Attachment – Exemption.

NUCLEAR REGULATORY COMMISSION

Docket Nos. 50-424, 50-425, and 72-1039;

Southern Nuclear Operating Company;

Vogtle Electric Generating Plant Units 1 & 2;

Independent Spent Fuel Storage Installation;

Exemption

I. Background

Southern Nuclear Operating Company (SNC) is the holder of Facility Operating Licenses Nos. 50-424 and 50-425, which authorize operation of Vogtle Electric Generating Plant Units 1 and 2 in Georgia, pursuant to part 50 of title 10 of *the Code of Federal Regulations* (10 CFR), "Domestic Licensing of Production and Utilization Facilities." The licenses provide, among other things, that the facility is subject to all rules, regulations, and orders of the U.S. NRC now or hereafter in effect.

Consistent with 10 CFR part 72, subpart K, "General License for Storage of Spent Fuel at Power Reactor Sites," a general license is issued for the storage of spent fuel in an independent spent fuel storage installation (ISFSI) at power reactor sites to persons authorized to possess or operate nuclear power reactors under 10 CFR part 50.

SNC is authorized to operate nuclear power reactors under 10 CFR part 50 and holds a 10 CFR part 72 general license for storage of spent fuel at the Vogtle ISFSI. Under the terms of the general license, SNC stores spent fuel at it's Vogtle ISFSI using the HI-STORM 100S system in accordance with CoC No. 1014, Amendment 11.

The HI-STORM 100 dry storage system is a passive design providing the required safety functions of heat removal, criticality control, shielding, and confinement. The system consists of

multi-purpose canisters (MPCs) that confine the spent fuel, a storage overpack (HI-STORM 100S) for shielding and structural protection, and a transfer cask (HI-TRAC) for loading, unloading, and transfer operations. The MPC is a welded, cylindrical canister with a fuel basket containing neutron-absorbing material for criticality control, and all confinement boundary components are made of stainless-steel alloys.

The HI-STORM 100 dry storage system is certified to accommodate spent fuel and specified non-fuel hardware (NFH), as defined in appendix B of CoC No. 1014, which restricts Neutron Source Assembly (NSA) containing assemblies to designated interior cells. NSAs are among the authorized NFH types.

On December 8, 2025, SNC discovered that a NSA had been misloaded in a peripheral cell of MPC-32, serial number MPC-707, during the April 2024 dry cast storage fuel loading campaign at Vogtle Units 1 and 2. This misloading occurred because NSAs were mislabeled as burnable poison rod assemblies (BPRAs) in the TracWorks database in 1997, due to the NSAs and BPRAs similarities in appearance and serial number nomenclature. The clerical error was not detected in SNC's fuel selection procedures, which led to the improper loading during the 2024 dry cask storage fuel loading campaign. This loading configuration is inconsistent with the requirements of appendix B, section 2.1, "Fuel Specifications and Loading Conditions," and section V, table 2.1-1 of CoC No. 1014, Amendment 11. These requirements restrict loading of this type of NFH to specific interior basket locations (cells 13, 14, 19, and/or 20), with a maximum of one NSA per canister; peripheral cells are not permitted for NSA placement.

Following the discovery of this error, SNC updated TracWorks labels for all primary source assemblies at Vogtle to correctly reflect their hardware type and completed an extent-of-condition review of NSA labels and locations across all SNC PWR sites, including spent fuel pool inventories and previously loaded dry cask storage MPCs.

II. Request/Action

By letter dated April 6, 2026 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML26096A485), SNC requested an exemption from 10 CFR 72.212(b)(3) and 72.212(b)(11), to deviate from CoC No. 1014, Amendment 11 (ML23328A045 (package) restrictions on NSA placement within the MPC-32 basket.

This exemption request seeks the NRC's authorization, pursuant to 10 CFR 72.7, to permit a single NSA to remain in its as-loaded storage location in a peripheral basket cell of MPC-32, serial number MPC-707.

III. Discussion

Pursuant to 10 CFR 72.7, "Specific exemptions," the Commission may, upon application by any interested person or upon its own initiative, grant such exemptions from the requirements of the regulations of 10 CFR part 72 as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest.

A. The Exemption is Authorized by Law

This exemption would allow SNC to deviate from CoC No. 1014, Amendment 11 NSA placement restrictions and keep the NSA in a peripheral cell of MPC-707.

