



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 298 TO RENEWED

FACILITY LICENSE NO. DPR-16

HOLTEC DECOMMISSIONING INTERNATIONAL, LLC

OYSTER CREEK ENVIRONMENTAL PROTECTION, LLC

OYSTER CREEK NUCLEAR GENERATING STATION

DOCKET NO. 50-219 AND 72-15

1.0 INTRODUCTION

By letter dated February 14, 2018 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML18045A084) Exelon Generation Company, LLC (Exelon), licensee at the time, submitted certification to the U.S. Nuclear Regulatory Commission (NRC or the Commission) indicating its intention to permanently cease power operations at Oyster Creek Nuclear Generating Station (Oyster Creek), pursuant to Title 10 *Code of Federal Regulations* (10 CFR) 50.82(a)(1)(i). By letter dated September 25, 2018 (ADAMS Accession No. ML18268A258), Exelon certified to the NRC that as of September 17, 2018, operations had ceased at Oyster Creek. Exelon also certified, pursuant to 10 CFR 50.82(a)(1)(ii), that all fuel had been removed from the reactor vessel. Effective July 1, 2019, Oyster Creek Renewed Facility Operating License No. DPR-16, and the general license for the Oyster Creek Independent Spent Fuel Storage Installation (ISFSI) was transferred from Exelon Generation Company, LLC (Exelon) to Oyster Creek Environmental Protection, LLC (OCEP) as the licensed owner and to Holtec Decommissioning International, LLC (HDI) as the licensed decommissioning operator. In a letter dated September 12, 2019 (ADAMS Accession No. ML19256B999), HDI requested the NRC to continue all ongoing regulatory actions and reviews currently underway for Oyster Creek. HDI and OCEP have assumed responsibility for the continuation of these regulatory actions and reviews.

By letter dated November 12, 2018 (ADAMS Accession No. ML18317A022) and as supplemented by letter dated March 7, 2019 (ADAMS Accession No. ML19066A317), Exelon requested a change to Renewed Facility License No. DPR-16 for the Oyster Creek, pursuant to 10 CFR 50.90. The proposed change would remove reference to the Cyber Security Plan (CSP) and update the associated License Condition 2.C.(4) (hereafter, the "cyber security license condition") in the renewed facility license. This will allow HDI and OCEP to terminate the Oyster Creek CSP and associated activities at the site. According to Exelon, the proposed change is based on the lowered risk profile of Oyster Creek, a nuclear power reactor that has

permanently ceased operations and has removed all fuel from the reactor vessel. Exelon acknowledged that for a decommissioning facility with a permanently defueled reactor, the spectrum of possible accidents is significantly reduced, and the risk of an offsite radiological release is significantly lower.

The NRC staff previously reviewed and approved the Exelon's CSP implementation schedule by License Amendment No. 280 dated August 10, 2011 (ADAMS Accession No. ML111861341), to Renewed Facility Operating License DPR-16 concurrent with the incorporation of the CSP into the facility's current licensing basis. The NRC staff then reviewed and approved Exelon's request to initially extend the CSP Milestone 8 (MS8) implementation date from December 31, 2015, to December 31, 2017 with License Amendment No. 288, by letter dated July 30, 2015 (ADAMS Accession No. ML15153A282). Additionally, the NRC issued License Amendment No. 292 dated December 22, 2017 (ADAMS Accession No. ML17289A222), to extend the full implementation date of the Oyster Creek CSP Implementation Schedule for MS8 from December 31, 2017, to August 31, 2021.

## 2.0 REGULATORY EVALUATION

The NRC staff considered the following regulatory requirements and guidance during its review of the November 12, 2018, application to eliminate the existing Oyster Creek CSP license condition:

