Southern Nuclear

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July 23, 2026

Docket Nos.: 72-1039 NL-26-0328

ATTN: Document Control Desk
Director, Division of Fuel Management
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Vogtle Electric Generating Plant – Units 1 and 2
Response to Request for Additional Information Regarding Request for Exemption from an Allowable Contents Requirement contained in the Certificate of Compliance Number 1014 for the HI-STORM 100S Version B Dry Cask Storage

Ladies and Gentlemen:

By letter dated April 6, 2026, Southern Nuclear Operating Company (SNC) submitted an exemption request for Vogtle Electric Generating Plant (VEGP) Units 1 and 2 pursuant to 10 CFR 72.7 from certain requirements of 10 CFR 72.212(b)(3) and 10 CFR 72.212(b)(11), as they relate to the allowable contents specified in Certificate of Compliance (CoC) No. 1014, Amendment 11, for the Holtec HI-STORM 100 dry cask storage system (NL-26-0138; Agencywide Documents Access and Management Systems (ADAMS) Accession No. ML26096A485).

By email dated June 23, 2026, the Nuclear Regulatory Commission (NRC) staff issued a request for additional information (RAI) concerning SNC's Vogtle Units 1 and 2 exemption request. The Enclosure provides the NRC staff's RAI and SNC's response.

This letter contains no NRC commitments. If you have any questions, please contact Ryan Joyce at 205.992.6468.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 23rd day of July 2026.

Respectfully submitted,

RMJOYCE

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Ryan M. Joyce
Manager, Licensing
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RMJ/btr/cbg

Enclosure: SNC Response to Request for Additional Information

cc: Regional Administrator, Region II
NRR Project Manager – Vogtle 1&2
Senior Resident Inspector – Vogtle 1&2
R-Type: PP1.006

Vogtle Electric Generating Plant – Units 1 and 2

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Enclosure to NL-26-0328

SNC Response to Request for Additional Information

NRC REQUEST FOR ADDITIONAL INFORMATION

Background

By letter dated April 6, 2026 (ADAMS Accession No. ML26096A485), Southern Nuclear Operating Company (SNC), on behalf of Vogtle Electric Generating Plant Units 1 and 2, submitted an exemption request under 10 CFR 72.7 to allow a single Neutron Source Assembly to remain in its current storage cell in a multipurpose canister 32 (MPC-32) at Vogtle's Independent Spent Fuel Storage Installation, notwithstanding the loading restrictions in Certificate of Compliance No. 1014, Amendment 11 for the HI-STORM 100S system.

Regulatory Bases

Exemption request requires additional information required in order to maintain compliance with 10 CFR 72.126(a)(6).

Request for Additional Information

Shielding Review - RAI Question 1 (RAI-Sh-1):

Provide a more detailed discussion on the assumption that the required accounting for gamma source in shielding calculations is satisfied by assuming a bounding gamma source term.

Page E-4 of the enclosure to the exemption request letter, dated April 6, 2026, states that the gamma source must still be accounted for in the shielding calculations. This requirement is generally satisfied by assuming a bounding gamma source term applicable to all Non-Fuel Hardware (NFH) inserts. However, no further detail was provided to support this assumption.

This information is needed to determine compliance with 10 CFR 72.126(a)(6).

SNC RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION

Shielding Review - RAI Question 1 (RAI-Sh-1):

Gamma radiation from activation of the neutron source assembly (NSA) structural materials was evaluated to confirm that the gamma source contribution remains bounded by the licensing-basis shielding analyses. Section 5.2.7.1 of the HI-STORM 100 FSAR Revision 16.1 states that the total activation of a primary or secondary neutron source assembly is bounded by the activation assumed for a Burnable Poison Rod Assembly (BPRA). Therefore, the licensing-basis shielding analyses already account for the gamma contribution associated with activation of the structural components of the Vogtle Unit 2 Cycle 1 primary NSA. Additionally, the NSA has been discharged for more than 34 years, during which activation products have undergone substantial radioactive decay, further reducing the gamma source strength.

The Cf-252 source material contained within NSA 19PS3 was also evaluated. Cf-252 is not a significant gamma emitter. Direct gamma emissions occur in fewer than 6 percent of decays, with a maximum gamma energy of 207.4 keV. As stated in Section 5.2.1 of the HI-STORM 100 FSAR, shielding evaluations utilize a lower photon energy cutoff of 0.45 MeV; therefore, the direct gamma emissions from Cf-252 are not significant contributors to the licensing-basis shielding source term. Although Cf-252 also produces gamma radiation through spontaneous fission over a broad energy spectrum, the source strength decreases significantly due to radioactive decay.

To quantify this contribution, ORIGEN calculations were performed using a Cf-252 inventory corresponding to the bounding NSA neutron source strength of 1.2×10^{9} n/sec and decayed for 34 years. The resulting total gamma energy emission rates (including both direct and spontaneous fission gammas) were calculated to be 5.14×10^{9} MeV/sec initially and 7.94×10^{5} MeV/sec after 34 years of decay. The use of total energy emission rate provides a conservative basis for comparison by accounting for differences in the gamma energy spectrum.

For comparison, the Vogtle CoC Dose Evaluation identifies a representative NFH gamma source term of 1.22×10^{15} MeV/sec for a 45 GWd/MTU, 2.95 wt% fuel assembly cooled for 15 years. The decayed gamma source associated with NSA 19PS3 is therefore approximately nine orders of magnitude lower than the representative gamma source term already assumed in the licensing-basis shielding analyses. Consequently, the existing NFH shielding calculations conservatively bound the gamma contribution from both the activated structural components and the residual Cf-252 inventory associated with NSA 19PS3.