



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

**NRC FEEDBACK REGARDING SMR, LLC (HOLTEC) WHITE PAPER: 160-USNRC-071
LIMITED WORK AUTHORIZATION REQUIREMENTS APPLICABLE TO SMR, LLC
(EPID L-2023-LRO-0099)**

SPONSOR INFORMATION

Sponsor: SMR, LLC (A Holtec International Company)

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Docket /Project No(s): 99902049

DOCUMENT INFORMATION

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Purpose the White Paper: SMR, LLC, a Holtec International Company (SMR (Holtec)) developed the White Paper following discussions on the Limited Work Authorization (LWA) process during a November 1, 2023, public meeting.¹ The White Paper seeks clarity on some aspects of the regulations that may apply to a possible LWA application.

Action Requested: SMR (Holtec) requested a written NRC assessment on the information discussed in its White Paper entitled, "Limited Work Authorization Requirements Applicable to SMR, LLC (Project No. 99902049)." The White Paper seeks clarity on the level of design information (preliminary or final) required in an LWA application. The White Paper also describes a "hypothetical LWA scope for illustrative purposes" and discusses when an amendment to an issued LWA or [construction permit (CP)] would be necessary.

¹ U.S. Nuclear Regulatory Commission (NRC), "Enclosure 3 - 11-1-23 Meeting Summary of Public Meeting with SMR, LLC, a Holtec International Company, to Discuss Questions regarding Limited Work Authorization," dated December 15, 2023.
<https://www.nrc.gov/docs/ML2327/ML23276B487.pdf>.

FEEDBACK AND OBSERVATIONS

The NRC staff's feedback and observations on this White Paper are preliminary and subject to change. The feedback and observations are not regulatory findings on any specific licensing matter and are not official agency positions.

The NRC staff reviewed the White Paper and considered the information to fall within four categories: the level of detail for an LWA application, the scope of activities covered by an LWA, the process to address changes under an LWA, and the review schedule for an LWA application. After confirming with SMR (Holtec), the NRC staff did not review or assess the details in the second enclosure to the transmittal letter on possible LWA activities.²

NRC Observations

1. In the White Paper, SMR (Holtec) stated that the level of detail required for an LWA should be consistent with the level of detail required for the license application (CP or COL) connected with the LWA application.³ Specifically, SMR (Holtec) stated:

Specifically, the contents of the LWA should be consistent with either:
(1) design and construction information that is required to be submitted for a CP (i.e., preliminary information in accordance with 10 CFR 50.34(a), or
(2) design and construction information that is required to be submitted for a [combined license (COL)] (i.e., final design information in accordance with 10 CFR 52.79).

Further, SMR (Holtec) asserts that the language in the Federal Register Notice (FRN) associated with the 2007 update to the LWA regulations (72 FR 57416, dated October 9, 2007) (which states that the applicant must provide final design for the structures to be constructed under the LWA and a safety analysis for those portions of the structure) does not supersede the Code of Federal Regulations.⁴

NRC staff feedback:

In accordance with 10 CFR 50.10(d)(3)(i), the following safety information is required for an LWA application connected with a CP application:

- A safety analysis report required by 10 CFR 50.34 for a CP which demonstrates that activities conducted under the LWA will be conducted in compliance with the technically relevant Commission requirements in 10 CFR Chapter I applicable to the design of those portions of the facility within the scope of the LWA, and

² SMR, LLC (A Holtec International Company), Enclosure 2, "Holtec SMR Hypothetical LWA - Possible Activities," dated December 8, 2023. <https://www.nrc.gov/docs/ML2334/ML23342A232>.

³ The White Paper does not address the level of detail required for an LWA associated with an early site permit (ESP) or ESP application.

⁴ U.S. Nuclear Regulatory Commission, "Final Rule – Limited Work Authorizations for Nuclear Power Plants (RIN 3150-AI05)," 72 Federal Register 57416, October 9, 2007. <https://www.govinfo.gov/content/pkg/FR-2007-10-09/pdf/E7-19312.pdf>. See page 57433, starting at the bottom of the first column.

