



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 25, 2020

Matthew W. Sunseri, Chairman
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: RESPONSE TO THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
LETTER ON THE NUSCALE POWER, LLC, REPORT ON THE SAFETY
ASPECTS OF THE NUSCALE SMALL MODULAR REACTOR

Dear Mr. Sunseri:

On behalf of the U.S. Nuclear Regulatory Commission (NRC) staff, I would like to thank you for the letter from the Advisory Committee on Reactor Safeguards (ACRS or the Committee) dated July 29, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20211M386). In that letter, the ACRS reported on the Committee's review of the NRC staff's safety evaluation report (SER) with no open items for the NuScale Power, LLC (NuScale), design certification application and standard design approval (SDA) application for its small modular reactor. I appreciate the time and effort the ACRS has devoted to this review, as reflected in meetings held with the ACRS Full Committee on July 21–24, 2020.

The ACRS letter included the following conclusions and recommendations:

1. The NuScale small modular reactor is a natural-circulation, pressurized water reactor that incorporates unique design and passive safety features, providing enhanced margins of safety. There is reasonable assurance that it can be constructed and operated without undue risk to the health and safety of the public.

Staff Response: The staff agrees with the ACRS conclusion.

2. The NRC staff's final SER for the NuScale design should be issued.

Staff Response: The staff agrees with the ACRS conclusion.

3. A design certification and SDA for the NuScale applications should be issued, subject to the staff's proposed exclusions regarding the finality of design requirements: shield wall design, containment leakage from combustible gas monitoring, and steam generator tube structural and leakage integrity.

Staff Response: The staff agrees with the ACRS conclusion.

For these three concerns, the staff's proposed appendix to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, "Licenses, certifications, and approvals for nuclear power plants," that codifies the NuScale design certification will identify that these concerns are not resolved within the meaning of 10 CFR 52.63(a)(5) and will state that a future applicant is responsible for providing the design information to address these concerns before the NRC issues any license. The SDA will also specifically list these items as not being resolved.

4. We identify in this letter report several potentially risk-significant items that are not completed at this time. We request the opportunity to review the qualification of emergency core cooling system valve performance, the identification of a successful recovery strategy to prevent potential reactivity insertion accidents associated with boron dilution sequences, and the updated probabilistic risk assessment.

Staff Response: The staff acknowledges the ACRS request.

The staff anticipates additional information will be available on these topics as part of a future license application that will reference the NuScale small modular reactor design. The staff looks forward to working with the Committee on the review of that future application. Additionally, the NRC letter to the ACRS, OEDO-20-00285, dated August 25, 2020, responding to the ACRS letter dated July 29, 2020, on the NuScale boron redistribution area of focus (ADAMS Accession No. ML20210M890), provides additional information on boron dilution and the DCA probabilistic risk assessment.

The NRC staff appreciates the ACRS's review of this application for the NuScale Small Modular Reactor. The Committee's novel review approach, which focused more on critical issues, significantly complemented the staff's efforts to ensure that its review was appropriately risk informed, efficient and thorough.

Sincerely,

Margaret M. Doane
Executive Director for Operations

Docket No. 52-048

cc: Chairman Svinicki
Commissioner Baran
Commissioner Caputo
Commissioner Wright
Commissioner Hanson
SECY

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