

10 CFR 50.12
10 CFR 50.47
10 CFR 50, Appendix E

RA-18-026

March 8, 2018

U.S. Nuclear Regulatory Commission
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Washington, DC 20555-0001

Oyster Creek Nuclear Generating Station
Renewed Facility Operating License No. DPR-16
NRC Docket Nos. 50-219 and 72-15

Subject: Supplement to Request for Exemption from Portions of 10 CFR 50.47 and 10 CFR Part 50, Appendix E

- Reference:
- 1) Letter from Michael P. Gallagher, (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission – *"Request for Exemption from Portions of 10 CFR 50.47 and 10 CFR 50, Appendix E,"* dated August 22, 2017 (ML17234A082)
 - 2) Letter from Michael P. Gallagher, (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission – *"Supplement to Request for Exemption from Portions of 10 CFR 50.47 and 10 CFR Part 50, Appendix E,"* dated January 23, 2018 (ML18023A138)
 - 3) Letter from Michael P. Gallagher, Exelon Generation Company, LLC to U.S. Nuclear Regulatory Commission - *"Certification of Permanent Cessation of Power Operations for Oyster Creek Nuclear Power Station,"* dated February 14, 2018 (ML18045A084)
 - 4) Telephone Conference Call, Exelon Generation (Paul Bonnett, et. al.) and U.S. Nuclear Regulatory Commissioning (John Lamb, et. al.), February 20, 2018

By letter dated August 22, 2017 (Reference 1), and as supplemented in Reference 2, Exelon Generation Company, LLC (Exelon) requested exemptions from portions of 10 CFR 50.47 and 10 CFR 50, Appendix E (Reference 1) for Oyster Creek Nuclear Generating Station (OCNGS). On February 2, 2018, Exelon announced that it now plans to retire OCNGS in 2018, at the end of the current two-year operating cycle (Cycle 26), which is an operating cycle earlier than provided in the Exemption request (Cycle 27) (Reference 1). Exelon informed the U.S. Nuclear Regulatory Commission (NRC) of this change in Reference 2.

On February 20, 2018, during a telephone conference (Reference 5), Exelon and the NRC discussed the status of the NRC's review of the Exemption request (Reference 1). The NRC stated that due to the change in schedule to permanently shutdown OCNGS (end of Cycle 26

verses end of Cycle 27), the NRC questioned if the Spent Fuel Pool Adiabatic Heat-Up (Zirconium Fire (Zirc-Fire)) analysis remained bounding for a permanent shutdown based on fuel loaded for Cycle 26. The NRC requested Exelon to supplement the information provided in the Zirc-Fire analysis.

Exelon is providing this supplement to indicate that it has reviewed the Zirc-Fire analysis (provided in Reference 1) and concluded that it remains bounding for a shutdown at the end of Cycle 26.

The results of Exelon's review are based on the following:

The decay heat input in the Zirc-Fire analysis (Calculation C-1302-226-E310-457 provided with Reference 1) is the bounding decay heat based on the Cycle 27 fuel element with the maximum burnup (49,978 megawatt-days per metric tons of uranium (MWd/MTU)), with a starting uranium weight of 0.182 MTU and a minimum initial bundle enrichment (3.27%). This decay heat value will remain bounding for Cycle 26 as long as the fuel elements have a lower burnup and initial uranium weight, and a higher enrichment value. Lower burnups equate to less total fissions within the element, therefore less fission products and decay heat. A lower MTU results in less total fuel that produces the decay heat. The lower enrichment remains bounding since lower enrichment results in greater production of actinides in the core. Therefore, higher enrichments would contain less actinide isotopes and less decay heat.

The maximum bundle burnup at the end of Cycle 26 is 48,762 MWd/MTU, with an initial uranium weight of 0.181 MTU and a minimum initial bundle enrichment of 3.70%. Therefore, the maximum bundle burnup in Cycle 27 is bounding (48,762 MWd/MTU (Cycle 26) is less than 49,978 MWd/MTU (Cycle 27)). The enrichment of any fuel bundle in Cycle 27 remains bounding (3.27% (Cycle 27) is less than 3.43% (Cycle 26)). The MTU of the limiting bundle in Cycle 26 is less than the MTU used in Cycle 27. The burn up methodology is the same between Cycle 26 and 27. These conditions through the end of Cycle 26 result in less decay heat in its limiting bundle than the limiting bundle used from Cycle 27. Therefore, the submitted Zirc-Fire analysis (Reference 1) remains bounding for the conditions for Operating Cycle 26. This is represented in the table below:

Parameter	Cycle 27	Bounding Criteria	Cycle 26
Maximum Burnup Fuel Element			
Burnup (MWd/MTU)	49,978	>	48,762
Starting (MTU)	0.182	>	0.181
Minimum Initial Bundle Enrichment of ANY Fuel Element	3.27	<	3.43

This supplement to Reference 1 is to assist the NRC in completing its review of the exemption request.

Exelon has reviewed the information supporting a finding of No Significant Hazards Consideration and the Environmental Consideration provided to the NRC in Reference 1. The additional information provided in this submittal does not affect the previously stated bases in

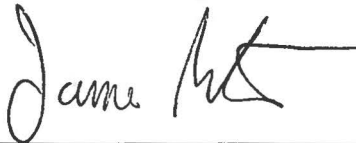
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Reference 1 for concluding that the proposed exemption does not involve a significant hazards consideration. In addition, the information provided in this submittal does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the proposed exemption.

There are no regulatory commitments contained in this submittal.

If you have any questions concerning this submittal, please contact Paul Bonnett at (610) 765-5264.

Respectfully,

A handwritten signature in black ink, appearing to read "James Barstow", with a horizontal line extending to the right from the end of the signature.

James Barstow
Director, Licensing and Regulatory Affairs
Exelon Generation Company, LLC

cc: w/Attachment

Regional Administrator - NRC Region I
NRC Senior Resident Inspector - Oyster Creek Nuclear Generating Station
NRC Project Manager, NRR - Oyster Creek Nuclear Generating Station
Director, Bureau of Nuclear Engineering - New Jersey Department of Environmental
Protection
Mayor of Lacey Township, Forked River, NJ