- Under 10 CFR Section 73.54, "Protection of digital computer and communication systems and networks," requires that as of November 23, 2009, each licensee currently licensed to operate a nuclear power plant under 10 CFR Part 50 submit a cyber security plan for Commission review and approval.
- SECY-12-0088, "The Nuclear Regulatory Commission Cyber Security Roadmap," dated June 25, 2012 (ADAMS Accession No. ML12135A050), which states, in part, that "[b]y regulation, dry cask storage in [independent spent fuel storage installations] allows spent fuel that has already been cooled in the spent fuel pool for 1 year to be surrounded by inert gas inside a storage cask. Licensees that are subject to 10 CFR 72.212, 'Conditions of General License Issued Under § 72.210,' (i.e., licenses limited to storage of spent fuel in casks) must also comply with specific portions of 10 CFR 73.55, ['Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors against Radiological Sabotage'] requirements for physical security and the ASM [additional security measure] Orders, but are not subject to the provisions of 10 CFR 73.54, which specifically applies to operating reactors and COL (combined operating license) applicants."
- MEMORANDUM, the subject of which is "Cyber Security Requirements for Decommissioning Nuclear Power Plants," dated December 5, 2016 (ADAMS Accession No. ML16172A284), was prepared to inform the Commission as to how the staff intends to apply 10 CFR 73.54, "Protection of digital computer and communications systems and networks," requirements to nuclear power reactor licensees who have transitioned from an operating status to a decommissioning status.

### 3.0 TECHNICAL EVALUATION

#### 3.1 Licensee's Requested Change

In its request, dated November 12, 2018, Exelon requested the removal of the existing cyber security license condition from the Oyster Creek renewed facility license and removal of the commitment to fully implement the CSP by the MS8 commitment date of August 31, 2021.

In that request, Exelon stated that following permanent shutdown of Oyster Creek and removal of spent fuel from the reactor, the spectrum of possible accidents are significantly reduced and the risk of an offsite radiological release is significantly lower for a permanently defueled reactor. Exelon asserted that the only design-basis accident that could potentially result in an offsite radiological release at Oyster Creek is the fuel handling accident (FHA) which is predicated on spent fuel being stored in the spent fuel pool (SFP). Exelon stated that spent fuel at Oyster Creek is currently stored in both the SFP and the independent spent fuel storage installation. Exelon asserted in this configuration, the spectrum of possible accident transients and accidents is significantly reduced compared to an operating nuclear power reactor.

Exelon performed an analysis that concluded that 33 days after shutdown, the radiological consequence of the FHA would not exceed the limits established by the U.S. Environmental Protection Agency's (EPA) Protective Action Guides (PAGs) at the exclusion area boundary. Exelon asserted that since Oyster Creek has been permanently shut down for greater than 33 days, the possibility of an offsite radiological release from a design basis accident that could exceed the EPA PAGs is significantly reduced. Exelon's analysis concluded that after sufficient cooling time following cessation of reactor operations, there is little chance that the spent fuel in the SFP could heat-up to clad ignition temperature within 10 hours, which is sufficient time for mitigation strategies to prevent spent fuel heat-up damage.

Exelon further noted that this rationale is similar to the rationale used to justify a reduction of emergency preparedness requirements during decommissioning, as detailed in NUREG-1738, "Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants," February 2001 (ADAMS Accession No. ML010430066), and documented in safety evaluations associated with decommissioning plant emergency preparedness exemption requests. Exelon previously submitted an analysis to the NRC of the adiabatic heatup of spent fuel scenario in support of requested exemptions from specific requirements of 10 CFR 50.47 and Appendix E to 10 CFR Part 50 for certain emergency planning requirements as appropriate for a decommissioning facility. By letter dated October 22, 2018, Exelon revised its original adiabatic calculation that was approved on October 16, 2018 from a decay period of 365 days to a 285-day decay period from permanent cessation of power operations. The revised analysis was reviewed and approved by the NRC staff who found that after 285 days, more than 10 hours would be available before a significant offsite release could begin. Therefore, the effective date of the exemption to the Emergency Planning Requirements was modified to an effective date of June 29, 2019 (ADAMS Accession No. ML19098A258). The conclusion that resulted from the analysis was that due to the length of time it would take for the adiabatic heat-up to occur, there is ample time to respond to any partial drain down event that might cause such an

occurrence by restoring cooling or makeup, or providing spray. As a result, the likelihood that such a scenario would progress to a zirconium fire is not deemed credible.

