[7590-01-P]

NUCLEAR REGULATORY COMMISSION

[Docket Nos. 72-1031, 50-413, and 50-414; CEQ ID: EAXX-429-00-000-1775697562; NRC-2026-1486]

Duke Energy Carolinas, LLC;

Catawba Nuclear Station, Units 1 and 2;

Independent Spent Fuel Storage Installation;

Environmental Assessment and Finding of No Significant Impact

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is issuing an environmental assessment (EA) and a finding of no significant impact (FONSI) for an exemption request submitted by Duke Energy Carolinas, LLC (Duke) that would permit Catawba Nuclear Station (CNS) to maintain one loaded and to load nine transportable storage canisters (TSCs) in the MAGNASTOR® storage system at the Catawba Units 1 and 2 independent spent fuel storage installation (ISFSI), beginning July 6, 2026, in a storage condition where the terms, conditions, and specifications in the Certification of Compliance (CoC) No. 1031, Amendment No. 15, are not met.

DATES: The EA and FONSI referenced in this document are available on **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*].**

ADDRESSES: Please refer to Docket ID NRC-2026-1486 when contacting the NRC about the availability of information regarding this document. You may obtain publicly available information related to this document using any of the following methods:

- **Federal Rulemaking Website:** Go to https://www.regulations.gov and search for Docket ID NRC-2026-1486. Address questions about Docket IDs in Regulations.gov to Bridget Curran; telephone: 301-415-1003; email: Bridget.Curran@nrc.gov. For technical questions, contact the individual listed in the “For Further Information Contact” section of this document.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly available documents online in the ADAMS Public Documents collection at https://www.nrc.gov/reading-rm/adams.html. To begin the search, select "Begin ADAMS Public Search." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, at 301-415-4737, or by email to PDR.Resource@nrc.gov. For the convenience of the reader, instructions about obtaining materials referenced in this document are provided in the "Availability of Documents" section.
- **NRC's PDR**: The PDR, where you may examine and order copies of publicly available documents, is open by appointment. To make an appointment to visit the PDR, please send an email to PDR.Resource@nrc.gov or call 1-800-397-4209 or 301-415-4737, between 8 a.m. and 4 p.m. eastern time (ET), Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: John-Chau Nguyen, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555; telephone: 301-415-0262; email: John-Chau.Nguyen@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Introduction

The NRC is reviewing an exemption request from Duke, dated March 19, 2026. Duke is requesting an exemption, pursuant to section 72.7 of title 10 of the *Code of Federal Regulations* (10 CFR), in paragraphs 72.212(a)(2), 72.212(b)(3), 72.212(b)(5)(i), 72.212(b)(11), 72.214, 72.154(b), and 72.174 that require CNS to comply with the terms, conditions, and specifications of CoC No. 1031, Amendment No. 15. If approved, Duke's exemption request would accordingly allow CNS to maintain one loaded and to load nine TSCs in the MAGNASTOR® storage system, beginning July 6, 2026, in a storage condition where the terms, conditions, and specifications in CoC No. 1031, Amendment No. 15, are not met.

II. Environmental Assessment

Background

CNS is located on 391 acres in York County, South Carolina, approximately 18 miles southwest of Charlotte, North Carolina. Rock Hill, South Carolina, the nearest city, is about 6 miles south of the site. Catawba is situated on a peninsula that protrudes into Lake Wylie, a man-made lake created by the Wylie Dam on the Catawba River. Units 1 and 2 began operating in 1985 and 1986, respectively. Duke has been storing spent fuel in an ISFSI at CNS under a general license as authorized by 10 CFR part 72, subpart K, "General License for Storage of Spent Fuel at Power Reactor Sites." Duke currently uses the MAGNASTOR® storage system under CoC No. 1031, Amendment No. 15 for dry storage of spent nuclear fuel in the TSCs at the CNS ISFSI.

Description of the Proposed Action

The CoC is the NRC approved design for each dry cask storage system. The proposed action would exempt the applicant from the requirements of 10 CFR 72.212(a)(2), 72.212(b)(3), 72.212(b)(5)(i), 72.212(b)(11), 72.214, 72.154(b), and 72.174 only as these requirements pertain to the use of the TSC in the MAGNASTOR® storage system for the one already loaded and the planned loading of nine TSC beginning July 6, 2026. The proposed exemption would allow the already loaded TSC in the MAGNASTOR® storage system to remain in storage at the Catawba ISFSI and would authorize future use of the nine affected TSCs in planned loading campaigns, beginning July 6, 2026, in storage conditions where the terms, conditions, and specifications in CoC No. 1031, Amendment No. 15, are not met.

