

## **NRR-DMPSPEm Resource**

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**From:** Lamb, John  
**Sent:** Friday, March 09, 2018 1:43 PM  
**To:** 'david.helker@exeloncorp.com'; Richard.Gropp@exeloncorp.com; Bonnett, Frederick Paul:(GenCo-Nuc)  
**Subject:** RAIs - Oyster Creek Defueled TS LAR (EPID: L-2017-LLA-0395)  
**Importance:** High

Dear Mr. Helker:

By letter dated January 7, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML 110070507), Exelon Generation Company, LLC (Exelon or the licensee), submitted its Notification of Permanent Cessation of Power Operations for Oyster Creek Nuclear Generating Station (OCNGS). In this letter, Exelon provided notification to the U.S. Nuclear Regulatory Commission (NRC) of its intent to permanently cease power operation no later than December 31, 2019.

By letter dated February 14, 2018 (ADAMS Accession No. ML 18045A084), Exelon submitted its updated Notification of Permanent Cessation of Power Operations for OCNGS. In this letter, Exelon provided notification to the NRC of its intent to permanently cease power operation no later than October 31, 2018.

By application dated November 16, 2017 (ADAMS Accession No. ML17320A411), Exelon requested changes to Renewed Facility Operating License (RFOL) No. DPR-16 and technical specifications (TSs) for OCNGS. Exelon requested an amendment to revise the OCNGS RFOL and the associated TS to Permanently Defueled Technical Specifications (PDTS) consistent with the permanent cessation of reactor operation and permanent defueling of the reactor.

The NRC staff has reviewed Exelon's submittal and determined that additional information is required to enable the NRC staff to make an independent assessment regarding its technical review.

The enclosure to this email provides the request for additional information (RAI). On February 28, 2018, the draft RAI questions were sent to Mr. Richard Gropp, and Mr. Paul Bonnet of your staff to ensure that they were understandable, the regulatory bases for the questions were clear, and to determine if the information was previously docketed. A teleconference was held on March 9, 2018, with Mr. Paul Bonnet and Mr. Richard Gropp of your staff to clarify the RAI questions. Exelon stated they would respond to the RAI within 30 days of the date of this email.

If you have any questions, please contact me at 301-415-3100 or via e-mail at [John.Lamb@nrc.gov](mailto:John.Lamb@nrc.gov).

Sincerely,

John G. Lamb, Senior Project Manager  
Special Projects and Process Branch  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-219

Enclosure:  
Request for Additional Information

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**DRAFT RAI**

REQUEST FOR ADDITIONAL INFORMATION  
RELATED TO LICENSE AMENDMENT REQUEST FOR  
CHANGES TO THE OYSTER CREEK NUCLEAR GENERATING STATION  
PERMANENTLY DEFUELED TECHNICAL SPECIFICATIONS  
EXELON GENERATION COMPANY, LLC  
OYSTER CREEK NUCLEAR GENERATING STATION  
DOCKET NO. 50-219

By application dated November 16, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17320A411), Exelon Generation Company, LLC (Exelon or the licensee), requested changes to Renewed Facility Operating License (RFOL) No. DPR-16 and technical specifications (TSs) for the Oyster Creek Nuclear Generating Station (OCNGS). Exelon requested an amendment to revise the OCNGS RFOL and the associated TS to Permanently Defueled Technical Specifications (PDTS) consistent with the permanent cessation of reactor operation and permanent defueling of the reactor.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed Exelon's submittal and determined that additional information is required to enable the NRC staff to make an independent assessment regarding its technical review.

**RFOL-01**

You propose to delete RFOL 1.C. In Reference 9 (ML15117A551) of your submittal, you refer to the Vermont Yankee Defueled TS amendment that the NRC approved. In the Vermont Yankee approval, the NRC staff approved the following License Condition, which is similar to your RFOL 1.C that you request to delete.

“Actions have been identified and have been or will be taken with respect to: (1) managing the effects of aging on the functionality of structures and components that have been identified to require review under 10 CFR 54.21 (a)(1) during the period of extended operation, and (2) time-limited aging analyses that have been identified to require review under 10 CFR 54.21 (c), such that there is reasonable assurance that the activities authorized by this license will continue to be conducted in accordance with the current licensing basis, as defined in 10 CFR 54.3 for the facility, and that any changes made to the facility's current licensing basis in order to comply with 10 CFR 54.29(a) are in accordance with the Act and the Commission's regulations.”

Please provide a technical justification for deleting RFOL 1.C.

**RFOL-02**

In RFOL 2.C.(2), explain why you wish to delete “incorporated in the license” and replace it with “replaced with the Permanently Defueled Technical Specifications (PDTS).” Once you decommission, you will still have a Part 50 license for OCNGS that you must adhere to.

