therefore, to remove the text relative to GTGs could weaken this concept. After our March 19, 2024, subcommittee meeting, the staff provided a roadmap of how the procedures will be of an acceptable level of technical consistency. During the subsequent full Committee meeting, the staff response was put into the meeting record. In brief, the roadmap follows the 10 CFR Part 52 regulatory requirements to the staff's review guidance for a COL holder. Given comprehensiveness of the COL design and operations information, as well as the required submittal of a Procedure Generation Package, it is concluded an acceptable level of consistency will result. The staff indicated the Construction Inspection Program will further confirm the technical adequacy of the COL holder's operating procedures.

Recommendation

As lead reviewer for NuScale SDA application, Chapter 13, after the staff response, I recommend no further review of this chapter during the SDA review. The level of consistency in the EOPs for NOAK reactors will remain a concern as we realize new reactor licenses. We look forward to reviewing future guidance on licensing NOAK reactors.

References

1. U. S. Nuclear Regulatory Commission, "Safety Evaluation of NuScale SDAA Chapter 13, 'Conduct of Operations'," March 11, 2024 (ML23355A271).
2. NuScale Power, LLC, "Standard Design Approval Application, Part 2, Chapter 13, 'Conduct of Operations'," Revision 1, October 31, 2023 (ML23304A363).
3. NuScale Power, LLC, "Standard Plant Design Certification Application, Chapter 13, 'Conduct of Operations'," Revision 5, July 29, 2020 (ML20224A502).
4. U. S. Nuclear Regulatory Commission, "NUREG-0737, 'Clarification of TMI Action Plan Requirements'," November 30, 1980 (ML102560051).

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