The MAGNASTOR® storage system CoC provides the requirements, conditions, and operating limits necessary for use of the system to store spent fuel. The MAGNASTOR® storage system uses three qualified neutron absorber materials—borated aluminum alloy, borated MMC, and Boral®—to ensure subcriticality in spent nuclear fuel storage and transport casks under all conditions. These materials, containing boron-10 (^{10}B), are critical for the Pressurized Water Reactor (PWR) fuel basket design, which holds up to 37 assemblies and includes 68 absorber panels.

Specifications require minimum effective areal density (75 percent for Boral, 90 percent for borated aluminum/MMC) and ^{10}B loading of 0.040 g/cm², verified through testing and inspections.

On September 10, 2025, NAC International (NAC) reported a fabrication deficiency and provided an update on December 30, 2025, regarding neutron absorber panels supplied by 3M: test coupons were cut from non-approved sheet areas, causing some to fail ^{10}B density requirements. This affected 39 panels linked to ten TSCs at Duke's Catawba site, including one already loaded. NAC notified Duke, tagged affected TSCs, and initiated corrective actions under its Quality Assurance (QA) program. Engineering evaluations confirmed that the impact on reactivity is negligible (<2 $\Delta k/\sigma$), and other safety functions remain intact. Despite the deficiency, analyses show the MAGNASTOR® storage system continues to meet safety requirements for spent fuel storage.

Duke has previously loaded one TSC and plans to load nine TSC in the MAGNASTOR® storage system beginning July 6, 2026. This exemption considers the storage of the one already loaded TSC and the planned loading of the nine TSC.

Need For The Proposed Action

Duke requested this exemption because Duke is currently out of compliance with NRC requirements, resulting from the previous loading of spent fuel into a storage system with non-compliance TSC, and has a planned, future loading campaign for nine additional impacted TSCs. This exemption would allow one already loaded TSC in the MAGNASTOR® storage system to remain in storage at the CNS ISFSI. The exemption would also allow Duke to load nine new TSC in MAGNASTOR® storage system at the CNS ISFSI for the future loading campaign scheduled to begin on July 6, 2026.

Approval of the exemption request would allow Duke to effectively and safely manage the spent fuel pool margin and capacity to enable refueling and offloading fuel from the reactor. It would also allow Duke to effectively manage the availability of the

specialized workforce and equipment needed to support competing fuel loading and continued, safe operational activities at CNS and other Duke sites.

Environmental Impacts of the Proposed Action

This EA evaluates the potential environmental impacts of granting an exemption from the terms, conditions, and specifications in CoC No. 1031, Amendment No. 15. The exemption would allow continued storage of one already loaded TSC, and future loading of nine TSC beginning on July 6, 2026, at the CNS ISFSI.

The potential environmental impacts of storing spent nuclear fuel in NRC approved storage systems have been documented in previous assessments. On July 18, 1990 (55 FR 29181), the NRC amended 10 CFR part 72 to provide for the storage of spent fuel under a general license in cask designs approved by the NRC. The EA for the 1990 final rule analyzed the potential environmental impacts of using NRC-approved storage casks. The EA for the MAGNASTOR® storage system, CoC No. 1031, Amendment No. 15, (90 FR 13047), published in 2025, tiers off of the EA issued for the July 18, 1990, final rule. “Tiering” off earlier EAs is a standard process encouraged by the regulations implementing the National Environmental Policy Act of 1969 (NEPA) that entails the use of impact analyses of previous EAs to bound the impacts of a proposed action where appropriate. The MAGNASTOR® storage system is designed to mitigate the effects of design basis accidents that could occur during storage. Considering the specific design requirements for the accident conditions, the design of the cask would prevent loss of containment, shielding, and criticality control. If there is no loss of containment, shielding, or criticality control, the environmental impacts would not be significant.

