U.S. NUCLEAR REGULATORY COMMISSION SUMMARY OF THE JULY 24, 2024, OBSERVATION PREAPPLICATION PUBLIC MEETING WITH SMR, LLC (A HOLTEC INTERNATIONAL COMPANY) TO DISCUSS THE SMR-300 RELIABILITY ASSURANCE PROGRAM

Meeting Summary

The U.S. Nuclear Regulatory Commission (NRC) held an observation public meeting on July 24, 2024, with SMR, LLC (SMR), a Holtec International Company (Holtec), to discuss preapplication information related to the Reliability Assurance Program (RAP) for the SMR-300 design.[1] SMR (Holtec) provided presentation slides to discuss during the public meeting.[2] This meeting summary satisfies the applicant's request for review and feedback on its preapplication meeting materials.

This virtual observation 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 following summarizes the discussion during the meeting:

- SMR (Holtec) opened its presentation with an overview of the agenda and described the purposes of the meeting as to provide a high-level overview of the SMR-300 design RAP, to describe how quality assurance (QA) is applied to RAP structures, systems, and components (SSCs), and obtain feedback from the NRC staff.

- SMR (Holtec) asked if there are any additional guidance documents available for 10 CFR Part 50 applicants or anything in development.[3] The NRC staff responded that there are no additional guidance documents available for RAP for 10 CFR Part 50 applicants and the staff is not currently planning to develop additional guidance documents for RAP for Part 50 applicants. The NRC staff stated that SMR (Holtec) could request that guidance be developed for 10 CFR Part 50 applicants as a public comment to the draft interim staff guidance on the content of risk assessment and severe accident information in light-water power reactor construction permit applications (CPA) that will be published for public comment later this summer.

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1 Letter from A. Brenner, "SMR, LLC Preapplication Meeting Materials for July 24, 2024," dated July 10, 2024, Agencywide Documents and Access Management System (ADAMS) Accession No. ML24192A338 part of package ML24192A337.

2 SMR, LLC, "SMR, LLC, SMR-300 Reliability Assurance Program," dated July 24, 2024, ML24192A339, part of package ML24192A337.

3 Title 10 of the *Code of Federal Regulations* (10CFR), Part 50, "Domestic Licensing of Production and Utilization Facilities." https://www.nrc.gov/reading-rm/doc-collections/cfr/part050/full-text.html

- SMR (Holtec) asked what should be expected from the NRC regarding the review of the scope and implementation of RAP for non-safety related SSCs. The NRC staff responded that the staff will review the RAP as part of its review using Inspection Procedure 35017.[4] The NRC staff also stated that the NRC staff will review the scope of the RAP in accordance with Section 17.4 of the Standard Review Plan (SRP) and will review the implementation of the RAP for a sample of SSCs based on the plant design and the designated risk and safety significance in the preliminary safety analysis report. As discussed in a later response, the staff will review the process used to update the list of RAP SSCs, and the staff's review of this process provides confidence in an applicant's ability to update the list of RAP SSCs.

- Regarding the interpretation of SRP Section 17.4, SMR (Holtec) stated that it will not be following Section A.8, "ITAAC for Design Reliability Assurance Program," and Section A.9, "Combined License Applicant Action Items," because these sections are not applicable to 10 CFR Part 50 applications.[5]

- SMR (Holtec) stated that the SMR-300 quality assurance program description (QAPD) topical report, currently under NRC review, includes programmatic controls. SMR (Holtec) stated that Part II of the QAPD will be applied to safety-related SSCs, while Part III of the QAPD will be applied to non-safety related RAP SSCs.[6]

- SMR (Holtec) asked if the staff expects additional programmatic controls beyond the QAPD be applied to RAP SSCs. The NRC staff responded that no additional programmatic controls beyond the QAPD are expected to be applied to RAP SSCs. The NRC staff stated that the applicable staff review guidance for RAP SSCs that are not safety-related is contained in SRP Section 17.5, Acceptance Criterion U.1, "Non-safety related SSCs that are significant contributors to plant safety."

- SMR (Holtec) stated that some SSCs may not meet the RAP scoping criteria but would be subject to the SMR-300 non-safety-related QA program, which is described in Part III of the QAPD. SMR (Holtec) asked whether these SSCs should be explicitly identified as RAP SSCs. The NRC staff responded that these SSCs would not need to be explicitly identified as RAP SSCs as only SSCs that meet the RAP scoping criteria need to be identified as RAP SSCs.

- SMR (Holtec) asked if there is guidance for RAP Expert Panel formation or responsibilities outside of SRP Section 17.4. The NRC staff responded that there are no additional guidance documents available for RAP Expert Panel formation or responsibilities; however, SMR (Holtec) could refer to the information provided in previous submittals. The NRC staff noted that the concept of an expert panel is used in

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4 U.S. NRC, Inspection Procedure 35017, "Quality Assurance Implementation Inspection," dated December 12, 2020, ML20259A220.

