

U.S. NUCLEAR REGULATORY COMMISSION SUMMARY OF THE NOVEMBER 16, 2022,
OBSERVATION PREAPPLICATION PUBLIC MEETING
WITH SMR, LLC (A HOLTEC INTERNATIONAL COMPANY)
TO DISCUSS THE SMR-160 PASSIVE CONTAINMENT HEAT REMOVAL SYSTEM DESIGN

Meeting Summary

The U.S. Nuclear Regulatory Commission (NRC) held a preapplication public meeting on November 16, 2022, with SMR, LLC (SMR), a Holtec International Company, to discuss the SMR-160 passive containment heat removal (PCHR) system design. Specifically, SMR (applicant) requested the meeting to provide a high-level overview of the design of the SMR-160 PCHR system design and to obtain feedback from the NRC staff on whether the applicant is appropriately interpreting the requirements in General Design Criterion (GDC) 40 as described in a White Paper, HI-2220836, Revision 0, "SMR-160 GDC 40 Compliance White Paper."^{1, 2, 3}

This virtual preapplication meeting had attendees from SMR, LLC, Holtec International, LLC, the NRC staff, and members of the public.

- The applicant provided an overview of the PCHR system design and described how its design will comply with the requirements in GDC 40.
- In reference to the information on Slide #8, the NRC staff requested clarification of which components were considered in-scope for the leak tight testing. The applicant responded that the annular reservoir (AR) is the main component as well as the boundaries of the containment structure (CS) and containment enclosure structure. The applicant confirmed that Type A testing to assess overall leakage in containment will be conducted.⁴ The NRC staff commented that the application should be clear on all the programs that ensure structural integrity of all structures and components relied upon for the system.
- The applicant described on Slide #9 that there are no active components in the system. In response to the NRC staff question, the applicant confirmed that the design of the system has a vent that is always open and does not have components that are required to move or change position. The applicant clarified that the AR has sufficient water to provide cooling during a design-basis accident for 90 days and, should there be a loss of all water, pathways exist for air cooling if needed. The NRC staff commented that the presentation focused on heat transfer from the CS and did not discuss heat transfer to the CS.

¹ SMR, LLC, "Preapplication Meeting Materials for November 16, 2022 (Project No. 99902049)," Agencywide Documents and Access Management System (ADAMS) Accession No. ML22305A499, part of ADAMS Package ML22305A497.

² Title 10 of the *Code of Federal Regulations*, Appendix A, "General Design Criteria for Nuclear Power Plants," GDC 40, "Testing of containment heat removal system."

³ SMR-LLC, HI-2220836, "SMR-160 GDC 40 Compliance White Paper," Revision 0, ADAMS Accession No. ML22305A500, part of ADAMS Package ML22305A497.

⁴ 10 CFR Part 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," Type A Test.

- In reference to the White Paper included in the meeting materials, the NRC staff noted that the paper describes the PCHR capability to remove heat for at least 72 hours but did not describe the timing of available inventories or the transition to air cooling. The NRC staff noted its review would focus on design-basis events for the first 7 days with the expectation that the ultimate heat has sufficient inventory for 30 days and that the application should be clear on the availability of water and for how long.
- On Slide #10, the applicant described the periodic testing of the PCHR and clarified that its application will address the draining of the AR to conduct inspections.
- In concluding its presentation with Slide #11, the applicant stated that although its design is similar to the NuScale design which requested an exemption to GDC 40, it believes it complies with GDC 40. The NRC staff noted that based on the high-level overview in the presentation and in the White Paper, the PCHR appears consistent with the requirements in GDC 40. The NRC staff also noted that the design is similar to previously reviewed designs (e.g., ESBWR and AP1000) and that the vent should be available and free of obstruction or interference.
- The NRC staff noted that the testing discussed during this meeting is one of many separate and distinct testing requirements for the licensing and operation of a plant.
- A member of the public requested additional information on the review and licensing processes under 10 CFR Parts 50, 52 and 53. The NRC staff responded that the applicant currently plans to pursue licensing of the SMR-160 through the two-step process under 10 CFR Part 50. This two-step process is the issuance of a construction permit before an operating license. The NRC staff encouraged the review of information on the two-step licensing process available on the NRC public website. The NRC staff noted that the licensing processes under 10 CFR Parts 50 and 52 are available to applicants and, in the future, the process in 10 CFR Part 53 would also be available.
- The applicant and NRC staff confirmed that a closed session to discuss proprietary information was not needed.

The meeting was adjourned at 2:40pm.