Exelon also asserted that there is a reduced cyber security risk due, in part, to the fact there are fewer critical digital assets at a decommissioning facility in comparison to the number of critical digital assets at an operating reactor. Exelon stated that following permanent cessation of reactor operations and removal of fuel from the reactor vessel, the digital computers and communication systems and networks that require cyber protection are primarily those associated with security and emergency preparedness functions, and the functioning of safety systems that support operation of the SFP. Once the spent fuel has sufficiently decayed, the potential consequences of a cyber-attack are significantly reduced.

### 3.2 NRC Staff Evaluation of Requested Change

The NRC staff evaluated Exelon's application using the regulatory requirements and guidance cited in Section 2.0 of this safety evaluation. The Cyber Security Rule, as contained in 10 CFR 73.54, applies to licensees currently licensed to operate a nuclear power plant. The NRC staff has determined that 10 CFR 73.54 does not apply to reactor licensees that have submitted certifications of permanent cessation of operations and permanent removal of fuel under 10 CFR 50.82(a)(1) or 10 CFR 52.110(a)(1), and whose certifications have been docketed by the NRC. Once the NRC has docketed these certifications, the licensee is no longer authorized to operate a nuclear power plant, and the requirements of 10 CFR 73.54 no longer apply. Exelon certified to the NRC, pursuant to 10 CFR 50.82(a)(1)(i), that as of September 17, 2018, operations had ceased at Oyster Creek. Exelon also certified, pursuant to 10 CFR 50.82(a)(1)(ii), that all fuel had been removed from the reactor vessel. Therefore, pursuant to 10 CFR 50.82(a)(2), Oyster Creek's 10 CFR Part 50 license does not authorize operation of the Oyster Creek reactor or emplacement or retention of fuel into the reactor vessel, and the NRC staff has determined that the Cyber Security Rule at 10 CFR 73.54 no longer applies to Oyster Creek.

Exelon further determined that the fuel has cooled in the spent fuel pool for a sufficient amount of time such that no design-basis accident could have radiological consequences that exceed the EPA PAGs. Exelon completed site-specific analyses supporting the conclusion that a zirconium fire would be highly unlikely in the event of a beyond-design-basis drain down scenario. The NRC staff's previous reviews and approvals of Exelon's associated analyses and the results are included in letters to Exelon dated October 16, 2018 (ADAMS Accession No. ML18220A980), and June 11, 2019 (ADAMS Accession No. ML19098A258). The NRC staff verified Exelon's analyses and its calculations and concluded that by June 29, 2019, the spent fuel has decayed well beyond the minimum cooling time of 9.38 months that would allow sufficient time (10 hours) to mitigate a spent fuel pool drain down in the adiabatic case. Therefore, even if a cyber-attack were to result in the draining of the SFP, consequences of a cyber-attack are much lower now than while the plant was operating or the fuel in the spent fuel pool was not as cool.

Based on its review of Exelon's submissions, the NRC staff concludes that Exelon's request to remove the existing cyber security license conditions from the Oyster Creek Renewed Facility License No. DPR-16 is acceptable and consistent with maintaining

adequate protection of the public health and safety and the common defense and security.

### 3.3 Revisions to License Conditions Paragraph 2.C.(4)

By letter dated November 12, 2018, Exelon proposed to modify Paragraph 2.C.(4) of Renewed Facility License No. DPR-16 to remove the license condition requiring the licensee to fully implement and maintain in effect all provisions of the NRC-approved CSP.

The license condition in Paragraph 2.C.(4) of Renewed Facility License No. DPR-16, for Oyster Creek is modified to delete the following statement:

Holtec Decommissioning International shall fully implement and maintain in effect all provisions of the Commission-approved Exelon Generation Company cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The Exelon Generation Company CSP was approved by License Amendment No. 280 and modified by License Amendment No. 288 and 292.

### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Jersey Department of Environmental Protection was notified of the proposed issuance of the amendment by e-mail, dated June 26, 2019 (ADAMS Accession No. ML19178A070). The NRC received no comments from the New Jersey Department of Environmental Protection.

### 5.0 ENVIRONMENTAL CONSIDERATION

This amendment relates solely to safeguards matters and does not involve any significant construction impacts and relates to modifications to systems used for security and/or materials accountability. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding published in the *Federal Register* on August 15, 2017 (82 FR 38718). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(12). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

### 6.0 CONCLUSION

The NRC staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations; and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: September 18, 2019