



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

December 5, 2019

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SUBJECT: OYSTER CREEK NUCLEAR GENERATING STATION – REVIEW OF REVISED  
POST-SHUTDOWN DECOMMISSIONING ACTIVITIES REPORT  
(EPID L-2019-DPS-0000)

Dear Mr. Oneid and Ms. Cowan:

By letter dated May 21, 2018 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML18141A775), as supplemented by letter dated September 24, 2018 (ADAMS Accession No. ML18267A216), Exelon Generation Company, LLC (Exelon) submitted to the U.S. Nuclear Regulatory Commission (NRC, the Commission) the Post-Shutdown Decommissioning Activities Report (PSDAR), including the site-specific Decommissioning Cost Estimate (DCE), for Oyster Creek Nuclear Generating Station (Oyster Creek), pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.82(a)(4)(i). Exelon selected the SAFSTOR method for decommissioning Oyster Creek.

By letter dated August 31, 2018 (ADAMS Accession No. ML18243A489), Exelon, Oyster Creek Environmental Protection, LLC (OCEP), and Holtec Decommissioning International, LLC (HDI) requested NRC approval of the direct transfer of the Oyster Creek Renewed Facility Operating License No. DPR-16 and the general license for the Oyster Creek Independent Spent Fuel Storage Installation (ISFSI) from Exelon to OCEP as the licensed owner and to HDI as the licensed operator.

By letter dated September 28, 2018 (ADAMS Accession No. ML18275A116), HDI submitted to the NRC a revised PSDAR, including a revised site-specific DCE, for Oyster Creek, pursuant to 10 CFR 50.82(a)(7) and contingent upon NRC approval of the license transfer application. HDI selected the DECON method for decommissioning Oyster Creek.

By letter dated December 17, 2018 (ADAMS Accession No. ML18241A068), the NRC staff found that the Exelon-submitted SAFSTOR PSDAR, as supplemented, contained the information required by 10 CFR 50.82(a)(4)(i). In that letter, the NRC staff stated that it was treating the HDI-submitted DECON PSDAR as a supplement to the Oyster Creek license transfer application until such time as the NRC makes a regulatory decision regarding the license transfer application.

On June 20, 2019 (ADAMS Accession No. ML19095A454), the NRC staff approved the Oyster Creek license transfer application and the license transfer transaction was consummated on July 1, 2019 (ADAMS Accession No. ML19182A342). Accordingly, the NRC staff commenced its review of the HDI-submitted DECON PSDAR under 10 CFR 50.82(a)(4)(i).

The purpose of this letter is to inform you that, based on our review, the NRC staff finds that the HDI-submitted DECON PSDAR contains the information required by 10 CFR 50.82(a)(4)(i) and the NRC staff has completed its review.

Exelon permanently ceased power operations at Oyster Creek on September 17, 2018 (ADAMS Accession No. ML18263A163). On September 25, 2018 (ADAMS Accession No. ML18268A258), Exelon certified to the NRC that all fuel had been permanently removed from the Oyster Creek reactor vessel and placed into the Oyster Creek spent fuel pool (SFP).

The purposes of the PSDAR and DCE are to: (1) inform the public of the licensee's planned decommissioning activities, (2) assist in the scheduling of NRC resources necessary for the appropriate oversight activities, (3) ensure that the licensee has considered all of the costs of the planned decommissioning activities and has considered the funding for the decommissioning process, and (4) ensure that the environmental impacts of the planned decommissioning activities are bounded by those considered in existing environmental impact statements.

Pursuant to 10 CFR 50.82(a)(4)(i), the PSDAR must contain a description of the planned decommissioning activities along with a schedule for their accomplishment, a discussion that provides the reasons for concluding that the environmental impacts associated with site-specific decommissioning activities will be bounded by appropriate previously issued environmental impact statements, and a site-specific DCE, including the projected cost of managing irradiated fuel. Additionally, pursuant to 10 CFR 50.82(a)(3), decommissioning is to be completed within 60 years of permanent cessation of operations. The regulations do not require the NRC to approve a licensee's submitted PSDAR.

As discussed above, HDI submitted its DECON PSDAR consistent with 10 CFR 50.82(a)(7) and the NRC staff treated that submittal as a supplement to the Oyster Creek license transfer application. Therefore, the comments received on the content of the DECON PSDAR were considered by the NRC staff as part of its license transfer application review. Most of the comments received were related to financial assurance and spent fuel management.

