NUCLEAR REGULATORY COMMISSION
DOCKET NOS. 72-1032, 72-78, 50-317, and 50-318
May 21, 2020

ENVIRONMENTAL ASSESSMENT FOR THE EXEMPTION REQUEST FOR
EXELON GENERATION COMPANY, LLC
CALVERT CLIFFS NUCLEAR POWER PLANT
IN LUSBY, MARYLAND

1. INTRODUCTION

By letter dated October 3, 2019, Exelon Generation Company, LLC (Exelon) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for an exemption, in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 72.7, from the requirements of 10 CFR 72.212(b)(3), and the portion of 10 CFR 72.212(b)(11) which states that "[t]he licensee shall comply with the terms, conditions, and specifications of the CoC." Specifically, Exelon is requesting an exemption to load and store spent fuel with a larger maximum pellet diameter than authorized in Amendment No. 1, Revision 1 of the Holtec International Certificate of Compliance (CoC) No. 1032 for the HI-STORM FW storage system. This exemption would allow Exelon to load Calvert Cliffs Nuclear Power Plant (CCNPP) 14×14C spent fuel assemblies with a maximum pellet diameter of 0.3810 inches (in.) in the HI-STORM FW storage system, which is 0.0005 in. larger than the 0.3805 in. maximum pellet diameter (prior to irradiation) in Amendment No. 1, Revision 1 for CoC No. 1032. 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), 10 CFR 72.212(b)(5)(i); and 10 CFR 72.214, "List of approved spent fuel storage casks."

CCNPP began operation in 1986 and has been storing pressurized-water reactor (PWR) spent fuel under license No. SNM-2505 since November 2012. For the loading campaign commencing in early Summer of 2021, CCNPP plans to store PWR fuel at a separate onsite independent spent fuel storage installation (ISFSI) under its general license using the HI-STORM FW storage system. CCNPP has 14×14C spent fuel assemblies with a nominal pellet diameter of 0.3810 in. Although the HI-STORM FW storage system was approved to store 14×14C spent fuel assemblies in Amendment No. 0 to CoC No. 1032, the HI-STORM FW storage system was only approved for storing 14×14C spent fuel assemblies with a nominal pellet diameter of less than or equal to 0.3805 in. Consequently, some of the CCNPP spent fuel would be precluded from being loaded in its upcoming loading campaign. If approved, Exelon's exemption would authorize the loading of spent fuel which has a maximum pellet diameter, prior to irradiation, of 0.3810 in.

The NRC staff will perform both a safety evaluation and an environmental review to determine whether to grant Exelon's exemption request. The NRC staff will prepare a separate safety evaluation report to document its safety review and analysis. The NRC's safety evaluation report will evaluate the proposed exemption to assure continued protection of public health and safety, and the common defense and security. Specifically, the NRC staff will evaluate the potential thermal, radiation and criticality safety impacts of granting the exemption to Exelon and evaluate the potential for any danger to life or property or the common defense and security.

The environmental review is documented in this environmental assessment (EA), which the NRC staff prepared in accordance with 10 CFR 51.21 and 51.30(a). The preparation of this EA is being coordinated with the development of the safety evaluation report. This EA defines the NRC's proposed action in Section 2 and the purpose and need for the proposed action in Section 3. The evaluation of the potential environmental impacts of the proposed action is presented in Section 4, the environmental impacts of the alternative to the proposed action is found in Section 5, and the NRC's conclusion is summarized in Section 7. Section 6 discusses the agencies the NRC consulted with in the development of this EA. The NRC's decision whether to grant the exemption will be based on the results of the NRC staff's review as documented in this EA, and the staff's safety review to be documented in the safety evaluation report.

2. THE PROPOSED ACTION

The CoC is the NRC-approved design for each dry cask storage system. As requested by Exelon, the proposed action would grant Exelon an exemption from the requirements of 10 CFR 72.212(b)(3) and the portion of 10 CFR 72.212(b)(11) that states "the licensee shall comply with the terms, conditions, and specifications of the CoC." The action would further exempt Exelon from the requirements in 10 CFR 72.214, "List of approved spent fuel storage casks" to the extent necessary to allow Exelon to load spent fuel with a pellet diameter of 0.3810 in. (before irradiation), and from similar requirements in 10 CFR 72.212(a)(2) and 10 CFR 72.212(b)(5)(i). These regulations require storage of spent nuclear fuel under a general license in dry storage casks approved under the provisions of 10 CFR Part 72, and compliance with the terms and conditions set forth in the CoC for each dry storage spent fuel cask used by an ISFSI general licensee.

