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

August 1, 2025

Jean Fleming, Vice President
Licensing, Regulatory Affairs, & PSA
Holtec International
1 Holtec Boulevard
Camden, NJ 08104

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION STAFF'S FEEDBACK ON SMR, LLC (A HOLTEC INTERNATIONAL COMPANY) LETTER REGARDING ITS PLANNED SMR-300 LWA EXEMPTION REQUESTS AND LWA APPLICATION CONTENTS

Dear Ms. Fleming:

By letter dated September 6, 2024, SMR, LLC (SMR), a Holtec International Company (Holtec), submitted a letter and enclosure describing its planned limited work authorization (LWA) application contents and exemption requests.[1, 2] The NRC staff has considered the submittal, and this letter provides the staff's feedback regarding your proposed approach.

In Enclosure 1 to the letter, SMR (Holtec) states that it plans to submit an LWA application to obtain NRC approval for certain construction activities for its proposed SMR-300 dual-unit plant at the existing Palisades Nuclear Plant site prior to applying for or receiving a construction permit (CP). SMR (Holtec) also provided information on its plans to request exemptions to expand the scope of LWA construction activities beyond those defined in 10 CFR 50.10(d)(1). SMR (Holtec) requested that the NRC staff respond to confirm its agreement with SMR (Holtec)'s legal approach to the exemptions or otherwise clarify the underlying purpose of 10 CFR 50.10. This response provides the NRC Staff's feedback on SMR (Holtec)'s proposed approach. If an application for an LWA or CP is submitted to the NRC, the NRC will thoroughly evaluate that application and reach findings and conclusions on its acceptability following a fulsome technical review.

The first two planned exemption requests SMR (Holtec) discusses pertain to certain requirements in 10 CFR 50.10(d)(1) to allow the construction of walls from the foundations to plant grade level under an LWA. The first planned exemption applies to several major structures covered by the definition of construction in 10 CFR 50.10(a)(1), including the containment

[1] Letter from J. Flemming to US NRC, "Planned SMR-300 LWA Exemption Requests and LWA Application Contents (Project No. 99902049)," dated September 6, 2024 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML24250A155, part of ADAMS package ML24250A154).
[2] SMR, LLC, Enclosure 1, "Planned SMR-300 LWA Exemption Requests and LWA Application Contents," dated September 6, 2024 (ADAMS Accession No. ML24250A160, part of ADAMS package ML24250A154). (Non-publicly available).

enclosure structure. The second is specific to the construction of the containment structure walls concurrent with construction of the containment enclosure structure. SMR (Holtec) stated it did not find justification in the 2007 LWA Rule (72 FR 57416) for limiting LWA construction to foundations and noted that in the early 1970s, the Atomic Energy Commission (AEC, predecessor to the NRC) issued several exemptions that allowed licensees to construct foundations and walls up to plant grade level prior to receiving a CP and specifically referenced as precedents the exemptions at ADAMS Accession Nos. ML021860326, ML19319B439, ML021490319, and ML020500019.

SMR (Holtec) also noted that the precursor to the LWA process was created in 1974 (39 FR 14506) and while the proposed rule (39 FR 4582) stated that "measures to protect excavation which may include the installation of foundations and walls could be routinely authorized under the LWA process prior to issuance of a CP," the final rule omitted this text. The final rule added a new paragraph to describe additional activities (including the installation of foundations) for which the NRC could issue a supplemental authorization prior to issuance of a CP, provided there are no unresolved safety issues associated with these activities. SMR (Holtec) stated that it found no explicit statement in the *Federal Register* Notice for the final rule that would explain why the language regarding the installation of walls was deleted from the rule.

