U.S. NUCLEAR REGULATORY COMMISSION SUMMARY OF THE MAY 1, 2024, OBSERVATION PREAPPLICATION PUBLIC MEETING WITH SMR, LLC (A HOLTEC INTERNATIONAL COMPANY) TO DISCUSS THE PENDING RISK DETERMINATION METHODOLOGY TOPICAL REPORT

Meeting Summary

The U.S. Nuclear Regulatory Commission (NRC) held an observation public meeting on May 1, 2024, with SMR, LLC (SMR), a Holtec International Company (Holtec), to discuss the pending Risk Significance Determination Methodology Topical Report.[1] SMR (Holtec) provided presentation slides to support the discussion during the public meeting.[2] This meeting summary satisfies the SMR (Holtec) request for review and feedback on its preapplication meeting materials.

This virtual observation preapplication meeting had attendees from SMR (Holtec) and their contractors, NRC staff, and members of the public.

Preapplication engagements, including this meeting, provide an opportunity for the NRC staff to engage in early discussions with a prospective applicant to offer licensing guidance and to identify potential licensing issues early in the licensing process. No decisions or commitments were made during the preapplication meeting.

The following summarizes the discussion during the open session of the meeting:

The open session started at 1:30 p.m.

- Following the NRC staff's opening remarks and introductions, SMR (Holtec) opened its presentation with the meeting agenda, purpose, and desired outcome of the meeting. The purpose was to present an overview of the pending Risk Significance Determination Methodology Topical Report (TR). The desired outcome was to obtain preliminary feedback on the risk significance determination methodology.

- As a result of the SMR power increase to 300 MWe, the TR is estimated to be submitted in late June 2024.

- The conditions and limitations (CLs) in the safety evaluation (SE) for the NuScale Risk Significance Determination TR require the core damage frequency (CDF) to be approximately $1x10^{-7}$ per year or less for the TR to be applicable[3]. As analysis and

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1 Letter from A. Brenner, "SMR, LLC Preapplication Meeting Materials for May 1, 2024 (Project No. 99902049)," dated April 18, 2024, (Agencywide Documents and Access Management System (ADAMS) Accession No. ML24109A291), part of (ML24109A290).

2 SMR, LLC, Enclosure 1: "NRC Meeting: Risk Significance Methodology" dated May 1, 2024, (ML24109A292), part of (ML24109A290).,

3 U.S. NRC, Final Safety Evaluation Report for NuScale Topical Report, "NuScale Power, LLC, Submittal of the Accepted Version of Licensing Topical Report: TR-0515-13952-NP-A, "Risk Significance Determination," October 10, 2016 (ML16284A016).

modeling are still in progress, it is unknown if the SMR-300 CDF will be 1x10-7 per year or lower.

- SMR Holtec provided the proposed SMR-300 risk significance criteria (RSC), and contrasted them to the RSC from Regulatory Guide (RG) 1.200, NEI 00-04 (endorsed by RG 1.201),[4, 5] and the NuScale TR. SMR Holtec clarified that, "RAW applied across all hazards and operating modes aggregately," means calculating the total CDF by taking the cutsets from all probabilistic risk assessment models, combining the cutsets together, and calculating the risk achievement worth (RAW) value from the combined cutsets. The proposed SMR Holtec RSC applicability is limited to CDFs of $1x10^{-6}$ and below, and this will be reflected in the SMR Holtec TR.

- SMR Holtec also clarified that using separate scaled common cause failure (CCF) RAW threshold values stems from NEI 00-04, which recommends looking at system failures in addition to individual component failures to capture common-cause failure across trains of systems.[6] This approach was not in the NuScale TR, but is applied in the SMR Holtec Risk Significance Determination Methodology TR, as these scaled CCF RAW threshold values are more accurate for SMR Holtec common cause failures. It was noted that these scaled CCF RAW threshold values were implemented from a fundamental review of existing guidance and adaptation for specific design features, and were not due to the SMR Holtec design power increase.

- Given the late June 2024 TR submittal, SMR Holtec estimates they will be requesting staff's SE by the spring of 2025.

- The NRC staff pointed out that incorporation of the NuScale TR relies on four CLs, and SMR Holtec was advised to review and incorporate these items as the staff will pay particular attention to the consideration of these CLs. Specifically, CL Item 2 explains that the ultimate determination of risk significance shall be based on the specific application, with appropriate considerations of uncertainties, sensitivities, traditional engineering evaluations and regulations, and maintaining sufficient defense in depth and safety margin. NRC staff underscored the importance of consideration of defense in depth and safety margins, to which SMR Holtec acknowledged both parts would be addressed in the TR.

- There were no public members participating.

The open session ended at 2:30 p.m.

There was no closed session for the meeting.

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4 U.S. NRC RG 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," March 2009 (ML090410014).

5 U.S. NRC RG 1.201, Revision 1, "Guidelines for Categorizing Structures, Systems, and Components in Nuclear Power Plants According to Their Safety Significance," May 2006 (ML061090627).

6 Nuclear Energy Institute, NEI 00-04, "10 CFR 50.69 SSC Categorization Guideline," July 2005 (ML052910035.).