3. NEED FOR THE PROPOSED ACTION

CCNPP scheduled a loading campaign to begin in early summer 2021. To maintain full-core offload capability during and after the outage, CCNPP must load three HI-STORM FW storage casks during this loading campaign.

4. ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

This EA evaluates the potential environmental impacts of granting the exemption to allow CCNPP to load PWR spent fuel with a larger pellet diameter than currently authorized in Amendment No. 1, Revision 1 to CoC No. 1032 for the HI-STORM FW storage cask.

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 impact of using NRC-approved storage casks. The NRC also considered the potential environmental impacts of Amendment No. 1, Revision 1 to the CoC for the HI-STORM FW storage cask (80 FR 14291). The EA for HI-STORM FW, Amendment No. 1, Revision 1 (80 FR 14291), tiered off the EA issued for the July 18, 1990, final rule. The EA for this exemption tiers off the EA for HI-STORM FW, Amendment No. 1, Revision 1 direct final rule. Tiering off earlier EAs is a standard process under the National Environmental Policy Act by which the impact analyses of previous EAs can be cited by a subsequent EA, such as this one, to include the impacts of the proposed action within the scope of the previous EA.

This exemption request involves neither the disturbance of land, the construction of new facilities, nor modifications to current operating practices. The EA for Holtec's HI-STORM FW, Amendment No. 1, Revision 1 analyzed the effects of design-basis accidents that could occur during storage. Design-basis accidents account for human-induced events and the most severe natural phenomena reported for the site and surrounding area and the resultant effects on the storage cask. Exelon's proposed exemption request did not reflect any change in cask design or fabrication requirements; therefore, no additional risk of loss of structure or confinement in the event of a design-basis accident will occur. The request by Exelon to increase the pellet diameter without a corresponding increase in the uranium oxide loading of spent fuel assemblies would not result in changes to the heat transfer capabilities of the storage system, would not result in increased exposure to either workers or the public and would not increase the risk of an inadvertent criticality event.

Accordingly, NRC staff finds that Exelon's requested action, if approved, is bounded by the EA for CoC No. 1032, Amendment No. 1, Revision 1. NRC staff also find that occupational exposure and offsite dose rates will not increase if this exemption request is granted, and that the dose rates will remain within applicable 10 CFR Part 20 limits. This is because the proposed action will result in no change in the types or amounts of any effluent released, no significant increase in individual or cumulative radiation exposures, and no significant increase in the potential for or consequences of radiological accidents. Therefore, the proposed exemption request, if granted, will not result in radiological or non-radiological environmental impacts that significantly differ from impacts evaluated in the EA supporting the HI-STORM FW, Amendment No. 1, Revision 1 direct final rule. Based upon the foregoing discussion, the NRC finds that granting the exemption will not significantly impact the quality of the human environment.

5. ENVIRONMENTAL IMPACTS OF THE ALTERNATIVES TO THE PROPOSED ACTION

In addition to the proposed action, the staff also considered the no-action alternative–the NRC denial of the proposed exemption request. Denial of the exemption request would require the licensee to postpone loading of spent fuel that contains the larger pellet diameter until it is approved for storage in an amendment for CoC No. 1032, or until alternative loading arrangements are implemented by Exelon. In the meantime, the licensee would lose full-core offload capability. The environmental impacts of CCNPP postponing storage of its larger pellet diameter spent fuel would either be the same or may be greater in the event of a plant emergency that required a full-core offload than if the NRC granted the proposed exemption. The NRC staff has determined that the environmental impact of the no-action alternative would either be the same or may be greater than the proposed action; therefore, the proposed action is preferred.