SNC is requesting an exemption from the provisions in 10 CFR part 72 that require the licensee to comply with the terms, conditions, and specifications of the CoC for the approved cask model it uses. Section 72.7 allows the NRC to grant exemptions from the requirements of 10 CFR part 72. This authority to grant exemptions is consistent with the Atomic Energy Act of 1954, as amended, and is not otherwise inconsistent with NRC's regulations or other applicable laws. Additionally, no other law prohibits the activities that would be authorized by the

exemption. Therefore, the NRC concludes that there is no statutory prohibition on the issuance of the requested exemption, and the NRC is authorized to grant the exemption by law.

B. The Exemption Will Not Endanger Life or Property or the Common Defense and Security

This one-time exemption would allow SNC to retain a single NSA loaded within a multi-purpose canister (MPC-32, serial number MPC-707) at the Vogtle 1 & 2 units, in a manner that is inconsistent with the loading restrictions specified in CoC No. 1014, Amendment 11, for the HI-STORM 100S Version B dry storage system. SNC's evaluation concludes that retaining a single NSA in a peripheral cell does not adversely affect criticality control, shielding, thermal performance, structural integrity, or confinement functions of the HI-STORM 100S system and MPC-32, as loaded. The NSA (a Californium-252 primary source from Vogtle Unit 2 Cycle 1) has decayed for over 34 years, reducing neutron emission to negligible levels relative to a typical spent fuel assembly. Post-loading dose surveys confirm compliance with regulatory dose limits.

The NRC staff has evaluated the SNC's assessment and determined that under the requested exemption, the storage system will continue to meet the safety requirements of 10 CFR part 72 and the offsite dose limits of 10 CFR part 20, "Standards for Protection Against Radiation", and, therefore, will not endanger life or property or the common defense and security.

The NRC staff's review concluded, as discussed below, that the proposed exemption from certain requirements of 10 CFR part 72 will not cause CoC No. 1014 to encounter conditions beyond those for which it has already been evaluated and demonstrated to meet the applicable safety requirements in 10 CFR part 72.

The NRC staff's evaluation focused on the application and those calculations and analyses submitted with the application. The NRC staff followed the guidance in NUREG-2215

to complete its safety evaluation. The NRC's staff evaluation includes thermal, containment, shielding, and criticality safety areas, which are the relevant technical disciplines affected by this exemption.

Thermal Review: The objective of the thermal evaluation was to confirm that the MPC-32, serial number MPC-707, with the improperly loaded NSA met the thermal requirements described in 10 CFR part 72, thereby allowing Vogtle Units 1 and 2 to continue to store the NSA in a manner that is inconsistent with the loading restrictions specified in CoC No. 1014, Amendment 11, for the HI-STORM 100S Version B dry storage system. The NRC staff relied on the information provided by the licensee in their exemption submittal (submitted April 2026) and their 30-day special report (letter NL-25-0474, January 2026).

As described in the licensee's, "Request for Exemption from an Allowable Contents Requirement contained in the Certificate of Compliance Number 1014 of the HI-STORM 100S Version B Dry Cask Storage," (Enclosure to NL-26-0138 of the April 2026 submittal), the placement of an NSA in a peripheral cell (rather than in a designated interior cell) of the MPC-32 canister was inconsistent with the requirements of CoC No. 1014 of the HI-STORM 100S Version B Dry Cask Storage System. To support the exemption request, the licensee noted that the activity of an NSA (e.g., cobalt activation of its stainless steel and Inconel portions) is bounded by the total activity of a burnable absorber assembly that can be stored in a peripheral cell of an MPC-32 basket. In addition, the licensee indicated that the placement of the NSA had no effect on the thermal safety evaluation, since the loaded NSA produced negligible decay heat and the evaluation is based on the bounding decay heat per cell location.

After reviewing this assessment, the NRC staff concludes that, because the activity of an NSA is bounded by the total activity of a burnable absorber assembly, and because of the negligible decay heat from the loaded NSA, placing the NSA in a peripheral cell of the MPC-32 basket, contrary to CoC No. 1014, Amendment 11, requirements, would not change the thermal

evaluation. Therefore, the NRC staff finds that the thermal function of MPC-32 (serial number MPC-707) loaded under CoC No. 1014, Amendment 11, as addressed in the exemption request, remains in compliance with 10 CFR part 72.