The exemption requested by Duke at the CNS site for the MAGNASTOR® storage system (CoC No. 1031, Amendment No. 15) is limited to the use of the TSCs where neutron absorber panels were fabricated outside the special process instructions required by Appendix A of the MAGNASTOR® storage system CoC No. 1031. In some cases, test coupons had results below the required minimum ^{10}B areal density. This

exemption applies only to the one previously loaded TSC and the planned loading of nine additional TSCs in the MAGNASTOR® storage system at the CNS ISFSI for the future loading campaign scheduled to begin on July 6, 2026. The staff has determined that this change in the TSC will not result in either radiological or non-radiological environmental impacts that significantly differ from the environmental impacts evaluated in the environmental assessment supporting the issuance of CoC No. 1031, Amendment No. 15. If the exemption is granted, there will be no significant change in the types or amounts of any effluents released, no significant increase in individual or cumulative public or occupational radiation exposure, and no significant increase in the potential for or consequences from radiological accidents. Accordingly, the Commission concludes that there would be no significant environmental impacts associated with the proposed action.

Alternative to the Proposed Action

The staff considered the no-action alternative. The no-action alternative (denial of the exemption request) would require Duke to unload and reload the spent fuel into a new TSC to bring it in compliance with the CoC terms, conditions, and specifications in the CoC No. 1031, Amendment No. 15. Duke has scheduled its loading campaign on July 6, 2026, and further delay in the loading of this spent fuel into other casks could affect CNS's ability to effectively manage the spent fuel pool capacity and reactor fuel offloading. Not allowing the planned future loading campaign could affect CNS's ability to manage pool capacity, reactor fuel offloading, and refueling. It could also pose challenges to spent fuel heat removal and impact the availability of the specialized resources and equipment needed to support competing fuel loading and operational activities at CNS, including spent fuel pool clean-up and refueling outages. The NRC has determined that the no-action alternative would result in undue potential human health and safety impacts that could be avoided by proceeding with the proposed exemption.

Agencies Consulted

The NRC provided the South Carolina Department of Environmental Services (SCDES) a copy of this draft EA for review by an email dated April 1, 2026. On April 14, 2026, SCDES provided its concurrence by email.

III. Finding of No Significant Impact

The environmental impacts of the proposed action have been reviewed in accordance with the requirements in 10 CFR part 51, which implement NEPA. Based upon the foregoing environmental assessment, the NRC finds that the proposed action of granting the exemption from the regulations in 72.212(a)(2), 72.212(b)(3), 72.212(b)(5)(i), 72.212(b)(11), 72.214, 72.154(b), and 72.174, which require the licensee to comply with the terms, conditions, and specifications of the CoC, in this case limited to the one past loading and nine future loading of TSCs with neutron absorber panels fabricated outside the special process instructions required by Appendix A of the MAGNASTOR® storage system CoC, would not significantly impact the quality of the human environment. Accordingly, the NRC has determined that a FONSI is appropriate, and an environmental impact statement is not warranted.

IV. Availability of Documents

The documents identified in the following table are available to interested persons through ADAMS, as indicated.

Document Description	ADAMS Accession No. or *Federal Register* notice
Duke's request for exemption, dated March 19, 2026.	ML26078A372
Certificate of Compliance No. 1031, Amendment 15, dated April 25, 2025.	ML25112A096 (Package)
10 CFR 72.242 Reportable Licensing Basis Fabrication Deficiency for MAGNASTOR® Dry Cask Storage System 3M Neutron Absorber Panels, dated September 10, 2025.	ML25253A488
Follow-up to 10 CFR 72.242 Reportable Licensing Basis Fabrication Deficiency on MAGNASTOR® Dry Cask Storage System 3M Neutron Absorber Panels, dated December 30, 2025.	ML25364A119
10 CFR part 72 amendment to allow spent fuel storage in NRC-approved casks, published July 18, 1990.	55 FR 29181
EA for part 72 amendment to allow spent fuel storage in NRC-approved casks, dated March 8, 1989.	ML051230231

Direct Final Rule for approval of MAGNASTOR® System CoC No. 1031, Amendment 15, published March 20, 2025.	90 FR 13047
NRC email, “South Carolina Review of Draft EA for Exemption Request,” dated April 1, 2026.	ML26097A213
South Carolina email, “South Carolina Review of draft EA for exemption request - response from state,” dated April 14, 2026.	ML26097A232

Authority: 42 U.S.C. 2011 *et seq*

Dated: April 17, 2026.

For the Nuclear Regulatory Commission.

Haimanot Yilma, Acting Chief,
Storage and Transportation Branch,
Division of Fuel Management,
Office of Nuclear Material Safety
and Safeguards.

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