The NRC staff reviewed the DECON PSDAR and its accompanying DCE against the requirements in 10 CFR 50.82(a). In addition, the NRC staff used the guidance in Regulatory Guide (RG) 1.185, Revision 1, "Standard Format and Content for Post-Shutdown Decommissioning Activities Report," June 2013 (ADAMS Accession No. ML13140A038), in conducting its review and concludes the following.

1. Section 2 of the PSDAR, "Description of Planned Decommissioning Activities," and the DCE provide the applicable information identified in Section C.1 of RG 1.185, Revision 1. The NRC staff's review found that the licensee adequately described the activities associated with the major periods or milestones related to the decommissioning, as required by 10 CFR 50.82(a)(4)(i) and consistent with RG 1.185, Revision 1. These periods included: Pre-Decommissioning Planning and Preparation, Plant Deactivation, Safe Storage Operations, Dismantlement, Ongoing ISFSI Operations, and Program Management.
2. Section 3 of the PSDAR, "Schedule of Planned Decommissioning Activities," and the DCE provide the estimated dates for initiation and completion of major decommissioning activities, as required by 10 CFR 50.82(a)(4)(i) and consistent with Section C.2 of RG 1.185, Revision 1. The NRC staff finds that the schedule for decommissioning activities is adequate to achieve Oyster Creek license termination within 60 years of permanent cessation of operations, as required by 10 CFR 50.82(a)(3).
3. Section 4 of the PSDAR, "Estimate of Expected Decommissioning and Spent Fuel Management Costs," and the DCE provide an estimate of the expected decommissioning costs for Oyster Creek. HDI maintains a tax qualified fund (Qualified Trust) that has an approximate balance of \$848,000,000 for Oyster Creek, as of January 1, 2019. The trustee for the Qualified Trust is Northern Trust Bank. According to the 2019 decommissioning funding status report (ADAMS Accession No. ML19091A140), the 10 CFR 50.75(c) minimum formula amount for Oyster Creek as of December 31, 2018, is \$614,013,000. Using the formula in 10 CFR 50.75(c), and the methodology provided in NUREG-1713 and NUREG-1307, the NRC staff independently calculated the 2019 minimum formula amount to be \$614,010,830. According to HDI, the estimated radiological decommissioning cost of Oyster Creek, including ISFSI decommissioning, is approximately \$618 million (in 2018 dollars), and the estimated spent fuel management cost is approximately \$228 million (in 2018 dollars). The NRC staff reviewed the cost estimates against the guidance in RG 1.185, Revision 1, Section C.3 and finds that HDI's site-specific DCE and irradiated fuel management estimate for Oyster Creek are reasonable, are described consistent with the guidance in RG 1.185, Revision 1, provide sufficient details associated with the funding mechanisms, and meet the requirements of 10 CFR 50.82(a)(4)(i).
4. Section 5 of the PSDAR, "Environmental Impacts," provides a discussion of the potential environmental impacts associated with the planned Oyster Creek decommissioning activities, as required by 10 CFR 50.82(a)(4)(i) and consistent with Section C.4 of RG 1.185, Revision 1. The PSDAR includes a comparison of the potential environmental impacts from the planned Oyster Creek decommissioning activities with impacts from similar activities provided in NUREG-0586, Supplement 1, "Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities," November 2002, Volumes 1 and 2 (ADAMS Accession Nos. ML023470327 and ML023500228, respectively) (Decommissioning GEIS). A licensee in decommissioning is required to address the environmental impacts associated with site-specific decommissioning activities in both its PSDAR per 10 CFR 50.82(a)(4)(i) and before performing decommissioning activities that may result in significant environmental impacts per 10 CFR 50.82(a)(6)(ii).

The environmental impacts of decommissioning activities are evaluated in the Decommissioning GEIS. In the Decommissioning GEIS, the NRC staff explains the

significance of the impacts and whether the environmental impacts of decommissioning activities are considered generic to all nuclear power plants or site specific. The Decommissioning GEIS identifies activities that can be bounded by the generic evaluations presented in the Decommissioning GEIS. A licensee can therefore rely on information in the Decommissioning GEIS as a basis for meeting the bounding impacts requirement in 10 CFR 50.82(a)(4)(i). The Decommissioning GEIS also identifies activities that could exceed the generic environmental impacts evaluated in it and associated environmental issues that require site-specific analysis before performing the decommissioning activity. Environmental issues that require site-specific analysis include: offsite land use, aquatic and terrestrial ecology beyond the operational area, threatened and endangered species, environmental justice, and cultural and historic resources beyond the operational area and the nuclear plant itself.