5 U.S. NRC, NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Section 17.4, Revision 4, "Reliability Assurance Program," May 2014. https://www.nrc.gov/docs/ML1329/ML13296A435.pdf

6 SMR, LLC, "SMR, LLC, Topical Report on the Quality Assurance Program for Holtec International's Small Modular Reactor (SMR) Design and Construction," dated June 3, 2024, ML24155A287, part of ML24155A285.

other programs such as the 10 CFR 50.69 categorization process and the Maintenance Rule. The NRC staff stated that it has not evaluated the guidance for the Maintenance Rule Expert Panel or 10 CFR 50.69 Integrated Decision-Making Panel for adequacy related to RAP, but this guidance could provide a good starting point for defining the RAP Expert Panel formation and responsibilities.[7,8]

- SMR (Holtec) stated that additional SSCs may be identified and added to the RAP after the submittal of the CPA and that it does not intend to identify updates to the RAP SSC list to the NRC outside of future licensing submittals. SMR (Holtec) asked if the staff had any concerns with this intention. The NRC staff stated that SMR (Holtec) does not have to send the NRC staff updates to the list of RAP SSCs outside of future licensing submittals, such as the operating license application (OLA). The NRC staff stated that the scope of the preliminary safety analysis report review includes the process that will be used to identify updates to the list of RAP SSCs and that the amount of information and level of detail available to the staff for review will reduce regulatory uncertainty for future submittals (e.g., an OLA).

- SMR (Holtec) asked NRC staff if it was possible to defer Section A.6, "Dominant Failure Modes," of SRP Section 17.4 to the final safety analysis report (FSAR) and OLA. The NRC staff stated that the identification of dominant failure modes may be necessary input to the determination of RAP SSCs. SMR (Holtec) indicated that the determination of RAP SSCs could likely be done without the identification of dominant failure modes, but this would be further considered. Subsequent to the meeting, the NRC staff identified the following staff positions provided in a letter to the ACRS dated August 28, 2014[9]: (1) the selection of SSCs for inclusion in RAP is primarily based on risk significance at the SSC level, (2) dominant failure modes are identified by the COL holder prior to fuel load to inform the integration of RAP into operational programs, and (3) dominant failure modes are not relied upon for the selection of SSCs for inclusion in RAP. Consistent with the previous staff positions, a construction permit applicant can defer proposing a process for determining dominant failure modes of RAP SSCs in accordance with SRP Section 17.4, Acceptance Criterion A.6 to the FSAR and OLA.

- SMR (Holtec) asked if there was an expectation for a separate "operational" RAP (ORAP) after the transition to the Maintenance Rule. The NRC staff responded that there is not an expectation for a separate operational RAP after transitioning to Maintenance Rule in accordance with the Commission direction provided in SRM-SECY-94-084, "SECY-94-084 – Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems." The NRC staff stated that the RAP during the operations phase includes more than the Maintenance Rule, and it also includes the QA program, QA controls, inservice inspection, and inservice testing as described in SRP Section 17.4, Acceptance Criterion B.3, "Integration of Reliability Assurance Program into Operational Programs."

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7 U.S. NRC, Regulatory Guide 1.160, Revision 4, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," September 2018. https://www.nrc.gov/docs/ML1822/ML18220B281.pdf

8 U.S. NRC, NUMARC 93-01, Revision 4F, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," April 2018. https://www.nrc.gov/docs/ML1812/ML18120A069.pdf

9 U.S. NRC, Letter from Mark A. Satorius to John W. Stetkar, "Standard Review Plan Chapter 19 and Section 17.4," August 28, 204. https://www.nrc.gov/docs/ML1422/ML14220A470.pdf

- SMR (Holtec) stated that it does not intend to integrate all RAP SSCs within the Maintenance Rule by default, explaining that Maintenance Rule will be scoped in accordance with 10 CFR 50.65(b). SMR (Holtec) asked if there is a staff expectation that all RAP SSCs be included in the Maintenance Rule. The staff responded that the RAP and Maintenance Rule have different scoping criteria; however, SMR (Holtec) needs to ensure that it meets the criteria in SECY-95-132, approved by the Commission.[10] Subsequent to the meeting, the NRC staff noted that SRP Section 17.4, Acceptance Criterion B.3.4 states that including all RAP SSCs in the scope of the Maintenance Rule is a component of one acceptable method for integrating the RAP into operational programs.

- After the presentation portion of the meeting, a member of the public asked which Department of Energy (DOE) contract is paying for the preapplication engagement activities for SMR (Holtec). The staff responded that DOE is not funding the SMR-300 preapplication engagement activities and that these activities are paid through a fee-billable cost activity code that the NRC assigned to SMR (Holtec). The member of the public then asked for the project number. The staff provided the project number for the SMR (Holtec) preapplication activities, 9990249.

The meeting adjourned at 11:12 am.

[10] U.S. NRC, Commission SRM, "SRM on SECY-95-132, 'Policy and Technical Issues Associated with RTNSS in Passive Plant Designs (SECY-94-084),'" dated June 28, 1995, ML00370819.