[7590-01-P]

NUCLEAR REGULATORY COMMISSION

[Docket Nos. 72-1041, 50-498, and 50-499; NRC-2024-0104]

South Texas Project Nuclear Operating Company; South Texas Project Electric Generating Station, Units 1 and 2; Independent Spent Fuel Storage Installation; Exemption

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) issued an exemption to South Texas Project Nuclear Operating Company permitting South Texas Project Electric Generating Station to shuffle (relocate) 10 already loaded model 37 multi-purpose canisters (MPC) with continuous basket shims (MPC-37-CBS) in January 2025 and to load two new MPC-37-CBS in the HI-STORM Flood/Wind MPC Storage System at its South Texas Project Electric Generating Station, Units 1 and 2 independent spent fuel storage installation in a storage condition where the terms, conditions, and specifications in the Certificate of Compliance No. 1032, Amendment No. 2, are not met.

DATES: The exemption was issued on June 26, 2024.

ADDRESSES: Please refer to Docket ID NRC-2024-0104 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-2024-0104. Address questions about Docket IDs in Regulations.gov to Stacy Schumann; telephone: 301-415-0624; email: Stacy.Schumann@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 Web-based ADAMS 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. The ADAMS accession number for each document referenced (if it is available in ADAMS) is provided the first time that it is mentioned in this document.

- **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: Yen-Ju Chen, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555; telephone: 301-415-1018; email: Yen-Ju.Chen@nrc.gov.

SUPPLEMENTARY INFORMATION: The text of the exemption is attached.

Dated: July 1, 2024.

For the Nuclear Regulatory Commission.

Yoira Diaz-Sanabria,
Chief,
Storage and Transportation Licensing Branch,
Division of Fuel Management,
Office of Nuclear Material Safety, and Safeguards.

Attachment – Exemption

NUCLEAR REGULATORY COMMISSION

Docket Nos. 72-1041, 50-498, and 50-499

South Texas Project Nuclear Operating Company

South Texas Project Electric Generating Station Units 1 and 2

Independent Spent Fuel Storage Installation;

I. Background

South Texas Project Nuclear Operating Company (STPNOC) is the holder of Facility Operating License Nos. NPF-76 and NPF-80, which authorize operation of the South Texas Project Electric Generating Station (STP), Units 1 and 2 in Bay City, Texas, 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. Nuclear Regulatory Commission (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. STPNOC 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 STP ISFSI. Under the terms of the general license, STPNOC stores spent fuel at its STP ISFSI using the HI-STORM Flood/Wind (FW) Multi-Purpose Canister (MPC) Storage System in accordance with Certificate of Compliance (CoC) No. 1032, Amendment No. 2.

II. Request/Action

By a letter dated May 7, 2024 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML24128A157), and supplemented on March 15, 2024 (ML24136A284), STPNOC requested an exemption from the requirements of 10 CFR §§ 72.212(a)(2), 72.212(b)(3), 72.212(b)(5)(i), 72.212(b)(11), and 72.214 that require STP

to comply with the terms, conditions, and specifications of the CoC No. 1032, Amendment No. 2 (ML16280A008). If approved, STPNOC's exemption request would accordingly allow STP to shuffle (relocate) 10 loaded and to load two Multi-Purpose Canisters (MPC) with continuous basket shims (CBS) (i.e., MPC-37-CBS), an unapproved, variant basket design, in the HI-STORM FW MPC Storage System, and thus, to load the systems in a storage condition where the terms, conditions, and specifications in the CoC No. 1032, Amendment No. 2, are not met.

STPNOC currently uses the HI-STORM FW MPC Storage System under CoC No. 1032, Amendment No. 2, for dry storage of spent nuclear fuel in the MPC-37 at the STP ISFSI. Holtec International (Holtec), the designer and manufacturer of the HI-STORM FW MPC Storage System, developed a variant of the design with CBS for the MPC-37, known as MPC-37-CBS. Holtec performed a non-mechanistic tip-over analysis with favorable results and implemented the CBS variant design under the provisions of 10 CFR 72.48, "Changes, tests, and experiments," which allows licensees to make changes to cask designs without a CoC amendment under certain conditions (listed in 10 CFR 72.48(c)). After evaluating the specific changes to the cask designs, the NRC determined that Holtec erred when it implemented the CBS variant design under 10 CFR 72.48, as this is not the type of change allowed without a CoC amendment. For this reason, the NRC issued three Severity Level IV violations to Holtec (ML24016A190).