- A description of the activities requested to be performed, and the design and construction information otherwise required by the Commission's rules and regulations to be submitted for a CP, but limited to those portions of the facility that are within the scope of the LWA.

The NRC staff agrees that the preamble for the 2007 LWA final rule as described in the FRN cited above does not supersede the LWA regulations. The NRC staff understands that the preamble refers to "final design" information because the focus in 2007 was on use of the 10 CFR Part 52 licensing process. For a CP application, 10 CFR 50.34(a)(3) requires "preliminary design information"; therefore, an LWA application submitted in connection with a CP application must provide preliminary design information in accordance with 10 CFR 50.34(a)(3) for those portions of the facility within the scope of the LWA application. However, not all information required in a CP application is preliminary (i.e., non-final). For example, as applied to SMR (Holtec), 10 CFR 50.34(a)(7) requires a description of how the quality assurance program (QAP) to be applied to the design, fabrication, construction, and testing of the facility's structures, systems, and components complies with 10 CFR Part 50, Appendix B. The required QAP description is not "preliminary" but must fully satisfy the applicable Appendix B requirements. Another example is the NRC expectation that the applicant will completely characterize the site selected for construction, as discussed in Interim Staff Guidance (ISG) DNRL-2022-01 that supplements the NRC review guidance in NUREG-0800.^{5, 6} More generally, the text of the pertinent 10 CFR 50.34 CP requirement will govern the level of detail required.

The NRC staff recommends that SMR (Holtec) consider the available guidance in NUREG-0800 and DNRL-2022-01 on the Preliminary Safety Analysis Report (PSAR) level of detail for those activities contemplated in its LWA application to be submitted in connection with its CP application. The NRC staff is available to further discuss technical details and expectations for a future SMR (Holtec) LWA application as the design progresses and construction goals which could benefit from an LWA are determined.

The NRC staff notes the caution in 10 CFR 50.10(f) (emphasis added):

Any activities undertaken under a limited work authorization are entirely at the risk of the applicant and, except as to the matters determined under paragraph (e)(1) of this section, the issuance of the limited work authorization has no bearing on the issuance of a construction permit or combined license with respect to the requirements of the Act, and rules, regulations, or orders issued under the Act.

2. In the White Paper, SMR (Holtec) describes its hypothetical LWA activities to include the foundation that supports the containment and containment enclosure structure, and the foundations for the adjacent reactor auxiliary building and control building. SMR (Holtec) further described that the LWA activities would proceed to install pilings, a mud-mat, and the foundation as necessary for each building. In addition, SMR (Holtec) stated that

⁵ U.S. NRC, Interim Staff Guidance (ISG) DNRL-2022-01, "Safety Review of Light-Water Power Reactor Construction Permit Applications," dated October 2022.
<https://www.nrc.gov/docs/ML2218/ML22189A099.pdf>.

⁶ U.S. NRC, 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>.

permanently installed structures would be used to stabilize the excavations and support construction of the foundations.

NRC staff feedback:

The NRC staff does not typically address hypothetical situations and would need further engagement and supporting technical details to provide a meaningful, informed response on proposed LWA activities. However, the NRC staff noted that the initial scope of construction activities described in the White Paper appear consistent with those activities contemplated by the regulations in 10 CFR 50.10(d)(1) as being within the scope of an LWA.

The NRC staff also notes that in the preamble for the 2007 LWA final rule FRN, the NRC staff discusses some of the activities that fall within the definition of construction that would need an LWA or a CP, including the installation of permanent structures within an excavation.