Confinement Review: The objective of the confinement evaluation was to confirm that MPC-32, serial number MPC-707, with the improperly loaded NSA met the confinement requirements described in 10 CFR part 72, thereby allowing Vogtle Units 1 and 2 to continue to store the NSA in a manner that is inconsistent with the loading restrictions specified in CoC No. 1014, Amendment 11, for the HI-STORM 100S Version B dry storage system. The NRC staff relied on the information provided by the licensee in their exemption submittal (submitted April 2026) and their 30-day special report (letter NL-25-0474, January 2026).

As described in the licensee's, "Request for Exemption from an Allowable Contents Requirement contained in the Certificate of Compliance Number 1014 of the HI-STORM 100S Version B Dry Cask Storage," (Enclosure to NL-26-0138 of the April 2026 submittal), the placement of an NSA in a peripheral cell (rather than in a designated interior cell) of the MPC-32 canister's basket was inconsistent with the requirements of CoC No. 1014 of the HI-STORM 100S Version B Dry Cask Storage System. To support the exemption request, the licensee indicated that the placement of the NSA had no effect on confinement safety evaluations and that the MPC (i.e., the confinement boundary, which is tested to "leaktight" specifications as described in chapters 7 and 9 of HI-STORM 100 final safety analysis report (FSAR) revision 16) continued to have no credible leakage. The licensee noted that the activity of an NSA (e.g., cobalt activation of its stainless steel and Inconel portions) is bounded by the total activity of a burnable absorber assembly that can be stored at a peripheral cell of an MPC-32 basket, such that there is no significant change in content activity within the MPC-32. In addition, the licensee noted that the distinction between an NSA and burnable absorber assembly has no effect on structural evaluations.

After reviewing this assessment, the NRC staff agrees that the placement of the NSA had no effect on confinement safety evaluations as the activity of the NSA is bounded by the total activity of a burnable absorber assembly that can be stored in a peripheral cell, and, therefore, concludes that placing the NSA in a peripheral cell of the MPC-32 basket, contrary to CoC No. 1014, Amendment 11, requirements, would not change the confinement evaluation. Therefore, the NRC staff finds that the confinement function of MPC-32 (serial number MPC-707), loaded under CoC No. 1014, Amendment 11, as addressed in the exemption request, remains in compliance with 10 CFR part 72.

Shielding Evaluation: The NRC staff reviewed SNC's exemption request to deviate from CoC No. 1014 requirements, to ensure that the shielding is adequate to meet requirements in 10 CFR part 72, thereby allowing Vogtle Units 1 and 2 to continue to store the NSA in a manner that is inconsistent with the loading restrictions specified in CoC No. 1014, Amendment 11, for the HI-STORM 100S Version B dry storage system. For shielding purposes, the NRC staff reviewed the exemption request for compliance with the requirements of 10 CFR 72.12(b)(3), 72.212(b)(11), 72.126(a)(6), 72.104 and 72.106.

The shielding design is described in Holtec International's FSAR for the HI-STORM 100 cask system and CoC No. 1014. Gamma radiation shielding is provided by the welded cylindrical MPC, as well as the steel and concrete of the overpack. Neutron radiation shielding is provided by the concrete of the overpack.

According to the licensee, for the NSA containing a Cf-252 source (half-life of 2.64 years), the inadvertent placement in peripheral cell MPC-32, serial number MPC-707, instead of one of the internal cells (No. 13, 14, 19, or 20), results in negligible effects on the cask's radiation dose rates. The licensee noted that the Cf-252 source has been decaying for over 34 years before being placed inside the cask, reducing its neutron emission to less than 0.011% of its original source strength. The licensee's dose analysis performed demonstrated that even in

peripheral locations, the dose impact is negligible if only one NSA per quadrant is loaded and sufficient decay time has elapsed. This condition is met by the NSA. Due to the bounding gamma source term applicable to the non-fuel hardware (NFH) already in the MPC, the licensee indicated that shielding calculation for gamma source term produced from neutron activation from the Cf-252 source is not necessary to be performed.

Based on a review of the statements and representations contained in the application, specifically the decay time of the NSA, the negligible effects on the cask's radiation dose rate, and the dose analysis performed, the NRC staff agrees that the shielding is adequate with the incorrectly placed NSA. Therefore, the NRC staff finds that the shielding function of MPC-32 (serial number MPC-707) loaded under CoC No. 1014, Amendment 11, as addressed in the exemption request, remains in compliance with 10 CFR part 72.