STPNOC has near-term plans to shuffle (relocate) 10 already loaded MPC-37-CBS on the STP ISFSI pad in January 2025 and load two new MPC-37-CBS in the HI-STORM FW MPC Storage System in March 2025. While Holtec was required to submit a CoC amendment to the NRC to seek approval of the CBS variant design, such a process will not be completed in time to inform decisions for this near-term shuffling and loading campaign. Therefore, STPNOC submitted this exemption request in order to allow for the shuffling of 10 already loaded MPC-37-CBS in January 2025, and the future loading of two MPC-37-CBS in March 2025 at the STP ISFSI. This exemption is limited to the use of MPC-37-CBS in the HI-STORM FW MPC Storage System only for shuffling

the 10 already loaded canisters and specific near-term planned loading of two new canisters using the MPC-37-CBS variant basket design.

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 STPNOC to shuffle (relocate) 10 already loaded and to load two MPC-37-CBS in the HI-STORM FW MPC Storage System, in January and March 2025, respectively, at its STP ISFSI in a storage condition where the terms, conditions, and specifications in the CoC No. 1032, Amendment No. 2, are not met. STPNOC 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 exemption would allow STPNOC to shuffle (relocate) 10 already loaded MPC-37-CBS in January 2025 and to load two MPC-37-CBS in the HI-STORM FW MPC Storage System in March 2025, at the STP ISFSI in a storage condition where the terms, conditions, and specifications in the CoC No. 1032, Amendment No. 2, are not

met. In support of its exemption request, STPNOC asserts that issuance of the exemption would not endanger life or property because a tip-over or handling event is administratively controlled, and that the containment boundary would be maintained in such an event. STPNOC relies, in part, on the approach in the NRC's Safety Determination Memorandum (ML24018A085). The NRC issued this Safety Determination Memorandum to address whether, with respect to the enforcement action against Holtec regarding this violation, there was any need to take an immediate action for the cask systems that were already loaded with non-compliant basket designs. The Safety Determination Memorandum documents a risk-informed approach concluding that, during the design basis event of a non-mechanistic tip-over, the fuel in the basket in the MPC-37-CBS remains in a subcritical condition.

STPNOC also provided site-specific technical information, including information explaining why the use of the approach in the NRC's Safety Determination Memorandum is appropriate for determining the safe use of the CBS variant baskets at the STP ISFSI. Specifically, STPNOC described that the analysis of the tip-over design basis event that is relied upon in the NRC's Safety Determination Memorandum, which demonstrates that the MPC confinement barrier is maintained, is documented in the updated final safety analysis report (UFSAR) for the HI-STORM FW MPC Storage System CoC No. 1032, Amendment 2, that is used at the STP site. STPNOC stated the transporter for handling of the HI-STORM FW MPC Storage System at the STP ISFSI meets the design requirements described in the CoC No. 1032 technical specifications 5.2.c.

Additionally, STPNOC provided specific information from STP's 72.212 Evaluation Report, Revision 3, indicating the calculated dose rate is in compliance with 10 CFR 72.104(a), "Criteria for radioactive materials in effluents and direct radiation from an ISFSI or MRS." The analysis of a design basis accident scenario also demonstrates compliance with 72.106, "Controlled area of an ISFSI or MRS." Specifically, STPNOC stated that, as described in section 12.2 of HI-STORM FW MPC Storage System

UFSAR, there are no accidents which could significantly affect shielding effectiveness of the HI-STORM FW MPC Storage System. Coupled with the distance of the STP ISFSI to the site area boundary, STPNOC concluded that compliance with 72.104 and 72.106 is not impacted by approving this exemption request.

The NRC staff reviewed the information provided by STPNOC and concludes that issuance of the exemption would not endanger life or property because the administrative controls STPNOC has in place at the STP ISFSI sufficiently minimize the possibility of a tip-over or handling event, and that the containment boundary would be maintained in such an event. The staff confirmed that these administrative controls comply with the technical specifications and UFSAR for the HI-STORM FW MPC Storage System CoC No. 1032, Amendment 2, that is used at the STP site. In addition, the staff confirmed that the information provided by STPNOC regarding STP's 72.212 Evaluation Report, Revision 3, demonstrates that the consequences of normal and accident conditions would be within the regulatory limits of the 10 CFR 72.104 and 10 CFR 72.106. The staff also determined that the requested exemption is not related to any aspect of the physical security or defense of the STP ISFSI; therefore, granting the exemption would not result in any potential impacts to common defense and security.

For these reasons, the NRC staff has 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 and, therefore, will not endanger life or property or the common defense and security.

