U.S. NUCLEAR REGULATORY COMMISSION SUMMARY OF THE FEBRUARY 15, 2023, OBSERVATION PREAPPLICATION PUBLIC MEETING WITH SMR, LLC (A HOLTEC INTERNATIONAL COMPANY) TO DISCUSS THE SMR-160 FIRE PROTECTION DESIGN

Meeting Summary

The U.S. Nuclear Regulatory Commission (NRC) held an observation public meeting on February 15, 2023, with SMR, LLC (SMR), a Holtec International Company (Holtec), to discuss preapplication questions related to the SMR-160 fire protection design. Specifically, SMR (Holtec) requested the meeting to discuss the NRC staff responses to its questions.[1, 2] There were no meeting slides associated with this meeting.

This virtual observation preapplication meeting had attendees from SMR (Holtec), NRC staff, and members of the public. There was no closed session conducted between the NRC staff and SMR (Holtec) to discuss proprietary information.

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:

- After opening remarks and introductions, SMR (Holtec) opened with its objective in seeking clarity on the guidance in Regulatory Guide (RG) 1.189 for nuclear power plants with passive core cooling systems that do not incorporate safety-related water sources and pumping trains, or safety-related water inventories capable of providing sufficient elevation head to serve the specified hose stream demand.[3]

- The NRC staff noted that the design objective for fire protection is demonstrating that sufficient water reaches the location where and when it is needed, including after a seismic event. There are various ways to demonstrate that the fire protection piping system can withstand seismic loads, e.g., designing the system to meet the requirements of American Society of Mechanical Engineers Code B31.1.[4]

- In response to the SMR (Holtec) questions regarding additional guidance for the fire protection system and the fire protection program for a construction permit application, the NRC staff encouraged the consideration of information on the design of the fire

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1 US NRC, Email from C. Lauron to J. Hawkins, "NRC Staff Response to Question regarding Water Source for Fire Protection," dated December 28, 2022, Agencywide Documents and Access Management System (ADAMS) Accession No. ML23031A059.

2 US NRC, Email from C. Lauron to J. Hawkins, "NRC Staff Response to Follow-up Questions re: Water Source for Fire Protection (Project No. 99902049)," dated February 2, 2023, ML23034A043.

3 U.S. NRC, Regulatory Guide 1.189, "Fire Protection for Nuclear Power Plants," Revision 4, May 2021, ML21048A441.

4 American Society of Mechanical Engineers Code B31.1, "Power Piping."

protection system detailed in Chapter 8, “Fire Protection for New Reactors,” of RG 1.189 and a future engagement to discuss the information in a construction permit application. The NRC staff described an interim staff guidance (ISG) document developed for the operational aspects of fire protection to support the 10 CFR Part 53 rulemaking that identified stop gaps for advanced reactors until the rule is final.[5] Following the meeting, the NRC staff confirmed that the ISG is currently under review and that a *Federal Register* notice will be issued making it available for public comment.

- SMR (Holtec) requested information on guidance for the fire protection system in the case of a low power shut down (LPSD) to support probabilistic safety assessment of its design. There does not appear to be any model for the LPSD case and what documentation is needed for its assessment. The NRC staff noted that the LPSD case should be a design consideration and new reactors should consider the guidance in Chapter 8 of RG 1.189 because there are different design considerations than those applied to the existing fleet of nuclear power plants. Information on the LPSD case may be found in RG 1.205 or plants with a National Fire Protection Association (NFPA) 805 licensing basis.[6, 7] Historical information on the guidance for the existing fleet may be found in Revision 2 of RG 1.189.[8]

- In response to the SMR (Holtec) question regarding the fire brigade requirements of 5 members per module (or unit), the NRC staff noted the requirements in NFPA 600 on how the staffing should be determined and that it may be difficult to justify a brigade of less than 5 members because of types of fires that could be encountered.[9] After the meeting, the NRC staff confirmed that the question referred to the fire brigade requirement of 5 members per plant and not per module (or unit). The NRC staff confirmed that the minimum staffing requirements for the fire brigade are in NFPA 600 and are applicable per plant or site unless an evaluation shows otherwise.

- There were no questions from members of the public.

- SMR (Holtec) and the NRC staff confirmed that a closed session to discuss proprietary information was not needed.

The meeting was adjourned at 2:00 PM.

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5 Title 10 of the *Code of Federal Regulations* (CFR), Part 53, “Risk Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors.”

6 U.S. NRC, Regulatory Guide 1.205, “Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants,” Revision 2, May 2021, ML21448A048.

7 National Fire Protection Association Standard 805, “Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants.”

8 U.S. NRC, Regulatory Guide 1.189, “Fire Protection for Nuclear Power Plants,” Revision 2, October 2009, ML092580550.

9 National Fire Protection Association Standard 600, “Standard on Facility Fire Brigades.”