



[7590-01-P]

NUCLEAR REGULATORY COMMISSION

[Docket Nos. 72-1032, 72-78, 50-317 and 50-318; NRC-2020-0113]

Exelon Generation Company, LLC;

Calvert Cliffs Nuclear Power Station, Units 1 and 2;

Independent Spent Fuel Storage Installation

AGENCY: Nuclear Regulatory Commission.

ACTION: Exemption; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is issuing an exemption in response to a request submitted by Exelon Generation Company, LLC (EGC) on October 3, 2019, for the Calvert Cliffs Nuclear Power Plant (CCNPP). This exemption would permit CCNPP to load and store spent fuel with a larger pellet diameter than is authorized in the Holtec International, Inc. (Holtec) HI-STORM FW storage system in Certificate of Compliance No. 1032, Amendment 1, Revision 1.

DATES: The exemption was issued on June 8, 2020.

ADDRESSES: Please refer to Docket ID NRC-2020-0113 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 Web Site: Go to <https://www.regulations.gov> and search for Docket ID NRC-2020-0113. Address questions about NRC docket IDs to Jennifer Borges; telephone: 301-287-9127; e-mail: Jennifer.Borges@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, 301-415-4737, or by e-mail to pdr.resource@nrc.gov. The ADAMS accession number for each document referenced in this document (if that document is available in ADAMS) is provided the first time that a document is referenced.

FOR FURTHER INFORMATION CONTACT: Chris Allen, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-6877; e-mail: William.Allen@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Background

CCNPP has been storing PWR spent fuel in its specific licensed independent spent fuel storage installation (ISFSI) utilizing Special Nuclear Materials License No. SNM-2505, which was issued in November 1992. However, for the loading campaign commencing in early summer of 2021, CCNPP is transitioning to store its PWR fuel at a separate on-site ISFSI, which will use the HI-STORM FW dry storage system, Certificate of Compliance No. 1032, Amendment No. 1, Revision 1 (ADAMS Package Accession No. ML15152A358) under the general license provisions in part 72 of title 10 of the *Code of Federal Regulations* (10 CFR). Although the HI-STORM FW storage system is approved for a fuel pellet diameter of 0.3805 inches (0.9665 centimeters), some of the CCNPP spent fuel assemblies would be precluded from being loaded in an upcoming loading campaign because they have fuel pellets with a maximum diameter of 0.3810 inches (0.9677 centimeters).

II. Request/Action

By application dated October 3, 2019 (ADAMS Accession No. ML19276D398), EGC submitted a request for an exemption from those provisions of 10 CFR 72.212(b)(3) and 72.212(b)(11) that require compliance with the terms, conditions, and specifications of Certificate of Compliance No. 1032, Amendment No. 1, Revision 1 to allow CCNPP to load spent fuel with a maximum fuel pellet diameter of 0.3810 inches (0.9677 centimeters), utilizing Amendment No. 1, Revision 1 for the Holtec HI-STORM FW storage system. In evaluating the request, the NRC also considered, pursuant to authority in 10 CFR 72.7, exempting Exelon from similar requirements in 10 CFR 72.212(a)(2) and (b)(5)(i) and 10 CFR 72.214, "List of approved spent fuel storage casks."

III. Discussion

Pursuant to 10 CFR 72.7, 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.

The NRC staff prepared a safety evaluation report (ADAMS Accession No. ML20115E378) to document its safety evaluation of the proposed action (i.e., granting an exemption to authorize loading spent fuel with a maximum fuel pellet diameter of 0.3810 inches (0.9677 centimeters)), to assure that the exemption is authorized by law, will protect life or property or the common defense and security and are otherwise in the public interest. As summarized in this document, the NRC's safety review concludes that the requested exemption meets the requirements for issuance in 10 CFR 72.7.

A. The Exemption is Authorized by Law

This exemption would permit CCNPP to load spent fuel with a larger fuel pellet diameter than authorized in Certificate of Compliance No. 1032, Amendment No. 1, Revision 1. Section 72.7 allows the Commission to grant exemptions from the requirements of 10 CFR part 72 if the exemption is authorized by law and will not endanger life or property or the common defense and security. Issuance of this exemption is consistent with the Atomic Energy Act of 1954, as amended, and is not otherwise inconsistent with NRC's regulations or other applicable laws. Therefore, issuance of the exemption is authorized by law.

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

As discussed in the safety evaluation report and summarized in the following sections, the NRC staff has found that EGC's proposed action is acceptable and will not endanger life or property or the common defense and security.

Safety Review of the Requested Exemption

EGC submitted an exemption request to deviate from the maximum fuel pellet diameter for 14x14C fuel, stored in the Holtec HI-STORM FW storage system. The staff reviewed the exemption request and concludes that the proposed exemption from certain requirements of 10 CFR part 72 will not cause the HI-STORM FW storage system to encounter conditions beyond those for which it has been evaluated and demonstrated to meet the applicable safety requirements in 10 CFR part 72. As explained below, the staff evaluated the potential thermal, radiation and criticality safety impacts of granting the exemption.

