

U.S. NUCLEAR REGULATORY COMMISSION SUMMARY OF THE JANUARY 25, 2023,
OBSERVATION PREAPPLICATION PUBLIC MEETING
WITH SMR, LLC (A HOLTEC INTERNATIONAL COMPANY)
TO DISCUSS THE PROPOSED PARTS OF ITS CONSTRUCTION PERMIT APPLICATION
AND TABLE OF CONTENTS OF ITS PRELIMINARY SAFETY ANALYSIS REPORT AND
ENVIRONMENTAL REPORT

Meeting Summary

The U.S. Nuclear Regulatory Commission (NRC) held a virtual observation public meeting on January 25, 2023, with SMR, LLC (SMR), a Holtec International Company (Holtec), to discuss the proposed parts of its construction permit application and table of contents of its preliminary safety analysis report.¹ Specifically, SMR (Holtec) requested the meeting to discuss a White Paper on its proposed SMR-160 Construction Permit Application (CPA), Preliminary Safety Analysis Report (PSAR), and Environmental Report (ER) Table of Contents (TOCs).² SMR (Holtec) did not provide presentation slides for the public meeting. This meeting summary satisfies the SMR (Holtec) request for review and feedback on its preapplication meeting materials.

This virtual preapplication meeting had attendees from SMR (Holtec), 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 NRC staff and SMR (Holtec) discussed proprietary information during the closed session. The closed session of the meeting was not open to the public; however, a high-level summary of the discussion is included below.

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

- The NRC staff noted that the table of proposed parts of the construction permit application appears to be the appropriate information expected. The table identified that one part of the application will include exemptions, departures, and variances. In response to the NRC staff question, SMR (Holtec) confirmed that future engagements are planned to discuss these topics. SMR (Holtec) noted that there are currently nine exemptions identified, five deviations from guidance, and that all but one item has not been reviewed previously by the NRC staff in other applications. SMR (Holtec) noted

¹ Letter from J. Hawkins, "SMR, LLC Preapplication Meeting Materials for January 25, 2023 (Project No. 99902049), dated December 19, 2022, Agencywide Documents and Access Management System (ADAMS) Accession No. ML22353A296, part of ML22353A295.

² SMR, LLC, "Enclosure: SMR, LLC CPA TOC White Paper for January 25, 2023," dated December 19, 2022, ML22353A297, part of ML22353A295.

planned engagements to discuss a potential exemption to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.46 for feedback from the staff.³ SMR (Holtec) confirmed that there are no current plans to submit topical reports for NRC staff review prior to the submission of its CPA and noted a future preapplication engagement on its Chapter 15 analysis and plans to further engage staff through follow-on presentations on the topic.

- With respect to the proposed PSAR TOC:
 - In response to the NRC staff question related to Standard Review Plan (SRP) Section 3.8, seismic Category I structures and plans to use new design/construction technology (e.g., steel plate composites), SMR (Holtec) responded that its design is based on rebar reinforced concrete.⁴
 - In reviewing the list of topics for PSAR Chapter 7, the NRC staff noted that SMR (Holtec) appears to be following the instrumentation and control guidance for the NuScale Design Specific Review Standard (DSRS) Chapter 7. This DSRS is discussed in the interim staff guidance (ISG) document for the safety review of a CPA, DNRL-ISG-2022-01.⁵
 - With respect to emergency preparedness and emergency planning, SMR (Holtec) identified that this information would be included, in a limited scope, in PSAR Chapter 13. The NRC staff noted that an applicant for the SMR-160 design should consider the guidance in NUREG-0849, ANS/ANSI Standard 15.16-2015, draft Regulatory Guide (DG)-1350, and information in SECY-22-001.^{6, 7, 8, 9}
 - The NRC staff noted that there is no corresponding SRP Section 11.6.
 - The NRC staff encouraged a future discussion on topics covered in PSAR Chapter 13 including human factors engineering topics and SMR (Holtec) confirmed that there are tentative plans for a future discussion.
 - The NRC commented that the sections in the proposed PSAR Chapter 15 are not consistent with the sections in SRP Chapter 15, and that PSAR Section 15.0 is missing. The NRC staff noted that that it could be challenging to review and

³ Title 10 of the *Code of Federal Regulations*, Part 50, Section 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors."

⁴ The primary review guidance for the review of a CPA is found in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition."
<https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0800/index.html>

⁵ U.S. NRC, Interim Staff Guidance (ISG), DNRL-ISG-2022-01, "Safety Review of Light-Water Power-Reactor Construction Permit Applications," November 14, 2022. (ML22189A099)

⁶ US NRC, NUREG-0849, "Standard Review Plan for the Review and Evaluation of Emergency Plans for Research and Test Reactors," September 1983. (ML062190191)

⁷ American National Standards Institute (ANSI)/American Nuclear Society (ANS) standard ANSI/ANS--15.16--2015, "Emergency Planning for Research Reactors."

⁸ US NRC, Draft Regulatory Guide, DG-1350, "Performance-Based Emergency Preparedness for Small Modular Reactors, Non-Light-Water Reactors, and Non-Power Production or Utilization Facilities," May 2020. (ML18082A044)

⁹ US NRC, SECY-22-0001, "Rulemaking: Final Rule: Emergency Preparedness for Small Modular Reactors and Other New Technologies," dated January 18, 2022. (ML21200A055)

maintain the correct references to sections in the PSAR and staff evaluation if the PSAR sections do not have the same corresponding SRP sections. SMR (Holtec) responded that it plans to match the PSAR Chapter 15 sections with the SRP Chapter 15 sections.