The NRC staff encourages further discussion as the design progresses and with sufficient details available on those LWA activities contemplated to support the SMR (Holtec) construction timeline and licensing goals. The NRC staff notes that NRC staff correspondence associated with a recent LWA application may provide insights on the NRC staff expectations and review including options for the installation of excavation supports.^{7, 8}

3. SMR (Holtec) discussed in the White Paper its understanding of the types of construction changes that might warrant an amendment to the LWA and CP. SMR (Holtec) stated that it believes that minor design changes occurring after issuance of a CP are identified in the final safety analysis report (FSAR), without needing an amendment to the CP, and that such changes are subsequently reviewed in the operating license (OL) application. SMR (Holtec) further stated that it believes that the NRC requires a license amendment for design changes where the change may alter the evaluation and recommendation to issue the CP. SMR (Holtec) extended its understanding to an LWA application connected with a 10 CFR Part 50 CP application in that the as-built design should be reflected in the FSAR, without an amendment to the LWA (unless changes are pursued that may alter the evaluation and recommendation to issue the LWA).

NRC staff feedback:

A licensee is required to comply with the terms and conditions of its license and to determine whether an amendment would be needed to continue to meet those terms and conditions. In general, deviations from and changes to an NRC-issued license would require NRC review and pre-approval. For example, a change to a term or condition

⁷ Information on the Carbon Free Power Project LWA is found in a table of Preapplication Topics and Submittals on the NRC public site: <https://www.nrc.gov/reactors/new-reactors/smr/licensing-activities/pre-application-activities/idaho-national-labs-preapp.html>. This application was later withdrawn.

⁸ Letter from R. Taylor, NRC, to T. Bergman, NuScale, "U.S. Nuclear Regulatory Commission Response to Request to Clarify Whether Installation of Excavation Supports is a Preconstruction Activity," dated September 14, 2022. <https://www.nrc.gov/docs/ML2222/ML2222A012.pdf>.

listed in a construction permit would require an amendment to the construction permit. Examples of such terms and conditions may be found in recently issued permits.⁹

The NRC staff notes that, historically, one of the standard conditions in a CP is the authorization to construct the facility described in the application and the hearing record, in accordance with the principal architectural and engineering criteria and environmental protection commitments therein. The term “principal architectural and engineering criteria” appears in 10 CFR 50.35(a) and is not a defined term. The NRC staff encourages early engagement if a CP holder has questions about whether a CP amendment is required.

The NRC staff encourages SMR (Holtec) to review other regulations related to CPs including the following:

- 10 CFR 50.55, “Conditions of construction permits, early site permits, combined licenses, and manufacturing licenses.”
- 10 CFR 50.90, “Application for amendment of license, construction permit, or early site permit.”
- 10 CFR 50.92, “Issuance of amendment.”

Changes to the design after issuance of the CP are anticipated, and an amendment would be required for changes that deviate from the terms and conditions of the CP. Regardless, the final design of the facility is expected to be described in the OL application for the NRC staff to review and evaluate.

SMR (Holtec) should review the license amendment guidance provided in the Office of Nuclear Reactor Regulation (NRR) Office Instruction LIC-101, Revision 6, and engage the staff for further discussions, as needed.¹⁰ Additional information on the CP amendment process may be found in the mandatory hearing record of a recently issued CP.^{11, 12}

NRC approval of an LWA is limited to the terms and conditions found in the LWA, and an LWA holder is required to comply with these terms and conditions. Examples of such terms and conditions are found in recently issued LWAs.¹³ Similar to a CP, NRC approval of an amendment to the LWA would be necessary to alter those terms and conditions, and an LWA holder is responsible for determining whether an amendment would be needed.

⁹ See, e.g., Kairos Power, LLC, Docket No. 50-7513, Hermes Test Reactor Construction Permit, dated December 14, 2023. <https://www.nrc.gov/docs/ML2333/ML23338A258.pdf>.

¹⁰ U.S. NRC, Office of Nuclear Reactor Regulation, Office Instruction, LIC-101, “License Amendment Review Procedures,” Revision 6, dated August 3, 2020. <https://www.nrc.gov/docs/ML1924/ML19248C539.pdf>.

