



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

January 27, 2020

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

SUBJECT: SAFETY EVALUATION OF THE NUSCALE POWER, LLC TOPICAL REPORT  
TR-0915-17565, REVISION 3, "ACCIDENT SOURCE TERM METHODOLOGY,"  
AND SOURCE TERM AREA OF FOCUS REVIEW FOR THE NUSCALE SMALL  
MODULAR REACTOR

Dear Mr. Sunseri:

Thank you for the letter, dated December 20, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19354A031), regarding the Advisory Committee on Reactor Safeguards' (ACRS or the Committee) review of the U.S. Nuclear Regulatory Commission (NRC) staff's safety evaluation of the NuScale Power, LLC., (NuScale) Topical Report (TR) TR-0915-17565, Revision 3, "Accident Source Term Methodology," and source term area of focus review for the NuScale design certification application (DCA) as discussed in the letter dated September 25, 2019 (ML19269B682). I appreciate the time and effort that the ACRS has devoted to these important subjects, as reflected in the meetings held with the ACRS Subcommittee for NuScale on November 20, 2019, and the ACRS Full Committee between December 4 - 6, 2019.

The letter contained the following four conclusions and recommendations:

1. Given its unique design attributes, the NuScale DCA uses alternative source terms for both normal operation and accident conditions for siting, safety analysis, control room and technical support center habitability, and equipment qualification and survivability. This approach aligns with Commission guidance noting that design-specific source terms for light-water small modular reactors may not necessarily follow all guides that currently pertain to large light-water reactors (LWRs).
2. The exclusion area boundary (EAB) and low-population zone (LPZ) are anticipated to be close to a NuScale plant. The traditional dose model to calculate radiological consequences for LWRs is inaccurate at short distances from the reactor. Therefore, NuScale has modified an NRC computer code that is more accurate at these reduced distances to address dose evaluations at the EAB and LPZ. The staff has found this approach acceptable.
3. The overall approach to establish the source term for NuScale is acceptable with the conditions and limitations noted by the staff. The SER on the topical report methodology should be issued.

4. Important design differences in NuScale compared to a conventional pressurized-water reactor call into question the prescriptive application of the post-accident requirements for long-term hydrogen and oxygen monitoring. The risk tradeoff between unisolating the NuScale containment to enable long-term hydrogen and oxygen monitoring should be weighed against alternatives that may not require such monitoring. We will continue to explore this issue in our NuScale review.

The NRC staff appreciates the ACRS's review and recommendation and will issue the safety evaluation report. Additionally, we understand your concerns related to the need and capability for long-term post-accident hydrogen and oxygen (combustible gas) monitoring. The NRC staff is scheduled to address these concerns at an ACRS meeting in March 2020.

Sincerely,

**/RA/ Andrea Veil for**

Ho K. Nieh  
Office Director of New Reactors  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission

Docket No.: 52-048

cc: Chairman Svinicki  
Commissioner Baran  
Commissioner Caputo  
Commissioner Wright  
SECY

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