The NRC staff notes that the 1974 proposed rule did not permit general installation of foundations and walls as activities that could be approved prior to a CP. Instead, the proposed rule would have allowed "measures to protect excavations," recognizing that the installation of permanent foundations and walls may be used to protect excavations, and this allowance would have eliminated the need for licensees to install temporary protection. The preamble to the final rule included the list of significant changes that were made to the proposed rule in response to public comments. Item (7) on that list stated that concrete work for nuclear facilities (i.e., installation of foundation and walls) was removed from routine authorization. It further stated that additional onsite work (such as installation of foundations) could be authorized "under appropriate circumstances but only after a determination by the hearing board that there were no unresolved safety issues relating to the additional work that would constitute good cause for withholding authorization." The preamble to the final rule explained that the limitation of the scope of work was responsive to one of the comments that recommended that the AEC not allow any onsite work related to radiological safety matters prior to CP issuance. As such, the decision to remove the installation of walls (even those used to protect excavations) from activities that could be authorized prior to issuance of a CP was intentional.

SMR (Holtec) indicated that it did not identify why the NRC limits construction under an LWA to installations of foundations and surmised that this requirement was based on a combination of considerations: the National Environmental Policy Act (NEPA) segmentation concerns, the practical limits of site redress, and the need for an adequate technical review of structures, systems, and components (SSCs). SMR (Holtec) subsequently discussed how each of these items could be dispositioned in its planned exemptions and ultimately determined that exemptions to allow construction beyond foundations under an LWA would be appropriate if the technical information submitted in the application provides the NRC staff with sufficient information to perform its review.

For the first planned exemption request to construct the walls of several major structures to grade, SMR (Holtec) stated that it intends the use the special circumstance as discussed in 10 CFR 50.12(a)(2)(iv), meaning that the exemption would result in benefits to the public health and safety that compensates for any decrease in safety that may result from the grant of

the exemption. SMR (Holtec) explained its position that manufacturing the foundation and walls in a continuous process would result in higher quality at the joint between the foundation and walls, mitigate the inherent risk to site construction personnel and structures from features associated with excavated sites (i.e., use of ramps, temporary retaining walls, etc.), and reduce the site footprint (and, therefore, ease security/access control at the excavated site). SMR (Holtec) also provided its view that there would be no decrease in safety associated with this exemption.

For the second planned exemption request, to allow construction of the containment structure walls concurrent with construction of the containment enclosure structure walls, SMR (Holtec) stated that it intends to use the same special circumstance, 10 CFR 50.12(a)(2)(iv), but using a different justification. In this case, SMR (Holtec) explained that the eight-foot gap between the containment enclosure structure walls and the containment structure walls would constrict access for welders and inspectors if the containment enclosure walls are completed first. Additionally, Holtec stated that site construction personnel safety would also be improved if the walls were constructed at the same time because there are inherent hazards associated with welding in a confined space. Again, SMR (Holtec) noted its position that there would be no decrease in safety associated with this exemption.

In regard to the two planned exemption requests described above, while the safety of site personnel during construction is very important, the NRC staff believes that the “benefits to the public health and safety” referenced in 10 CFR 50.12(a)(2)(iv) means benefits regarding matters over which the NRC exercises its authority, i.e., benefits associated with radiological public health and safety, not construction safety of site personnel. The proposed rule that established the special circumstances (50 FR 16506, 16509) stated that 10 CFR 50.12(a)(2)(iv) “would focus on those circumstances where, on balance, the exemption would actually result in a net increase in overall safety or quality of plant operations.” SMR (Holtec)’s description of the safety benefits of construction in accordance with planned exemptions lacks sufficient information to justify application of the special circumstance described in 10 CFR 50.12(a)(2(iv). Specifically, the only consideration that might be relevant to nuclear safety involve the “cold joint” matter for the first planned exemption. No other considerations bear on nuclear safety. As for the matter that might bear on nuclear safety, the application would need to include adequate justification for the extent to which construction in accordance with the planned exemption would benefit nuclear safety compared to construction without it.

The NRC staff notes that NRC has in the last year granted another exemption to the Tennessee Valley Authority (TVA) for the Clinch River Nuclear Site, which was issued on December 10, 2024 (89 FR 101643). This exemption allowed TVA to conduct certain excavation activities and abandon in place the initial ground support system that would be used to protect worker safety. The TVA exemption request stated that special circumstances in accordance with 10 CFR 50.12(a)(2)(iii) were present, and compliance with the applicable regulation would result in undue hardship or other costs that would be significantly in excess of those contemplated when the regulation was adopted. When developing its first two planned exemption requests, SMR (Holtec) may wish to consider if special circumstances similar to those cited in the TVA exemption request would be relevant and appropriate to SMR (Holtec)’s second planned exemption request.