¹¹ See NRC staff response to Commission prehearing questions for Shine Medical Technologies, LLC, Question 66, page 45. <https://www.nrc.gov/info-finder/nonpower/shine-medical-tech.html>.

¹² See Commission Memorandum and Order for Shine Medical Technologies, Inc. <https://www.nrc.gov/docs/ML1605/ML16056A094.pdf>.

¹³ See, e.g., Limited Work Authorization Vogtle Electric Generating Plant Unit 3, dated February 10, 2012. <https://www.nrc.gov/docs/ML1133/ML113350133.pdf>.

4. In its White Paper, SMR (Holtec) projected the submission of an LWA “as early as the end of 2025 (i.e., ahead of the CP application) to support issuance of the LWA and start of construction activities by the end of 2027 (before anticipated NRC issuance of the CP).”

NRC staff feedback:

The NRC understands that SMR (Holtec) is seeking additional information to determine whether an LWA would benefit its construction timeline and goals.

The NRC staff recognizes that many factors influence the development of an LWA application review schedule, including the quality of the information provided in the application and the maturity of the design for the reactor being referenced in the LWA application. These factors are also significant in the NRC staff’s review efficiency and ability to accept and docket the LWA application. Furthermore, recent experience has shown that frequent preapplication engagements and performing a readiness assessment review of the application before the application is submitted significantly improve the efficiency of the NRC staff’s review.

By understanding the scope of LWA activities and the SMR (Holtec) timeline to support its construction goals, the NRC staff would be better positioned to provide technical and licensing process feedback. The NRC staff encourages additional engagements once the SMR (Holtec) design has progressed with sufficient details to support meaningful NRC feedback on the application and the SMR (Holtec) construction and licensing approach.

The NRC staff notes that submitting an LWA application and a CP application on the timeframes identified in the White Paper (end of 2025 and mid-2026, respectively) may impact the environmental reviews under the National Environmental Policy Act of 1969 (NEPA) and consultation requirements (under the National Historic Preservation Act of 1966, as amended, Section 106, and Endangered Species Act of 1973, as amended, Section 7). Insight into the environmental reviews that would result from this submittal approach include:

- If the environmental report for part one of the application (LWA) is limited to discussion of the activities proposed to be conducted under the LWA as allowed by 10 CFR 51.49(b), that would necessitate development of an environmental impact statement (EIS) for the LWA application and a supplement to the EIS (SEIS) for the CP application, with a separate SEIS later being developed for the OL application. Each review would include separate processes for public involvement and consultation. Also, the proposed timeframe of submittals would result in somewhat overlapping NEPA reviews for the LWA and CP reviews, except that in accordance with 10 CFR 51.76(b), the draft SEIS for the CP application would be supplementing the final EIS for the LWA application. This timeline would result in review challenges and risks and may be burdensome and confusing to the public and consulting parties.
- However, as discussed in 10 CFR 51.49(f), the applicant could prepare a comprehensive ER at the LWA stage that contains all information required under 10 CFR 51.50 to address the impacts of the construction and operation activities. This would allow the NRC staff to prepare a comprehensive EIS at the LWA stage in

accordance with 10 CFR 51.76(f) that would also address the matters necessary to support environmental considerations for the CP application.

Conclusion:

In conclusion, the NRC staff confirms that the PSAR level of detail is appropriate for an LWA application connected with a CP application. The NRC staff cautions that the pursuit of LWA activities is at the risk of the licensee. Changes to or deviations from the terms and conditions of a CP would need an amendment to the CP. Similarly, changes to or deviations from the activities authorized in an LWA would need an amendment to the LWA. The NRC staff identified several considerations for the environmental review associated with an LWA application connected with a CP application. As noted above, the applicant could prepare a comprehensive ER at the LWA stage that contains all the information required to address the impacts of the construction and operation activities. The NRC staff is available to further discuss these environmental review considerations, in addition to specific LWA activities and the applicant's construction timeline and licensing approach, at an appropriate time.

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