Thermal

EGC stated that the small change in fuel pellet diameter, which is used in the effective fuel thermal conductivity calculations, has a second order impact on the

effective fuel thermal properties, and that a larger fuel pellet diameter reduces the resistance to heat transfer by decreasing the helium gap between the fuel pellet and cladding. In addition, EGC asserted that the 14x14C fuel assembly is bounded by the WE 17x17 fuel assembly adopted in the licensing basis analyses. Staff reviewed the information provided and concluded that the impact of loading a fuel pellet with a slightly increased diameter is negligible to the thermal design functions of the loaded cask. Staff also reviewed the HI-STORM FW final safety analysis report (FSAR) and confirmed that the heat load of the 14x14C fuel assembly is bounded by the head load of the 17x17 fuel assembly.

Shielding

EGC evaluated the impact of increasing the fuel pellet diameter from 0.3805 inches (0.9665 cm) to 0.3810 inches (0.9677 cm). EGC determined that the small increase in heavy metal from 438 kg to 439.15 kg caused by increasing the fuel pellet diameter is conservatively bounded by the uranium weight for the design basis fuel assembly in Table 5.2.1 of the HI-STORM FW FSAR of 469 kg. The staff reviewed this information and determined that the proposed change to the fuel pellet diameter will not significantly change the system shielding analyses in the HI-STORM FW FSAR.

Further, the staff determined that the WE17X17 design basis fuel assembly in the HI-STORM FW FSAR with 469 kg of heavy metal bounds the CCNPP 14X14C fuel assemblies with 439.15 kg of heavy metal since the system shielding analyses in the FSAR also bound the expected increase in radiation from the slightly larger fuel pellets.

Criticality

EGC stated that Holtec evaluated a fuel pellet diameter of 0.3805 inches (0.9665 cm) in the HI-STORM FW FSAR, to determine the effect of an upper manufacturing tolerance of 0.0005 inches (0.0013 cm) applied to the nominal value of 0.3805 inches

(0.9665 cm). In that final safety analysis report, Holtec determined that the system k-effective with this larger diameter of fuel pellet is statistically the same as the system k-effective with the nominal fuel pellet diameter. Therefore, EGC stated that its proposed exemption has no effect on the criticality safety of the HI-STORM FW storage system. The staff reviewed the final safety analysis report and determined that the proposed change to the fuel pellet diameter will not result in changes to system k-effective that are statistically significant. The staff finds that this proposed exemption does not affect the ability of the HI-STORM FW storage system to meet the criticality safety requirements of 10 CFR part 72.

Review of Common Defense and Security

EGC's exemption request is not related to any aspect of the physical security or defense of the CCNPP ISFSI. Modification of the fuel pellet diameter does not affect the ISFSI security plans. Therefore, granting the exemption would not result in any potential impacts to common defense and security.

Based on its review, 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. The NRC staff also found that the exemption would not endanger the common defense and security.

D. Otherwise in the Public Interest

In determining whether the exemption is in the public interest, the staff considered the no-action alternative of denying the exemption request. Denial of the exemption request would cause CCNPP to postpone loading of spent fuel that contains the larger fuel pellet diameter until it is approved in an amendment for CoC No. 1032 or alternative loading arrangements are implemented.

EGC stated that the proposed exemption is in the public interest because it would allow CCNPP to load spent fuel in an inherently safe, passive system on schedule, which would enable CCNPP to continue to maintain full-core offload capability. The staff reviewed the information provided by EGC, and based upon the above stated information, concludes that granting the requested exemption continues to provide adequate protection of public health and safety and is otherwise in the public interest.

E. Environmental Considerations

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 is 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 1, 2020 (85 FR 33204).

IV. Conclusion

Accordingly, the Commission has determined that, pursuant to 10 CFR 72.7, this 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 Commission hereby grants EGC an exemption from those provisions of 10 CFR 72.212(a)(2), (b)(3), and (b)(5)(i), 10 CFR 72.214, and the portion of 10 CFR 72.212(b)(11) that require compliance with terms, conditions, and specifications of the Certificate of Compliance No. 1032, Amendment No. 1, Revision 1 for the CCNPP to load spent fuel with a

maximum fuel pellet diameter of 0.3810 inches (0.9677 centimeters) in the HI-STORM FW storage system using Certificate of Compliance No. 1032, Amendment No. 1, Revision 1.

The exemption is effective upon issuance.

Dated: June 10, 2020.

For the Nuclear Regulatory Commission.

John B. McKirgan,
*Chief, Storage and Transportation Licensing
Branch, Division of Fuel Management,
Office of Nuclear Material Safety and
Safeguards.*

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