C. The Exemption is Otherwise in the Public Interest

The proposed exemption would allow STPNOC to shuffle (relocate) 10 already loaded MPC-37-CBS in the HI-STORM FW MPC Storage System on the ISFSI pad at the STP ISFSI in January 2025, and load two MPC-37-CBS in the HI-STORM FW MPC Storage System in March 2025 at the STP ISFSI, even though the CBS variant basket design is not part of the approved CoC No. 1032, Amendment No. 2. According to STPNOC, the exemption is in the public interest because being able to load the two

MPC-37-CBS will ensure adequate full core offload margin that is necessary for completing refueling outages, implementing enterprise projects, and sustaining safe and efficient operation of the nuclear facilities. STPNOC stated that the full core offload margin was adversely impacted when STP could not load the two MPC-37-CBS canisters in its 2022 campaign. Further delay in the loading campaign would further impact the full core offload margin, and STPNOC would lose its ability to refuel the operating reactor. In addition, each fuel bundle contributes to the decay heat removal demand on the spent fuel pool cooling system, and removing the spent fuel bundles from the pool would allow for dispersion of the remaining heat load and reduce the consequence of a design basis accident associated with a loss of spent fuel pool cooling event. A crowded pool would also increase the likelihood of a fuel handling accident based on the additional fuel moves required to manage spent fuel pool loading with extra assemblies in the pool. STPNOC further stated that the shuffling (relocating) of the 10 already loaded MPC-37-CBS is necessary to optimize available space on the STP ISFSI pad for cask transporter maneuverability and minimize long-term damage to the STP ISFSI pad from cask transporter use, and thus ensures long-term safe storage of fuel-loaded spent fuel storage canisters. The shuffling also provides additional shielding to plant structures (such as warehouses and fabrication shops which are to the south of the STP ISFSI pad) by moving the spent fuel storage canisters with higher calculated dose rates (i.e., those loaded in MPC-37-CBS) further north from the plant structures and also by placing the canisters with lower dose rate between the plant structures and MPC-37-CBS canisters.

STPNOC has considered procuring empty MPC-37 canisters from other utilities; however, STP's fuel assemblies are longer than fuel assemblies of other utilities that load the MPC-37 model. Therefore, procuring MPC-37 canisters from other utilities is not an option.

STPNOC has also considered procuring new MPC-37 canisters from the vendor and confirmed the approximate delivery would be in April 2025, which is after the

planned March 2025 loading campaign. The loading campaigns are scheduled, budgeted, and planned several years in advance based on planned refueling outages, new fuel receipts, and other enterprise-level projects while considering the availability of specialty resources (equipment, vendors) to complete a campaign. Any delay to the March 2025 loading campaign would have cascading impacts to future new fuel receipts, refueling outages, and other enterprise projects. STPNOC asserted that delaying loading the two canisters beyond 2025 would result in loading these two canisters during the next scheduled loading campaign in 2028. Then, the number of canisters to be loaded would increase even more based on the new criticality analysis for the spent fuel pools to accommodate the planned storage of accident tolerant fuel.

For the reasons described by STPNOC in the exemption request, as supplemented, the NRC agrees that it is in the public interest to grant the exemption. If the exemption is not granted, in order to comply with the CoC, STPNOC would have to keep the loaded MPC-37-CBS at the current location on the STP ISFSI pad, and would have to keep spent fuel in the spent fuel pool since it is not permitted to be loaded into MPC-37-CBS. This would impact STPNOC's ability to manage the full core offload margin in STP's spent fuel pool, resulting in undesirable cascading impacts to new fuel receipts, refueling outages, other enterprise projects, and potentially safe reactor operation. Denying the exemption request could also challenge the cask transporter maneuverability on the STP ISFSI pad, and thus increase the use of a cask transporter on the STP ISFSI pad, which could increase the long-term damage to the STP ISFSI pad and result in likely longer personnel radiation exposure from increased cask transporter use.

Therefore, the staff concludes that approving the exemption is in the public interest.

Environmental Consideration

The NRC staff also considered whether there would be any significant environmental impacts associated with the exemption. For this proposed action, the

NRC staff performed an environmental assessment pursuant to 10 CFR 51.30. The environmental assessment concluded that the proposed action would not significantly impact the quality of the human environment. The NRC staff concluded that the proposed action would not result in any changes in the types or amounts of any radiological or non-radiological effluents that may be released offsite, and there would be no significant increase in occupational or public radiation exposure because of the proposed action. The environmental assessment and the finding of no significant impact was published on June 26, 2024 (89 FR 53452).

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 STPNOC an exemption from the requirements of §§ 72.212(a)(2), 72.212(b)(3), 72.212(b)(5)(i), 72.212(b)(11), and 72.214 with respect to the shuffling of 10 MPC-37-CBS in the HI-STORM FW MPC Storage System in January 2025 and the future loading in the HI-STORM FW MPC Storage System of two MPC-37-CBS in March 2025.

This exemption is effective upon issuance.

Dated: June 26, 2024.

For the Nuclear Regulatory Commission.

/RA/

Christian Jacobs, Acting Chief,
Storage and Transportation Licensing Branch,
Division of Fuel Management,
Office of Nuclear Material Safety, and Safeguards.

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