- The NRC staff asked if SMR (Holtec) planned to use Regulatory Guide (RG) 1.183 for its radiation consequence analysis in PSAR Chapter 15 or if it planned to submit a topical report in this area.¹⁰ SMR (Holtec) responded that it does not plan to submit a topical report and plans to use the source term in the RG 1.183. The NRC staff noted that Revision 1 to RG 1.183 is anticipated to be available later this year and includes an updated source term.
 - The NRC staff noted that PSAR Chapter 17 on quality assurance is not consistent with NUREG-0800 SRP because Section 17.5 is missing, and that the SRP title for Section 17.6 is the maintenance rule.
 - The NRC staff requested SMR (Holtec) to discuss whether it plans to engage in a future preapplication engagement related to PSAR Chapter 19 on probabilistic risk analysis (PRA). SMR (Holtec) responded that probabilistic safety assessment (PSA) (or PRA) is an integral part in the development of its design and provides feedback to the system designers based on its results.
 - In response to the NRC staff's question on the topics covered in PSAR Chapter 20, SMR (Holtec) responded that these topics were pulled together for internal tracking. The NRC staff noted that the review guidance for these topics is in SRP Sections 19.4 and 19.5. The NRC staff encouraged a cross-reference to the SRP sections if these topics remain in PSAR Chapter 20.
- There were no comments or questions from members of the public.

The open session was adjourned at 2:10 pm.

The following provides a non-proprietary summary of the discussion during the closed session of the meeting.

- With respect to the proposed ER TOC:
 - The NRC staff noted that the SMR (Holtec) appears to be following the guidance in RG 4.2 which can support a more efficient review.¹¹ The NRC staff encouraged the SMR (Holtec) to submit as complete and concise ER as possible.
 - The NRC staff noted that the PRA information is used in the severe accident mitigation design alternatives (SAMDA) process and that the staff has provided

¹⁰ U.S. NRC, Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," dated July 2000. (ML003716792)

¹¹ U.S. NRC, Regulatory Guide 4.2, "Preparation of Environmental Reports for Nuclear Power Stations," dated September 2018. (ML18071A400)

additional guidance to consider in COL-ISG-029.¹² If design alternatives are proposed to mitigate accident sequences, the NRC staff would need to review the cost analysis. SMR (Holtec) noted that its SAMDAs are straight forward and applies the Nuclear Energy Institute (NEI) guidance in NEI 05-01.¹³

- With respect to the proposed PSAR TOC:
 - SMR (Holtec) described how its PSA updated based on design changes to determine risk. SMR (Holtec) indicated that its initial PSA was completed and described plans to update it. In response to the NRC staff's question, SMR (Holtec) noted that Regulatory Treatment of Nonsafety Systems is reviewed as the design progresses. SMR (Holtec) noted that it is following the guidance in RG 1.200.¹⁴
 - The NRC staff noted that an update to RG 1.28 will be issued as draft near the end of calendar year 2023 and may provide more flexibility in the development of the Quality Assurance Program Description by endorsing more recent NQA-1 editions.^{15, 16}
 - In response to the NRC staff question on its aircraft impact assessment, SMR (Holtec) indicated that its assessment is still developing.
 - The NRC staff asked whether SMR (Holtec) plans to use a performance-based framework or a risk-informed framework for emergency preparedness. SMR (Holtec) indicated that it is still assessing the options and the NRC staff noted it is available to discuss further in a future engagement.
 - The NRC staff asked about the SMR (Holtec) approach to postulated pipe breaks and whether it was considering the approach discussed during the January 11, 2023, public meeting.¹⁷ SMR (Holtec) indicated that it plans to review the information associated with this meeting.
 - SMR (Holtec) provided an overview of its plans for future engagements to address potential exemptions, departures, and deviations noted in its White Paper. SMR (Holtec) also clarified its overall plans for the project.

The closed session was adjourned at 3:15 pm.

¹² U.S NRC, Interim Staff Guidance COL-ISG-029, "Environmental Considerations Associated with Micro-reactors," dated November 27, 2020. (ML20252A076)

¹³ Nuclear Energy Institute, NEI 05-01, "Severe Accident Mitigation Alternative (SAMA)."

¹⁴ U.S. NRC, Regulatory Guide 1.200, "Acceptability of Probabilistic Risk Assessment Results for Risk-Informed Activities," Revision 3, dated December 2020. (ML20238B871)

¹⁵ U.S. NRC, Regulatory Guide 1.28, "Quality Assurance Program Criteria (Design and Construction)," Revision 5, dated October 2017. (ML17207A293)

¹⁶ American Society of Mechanical Engineers, Nuclear Quality Assurance (NQA), NQA-1, "Quality Assurance Requirements for Nuclear Facility Applications."

¹⁷ U.S. NRC, "01/11/2023 Notice of NRC Public Webinar with Nuclear Energy Institute, Industry, and Electric Power Research Institute to Discuss High Energy Line Break Methodology," dated December 22, 2022. (ML22362A014)