SMR (Holtec)’s third planned exemption request is from the requirements in 10 CFR 50.10(d)(1), to allow construction of SSCs in the turbine building and yard under an LWA. The SSCs being considered meet the 10 CFR 50.10(d)(1) definition of construction for several reasons: (1) they may be safety-related; (2) they may be used in plant emergency operating

procedures (EOPs); (3) their failure could cause a reactor scram; or (4) they may be needed to meet the physical security requirements or support onsite emergency facilities. SMR (Holtec) cited the special circumstances in 10 CFR 50.12(a)(2)(ii), application of the regulation in the particular circumstances would not serve the underlying purpose of the rule. SMR (Holtec) stated its view that the underlying purpose of 10 CFR 50.10(a)(1) definition of construction is to establish NRC regulatory authority over activities with a reasonable nexus to radiological health and safety and/or common defense and security and the underlying purpose of 10 CFR 50.10(d)(1) is a combination of considerations related to NEPA segmentation concerns, the practical limits of site redress, and the need for an adequate technical review of SSCs.

The NRC staff notes that the 2007 LWA rule provided the following context related to "reasonable nexus to radiological health and safety" standard:

> Upon consideration of stakeholder comments and further evaluation, the NRC has determined that there may be some SSCs of a facility which are required to be described in the [Final Safety Analysis Report] FSAR, but which do not have a reasonable nexus to radiological health and safety or the common defense and security. These SSCs are those which are required to be described in the FSAR to provide contextual information for understanding the overall design and operation of the facility, but which do not actually directly affect the radiological health and safety of the public or the common defense and security, and their indirect effect on such health and safety or common defense and security is so low as to be considered negligible. … In sum, the NRC has clarified and narrowed the scope of SSCs falling within the scope of construction to exclude those SSCs which have no reasonable nexus to radiological health and safety or common defense and security.

As described above, the current definition of construction in 50.10(a)(1) was intended to include only those SSCs that have a reasonable nexus to health and safety. In order to meet the underlying purpose of 10 CFR 50.10(a)(1), SMR (Holtec) would need to provide sufficient design information as well as a justification indicating that for the SMR (Holtec) design, these SSCs do not directly affect the public's radiological health and safety and that their indirect effect would be so low as to be considered negligible.

SMR (Holtec)'s fourth planned exemption request is from the requirements of 10 CFR 50.10(d)(1), to allow construction of portions of the permanent Fire Protection System (FPS) under an LWA. SMR (Holtec) stated that it plans to reference the special circumstance in 10 CFR 50.12(a)(2)(iii), i.e., compliance with the regulation would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted. SMR (Holtec) explained that insurance requirements generally mandate a working FPS, and installing the permanent one early would avoid the added cost of installing and later dismantling a temporary system. Further, SMR (Holtec) stated the SSCs installed under this exemption would be designed, fabricated, and installed using the same requirements as would be applicable to construction under a CP and it plans to submit sufficient information in the LWA preliminary safety analysis report (PSAR) for an appropriate review to be conducted. The NRC staff has not identified any major issues associated with the proposed approach; however, the staff observes that a complete description of the quality assurance measures to be applied to the design and construction of the FPS, among other information, would seem to be an essential element of the planned exemption request in order to satisfy the 10 CFR 50.12(a)(1) requirement that the exemption not present an undue risk to public health and safety.

SMR (Holtec)'s fifth planned exemption request is from the requirements of 10 CFR 50.10(c) to allow construction activities prior to issuance of an LWA or CP. Specifically, SMR (Holtec) stated that it would seek to construct SSCs that may be used in EOPs, which are included in the definition of construction in 10 CFR 50.10(a)(1)(ii). SMR (Holtec) stated that it plans to cite the special circumstances in 10 CFR 50.12(a)(2)(ii), application of the regulation would not serve the underlying purpose of the rule, because the SSCs that would be within the scope of this proposed exemption do not have a reasonable nexus to radiological safety or common defense and security.