For all other environmental issues, HDI provided reasons in its PSDAR for reaching the conclusion that the environmental impacts of decommissioning Oyster Creek are bounded by the Decommissioning GEIS and by the NUREG-1437, Supplement 28, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Regarding Oyster Creek Nuclear Generating Station," January 2007 (ADAMS Accession No. ML070100234) (SEIS).

By email dated September 20, 2019 (ADAMS Accession No. ML19263D184), the NRC staff issued a request for additional information (RAI), in part, because the Decommissioning GEIS cannot provide a basis for bounding site-specific impacts, such as environmental justice impacts. By letter dated October 18, 2019 (ADAMS Accession No. ML19291D757), HDI responded to the RAI. As discussed with NRC staff, the evaluation of the potential for disproportionate human health and environmental effects from decommissioning activities at Oyster Creek on minority and low-income populations should be based solely on the site-specific analysis.

HDI stated that the site-specific environmental justice population analysis presented in the PSDAR used 2010 Census data, the American Community Survey (ACS) 2012–2016, 5-year estimate data from the updated environmental report prepared by Exelon dated April 6, 2018, and environmental monitoring data presented in recent Oyster Creek radioactive effluent release reports. Population and January 2007 environmental monitoring data from the Oyster Creek SEIS were the most recently available site-specific information at the time of the HDI-submitted DECON PSDAR.

HDI examined the geographic distribution of minority and low-income populations within a 50-mile radius of the Oyster Creek site using the 2012–2016 American Community Survey 5-year estimates. Census block groups containing minority populations were identified and were concentrated in the larger metropolitan areas, such as Philadelphia, Trenton, and Atlantic City. The nearest minority population is located about 8 miles north of Oyster Creek, near Toms River. Census block groups containing low-income populations were concentrated in the cities of Philadelphia and Trenton. The nearest low-income population is located near Toms River approximately 9 miles north of Oyster Creek. This description of the ACS 2012–2016 environmental justice population is included in the HDI-submitted DECON PSDAR. Because no member of the general public would be adversely affected during decommissioning, minority and low-income populations would also not likely experience disproportionately high and adverse human health and environmental effects from the decommissioning of Oyster Creek.

HDI conducted an independent assessment of more recent environmental monitoring data (e.g., radioactive effluent release reports) and reached the same conclusions for the DECON method of decommissioning as Exelon did in its SAFSTOR PSDAR. HDI concluded that decommissioning impacts to all resource areas, including potential transportation impacts associated with the delivery and use of dismantlement equipment and the removal and disposal of waste material, would be small. HDI's review found that the environmental effects of decommissioning activities at Oyster Creek would not be detectable or would be so minor that they would neither destabilize nor noticeably alter any important attribute of the environmental resource.

Based on this review, the NRC staff finds that the HDI-submitted DECON PSDAR contains the information required by 10 CFR 50.82(a)(4)(i). As required by 10 CFR 50.82(a)(7), HDI must notify the NRC in writing and send a copy to the State of New Jersey before performing any decommissioning activity inconsistent with, or making any significant schedule change from, the planned decommissioning activities and schedules described in the PSDAR, including changes that significantly increase the decommissioning costs. As required, HDI will verify that the decommissioning activities meet the requirements of 10 CFR 50.82(a)(6)(i) through 10 CFR 50.82(a)(6)(iii) or seek appropriate regulatory approval if needed.

The NRC will continue to conduct inspections at Oyster Creek throughout decommissioning under NRC Inspection Manual Chapter 2561, "Decommissioning Power Reactor Inspection Program," to ensure that decommissioning activities are performed safely and in compliance with the Commission's rules and regulations, and the conditions of the license.

In accordance with 10 CFR Part 2, "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's ADAMS. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

If you have any questions regarding this letter, please contact me at 301-415-3808 or by e-mail at [Zahira.Cruz@nrc.gov](mailto:Zahira.Cruz@nrc.gov).

Sincerely,



Zahira L. Cruz, Project Manager  
Reactor Decommissioning Branch  
Division of Decommissioning, Uranium Recovery  
and Waste Programs  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 50-219

cc: Listserv

SUBJECT: OYSTER CREEK NUCLEAR GENERATING STATION – REVIEW OF REVISED  
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 (EPID L-2019-DPS-0000) **DATE: December 5, 2019**

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**\*via email**

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