6. AGENCIES CONSULTED

The NRC provided the Maryland Department of the Environment (MDE) a draft copy of this EA for review in an email dated March 16, 2020 (NRC 2020). In an email dated April 20, 2020 (MDE 2020), the Maryland Department of the Environment stated that it had no comments on the NRC's assessment that granting the Exelon exemption request continues to provide adequate protection of public health and safety for the State of Maryland.

Endangered Species Act (ESA) Section 7 Consultation

Section 7 of the Endangered Species Act requires Federal agencies to consult with the U.S. Fish and Wildlife Service or National Marine Fisheries Service regarding actions that may affect listed species or designated critical habitats. The Endangered Species Act is intended to prevent further decline of endangered and threatened species and restore those species and their critical habitat.

The NRC staff determined that a consultation under Section 7 of the Endangered Species Act is not required because the proposed action will not affect listed species or critical habitat.

National Historic Preservation Act Section 106 Consultation

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of their undertakings on historic properties. As stated in the NHPA, historic properties are any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places.

The NRC determined that the scope of activities described in this exemption request do not have the potential to cause effects on historic properties because the NRC's approval of this exemption request will not authorize new construction or land disturbance activities. The NRC staff also determined that the proposed action is not a type of activity that has the potential to impact historic properties because the proposed action would occur within the established CCNPP site boundary. Therefore, in accordance with 36 CFR 800.3(a)(1), no consultation is required under Section 106 of NHPA.

7. CONCLUSION

The environmental impacts of the proposed action have been reviewed under the requirements in 10 CFR Part 51. The exemption request, if granted, would allow CCNPP to load spent fuel in the HI-STORM FW storage system that has a maximum pellet diameter of 0.3810 in. In this EA, the NRC determined that the environmental impacts of granting this exemption will be no greater or less than if Exelon delayed loading spent fuel. No changes are being made in the types or quantities of effluents that may be released offsite, and there is no significant increase in occupational or public radiation exposures in granting this exemption request for Exelon. Accordingly, the NRC has determined that a finding of no significant impact (FONSI) is appropriate and an environmental impact statement is not warranted. The NRC will publish the FONSI in the *Federal Register*.

8. REFERENCES

The documents referenced in this EA are all publicly available. Documents available through the NRC's Agencywide Document Access and Management System (ADAMS) at http://www.nrc.gov/reading-rm/adams.html have an Accession No. provided.

10 CFR Part 51. *Code of Federal Regulations*, Title 10, Energy, Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions." Washington, D.C.

10 CFR Part 72. *Code of Federal Regulations*, Title 10, Energy, Part 72, "Licensing

Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste." Washington, D.C.

10 CFR Part 20. *Code of Federal Regulations*, Title 10, Energy, Part 20, "Standards for Protection Against Radiation." Washington, D.C.

55 FR 29181. Final Rule: Storage of Spent Fuel in NRC-Approved Storage Casks at Power Reactor Sites. *Federal Register* Volume 55, Issue 138. July 18, 1990.

80 FR 30924. Direct Final Rule: List of Approved Spent Fuel Storage Casks: Holtec HI-STORM Flood/Wind System; Certificate of Compliance No. 1032, Amendment No. 1, Revision 1. *Federal Register* Volume 80 Issue 104. June 1, 2015.

Exelon 2019. Letter from Exelon Generation Company, LLC to NRC "Calvert Cliffs, Units 1 and 2, Exemption Request to Load and Store Spent Fuel in HI-STORM FW Spent Fuel Casks Utilizing Amendment 1, Revision 1 to CoC No. 1032" October 3, 2019. ADAMS Accession No. ML19276D398.

MDE 2020. Email from Maryland Department of the-Environment. "Re: Exemption Request for Exelon Generation Company, LLC, Calvert Cliffs Nuclear Power Plant in Lusby, Maryland." April 20, 2020. ADAMS Accession No. ML20079E730.

Endangered Species Act of 1973, as amended. 16 USC §1531 *et seq.*

National Historic Preservation Act of 1966. 16 USC §470 *et seq.*

NRC 2020. Email from NRC to Maryland Department of the Environment, "Draft Environmental Assessment: Exemption Request for Exelon Generation Company, LLC, Calvert Cliffs Nuclear Power Plant in Lusby, Maryland." March 16, 2020. ADAMS Accession No. ML20077J550