SMR (Holtec) noted that in the 2007 LWA final rule, the NRC stated the scope of SSCs falling within the definition of construction was derived from the scope of SSCs included in the Maintenance Rule in 10 CFR 50.65(b). However, SMR (Holtec) observed that the guidance in NUMARC 93-01, Revision 4F that was endorsed by the NRC in RG 1.160, Revision 4, provides licensees with the flexibility to add or remove SSCs from the scope of the Maintenance Rule if an appropriate technical basis exists.

SMR (Holtec) referenced the Nuclear Energy Institute's (NEI)'s proposed screening criteria for assisting in the categorization of activities allowed under the LWA rule (as discussed in NEI letters at ADAMS Accession Nos. ML082120123, ML083460641, and ML090360421). This guidance considered the "use in EOPs" to only include those SSCs that were "relied upon to meet any success criteria." While SMR (Holtec) stated that it believes the SSCs it intends to include within the scope of the fifth proposed exemption would likely be screened out per the NEI guidance, it found no evidence that the NRC staff either endorsed or disagreed with the NEI's screening criteria. As such, SMR (Holtec) stated that it plans to use the plain language reading of the regulation and identify any SSC that would likely be used in the EOPs (as actual EOPs won't be developed until the operating license stage) and would require an exemption to construct prior to issuance of LWA.

The NRC staff notes that for the proposed special circumstance, SMR (Holtec) would need to provide sufficient design information as well as a justification indicating that for the SMR (Holtec) design, these SSCs would not directly affect the public's radiological health and safety and that their indirect effect would be so low as to be considered negligible.

SMR (Holtec) provided a preliminary evaluation of compliance with the requirements in 10 CFR 50.12(a)(1) and concluded that all planned exemption requests would be authorized by law, would not present an undue risk to the public health and safety, and would be consistent with the common defense and security. The NRC staff has not identified any major issues with the proposed approach for the fifth planned exemption request, but the NRC staff observes that the exemption request would need to clearly state the technical basis for applying the particular special circumstance in section 50.12 to the SSCs used in the EOPs.

Because these planned exemption requests would allow SMR (Holtec) to conduct certain activities prior to issuance of a CP (and in the case of the fifth planned exemption request, prior to the issuance of an LWA), the NRC staff would also have to consider the factors outlined in 10 CFR 50.12(b)(1)-(4). SMR (Holtec) stated that there would be no significant adverse impact on the environment, the LWA redress plan would address any adverse environmental impact, the proposed activities would not foreclose subsequent adoption of alternatives, and the environmental report submitted with the LWA would address the need for power. The NRC staff agrees that SMR (Holtec) would have to address the section 50.12(b)(1)-(4) factors in its submitted exemption requests and the NRC staff will evaluate those factors as part of its review.

SMR (Holtec) also evaluated radiological waste management SSCs against the definition of construction and concluded the installation of radwaste SSCs would not constitute construction activities. The NRC staff observes that SMR (Holtec)'s approach appears to be consistent with the NRC's practice under the Maintenance Rule with regard to radiological waste management SSCs. SMR (Holtec) should ensure that there is nothing unique about its design in this regard that would warrant a departure from that practice (i.e., these radiological waste management SSCs are relied upon to mitigate an accident or transient or are otherwise subject to Maintenance Rule requirements.)

The NRC staff will review and evaluate any exemption request SMR (Holtec) chooses to submit to determine whether the requirements are met upon receipt of that application.

Feedback on the planned content of the LWA PSAR will be provided at a later date.

If you have questions regarding this matter, please contact Victoria Huckabay at (301) 415-5183 or via email at Victoria.Huckabay@nrc.gov.

Sincerely,

Signed by Jardaneh, Mahmoud
on 08/01/25

Mahmoud Jardaneh, Chief
Licensing and Regulatory Infrastructure Branch
Division of New and Renewed Licenses
Office of Nuclear Reactor Regulation

Docket No. 99902049

cc: K. Trice (SMR, LLC)
J. Hawkins (SMR, LLC)
C. Shurtleff (SMR, LLC)

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