Criticality Evaluation: The NRC staff reviewed SNC's exemption request to deviate from CoC No. 1014 requirements to ensure that the criticality safety analysis remains adequate to meet requirements in 10 CFR part 72, which would allow Vogtle Units 1 and 2 to continue to store the NSA in a manner that is inconsistent with the loading restrictions specified in CoC No. 1014, Amendment 11, for the HI-STORM 100S Version B dry storage system. The NRC staff reviewed the exemption request for compliance with the requirements of 10 CFR 72.124 and 72.236.

The criticality safety design is described in Holtec International's FSAR for the HI-STORM 100 cask system and CoC No. 1014. Criticality control is primarily provided by the allowable contents and the requisite basket configuration that contains neutron-absorbing material.

The licensee explained that the misplaced NSA in a peripheral cell MPC-32 (serial number MPC-707), results in negligible effects on the cask's criticality safety. As stated in the FSAR, fuel assemblies containing start-up neutron sources are permitted for storage in the HI-

STORM 100 system. The reactivity of a fuel assembly is not affected by the presence of a neutron source because in a system with a k_{eff} less than 1.0, any given neutron population at any time, regardless of its origin or size, will decrease over time. Therefore, a neutron source of any strength will not increase reactivity, but only the neutron flux in a system, and thus no additional criticality analyses are required. Sources are inserted as rods into fuel assemblies (i.e., they replace either a fuel rod or water rod), displacing fuel material. Since the criticality safety of the system is based on the neutron interaction between the stored fuel assemblies, and since no additional uranium mass has been added to the cask, only shifted within the cask, the current analysis for the HI-STORM 100 cask system bounds this loading error.

Based on a review of the statements and representations contained in the application, the NRC staff agrees that because the current analysis of the HI-STORM 100 cask system bounds the loading error of the NSA in an unapproved configuration, the criticality safety analysis remains adequate. Therefore, the NRC staff finds that the criticality safety function of the MPC-32 (serial number MPC-707) loaded under CoC No. 1014, Amendment 11, as addressed in the exemption request, remains in compliance with 10 CFR part 72.

C. The Exemption is Otherwise in the Public Interest

This exemption would allow SNC to deviate from the placement restrictions outlined in CoC No. 1014, Amendment 11, allowing the NSA to remain in a peripheral cell of MPC-32, serial number MPC-707.

According to SNC, the exemption is in the public interest because it prevents unnecessary reflooding and unloading of the canister, which would otherwise increase personnel radiation exposure, generate contaminated waste, and introduce additional operational risks without providing any corresponding safety benefit.

Upon NRC staff review, the NRC staff agrees with the licensee's assessment and concludes that granting the exemption serves the public interest by enabling continued safe

storage of the NSA, without compromising safety, increasing personnel dose, or introducing unintended operational issues.

Environmental Consideration

The NRC staff also considered whether there would be any significant environmental impacts associated with the exemption. The NRC staff has determined that this action is categorically excluded under 10 CFR 51.22(d)(7), and there are no extraordinary circumstances present that would preclude reliance on this exclusion. The NRC staff have made this finding because the action results only in a change in process operations/equipment and does not involve ground disturbance, changes in effluents, or increased additional exposure or increased accident consequences. Therefore, pursuant to 10 CFR 51.22, the NRC staff concludes that this action does not require either an environmental assessment or an environmental impact statement. Additionally, the NRC staff has determined that this action does not have the potential to cause effects on historic properties. Therefore, in accordance with 36 CFR 800.3(a)(1), the NRC has no further obligation under Section 106 of the National Historic Preservation Act. The NRC staff has also determined that the action would have no effect on listed species or critical habitats, therefore, consultation is not required under section 7 of the Endangered Species Act.

IV.Conclusion

Based on these considerations, the NRC has determined that, pursuant to 10 CFR 72.7, the exemption is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest. Therefore, the NRC grants SNC an exemption from 10 CFR 72.212(b)(3) and 72.212(b)(11), to deviate from CoC No. 1014, Amendment 11, appendix B, table 2.1-1 requirements which restricts NSA containing assemblies to designated interior cells and allow the single NSA to remain in a peripheral basket cell of MPC-32, serial number MPC-707 under CoC No. 1014, Amendment 11.

This exemption is effective upon issuance.

Dated: August 21, 2026

For the Nuclear Regulatory Commission.

/RA/

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