**RFOL-03**

On December 22, 2017, the NRC staff issued Amendment No. 292 (ML17289A222) regarding Cyber Security. Your current request would supersede Amendment No. 292. Do you wish to supplement your November 16, 2017, submittal to delete your requested change for RFOL 2.C.(4)?

**RFOL-04**

In RFOL 2.C.(10), you state that Exelon analyzed the FHA for dose results for the CR. Where is this analysis? Is it part of the submittal dated November 16, 2017? Can you provide more technical details of this analysis?

**TS 3.0-05**

Why does the proposed LCO 3.0.1 refer to TS 3.0.2 and not LCO 3.0.2?

**TS 3.0-06**

Why is there a colon between LCO and 3.1 on page 44 of 91?

**SR 4.2-07**

Why is the frequency once per 7 days when liquid is being added? Why not once per 7 days while radioactive liquid is in the tank?

**TS 6.0-08**

You are proposing to change TS 6.8.1.a, TS 6.8.4.a.9, TS 6.9.1.d, TS 6.9.1.e; however, Amendment No. 290 has been approved with a 60-day implementation period not to exceed March 29, 2020. These are the same TSs being revised in the Defueled TS LAR. How is Exelon going to ensure that Amendment No. 290 is implemented before the Defueled TS amendment? What controls does Exelon have in place?

**TS 3.1-09**

On April 26, 2007, the NRC issued Amendment No. 262 (ADAMS No. ML071080019) to Facility Operating License No. DPR-16 for the OCNCS, approving the implementation of the alternative source term in accordance with 10 CFR 50.67 following the guidance provided in applicable sections of Regulatory Guide (RG) 1.183, *Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors*.

Chapter 15 of the OCNCS Updated Final Safety Analysis Report (UFSAR) describes the design basis accidents (DBA) and transient scenarios applicable to OCNCS during power operations. With the termination of reactor operations at OCNCS and the permanent removal of fuel from the reactor pressure vessel (RPV) the majority of the DBA scenarios postulated in the UFSAR are no longer possible. During decommissioning, the irradiated fuel will be stored in the Spent Fuel Pool (SFP) and the Independent Spent Fuel Storage Installation until it is shipped off site. The analyzed accidents that remain applicable to OCNCS in the permanently shut down and defueled condition is a Fuel Handling Accident (FHA) in the SFP (a dropped fuel assembly onto the top of the core will no longer be applicable), the Postulated Radioactive Tank Failure, and Release of Radioactive Liquid Waste while radioactive liquids are still present.

The licensee proposed to change TS Section 3.1, *Protective Instrumentation* to be TS Section 3/4.1, *Spent Fuel Storage* with a new proposed TS LCO: TS 3.1, *Spent Fuel Pool Water Level*. The purpose of the change is to ensure safe storage and management of the spent fuel. LCO 3.1, *Spent Fuel Pool Water Level*, specifies requirements to ensure that the minimum water level in the spent fuel pool meets the assumptions of iodine decontamination factors following a FHA in the SFP. LCO 3.1 states:

“Whenever irradiated fuel is stored in the spent fuel storage pool, water level shall be maintained at a level  $\geq$  117 feet 8 inches (elevation above sea level) with the exception of planned cask movements.”

To support this new proposed change, the licensee evaluated the required minimum water level in the SFP (calculation C-1302-226-E310-460) for the dropping an irradiated fuel assembly onto irradiated fuel bundles stored in the SFP.

The licensee stated:

“There is slightly over 23 feet of water above the top of active fuel for bundles within the storage racks; however, this does not ensure the dropped bundle will have 23 feet of water coverage above it.”

Regulatory Issue Summary (RIS) 2006-04, Summary of Issue 8, *Elemental Iodine Decontamination Factor (DF)*, explains:

“Appendix B to RG 1.183, provides assumptions for evaluating the radiological consequences of a fuel handling accident. If the water depth above [emphasis added] the damaged fuel is 23 feet or greater, Regulatory Position 2 states that “the decontamination factors for the elemental and organic [iodine] species are 500 and 1, respectively, giving an overall effective decontamination factor of 200.” However, an overall DF of 200 is achieved when the DF for elemental iodine is 285, not 500.”

The licensee credits an overall effective decontamination factor of 200 even though 23 feet of water above the dropped bundle is not ensured. The licensee justifies the decontamination factor:

“because less fuel damage would occur due to the shorter drop compensating for having slightly less than 23 feet of water coverage above the dropped bundle.”

It is unclear how a decontamination factor of 200 is justified due to the reduced drop height in the SFP. The licensee’s fuel assembly drop analysis uses a simplified conservation of energy approach to estimate the maximum kinetic energy generated from a dropped fuel assembly. The analysis does not estimate a decontamination factor due to the assembly drop height.

As discussed in RG 1.183, Regulatory Position 2, *Water Depth*, if the depth of water is not 23 feet, the decontamination factor will have to be determined on a case-by-case method.

Please provide the technical basis for applying a decontamination factor associated with the water above the spent fuel being 23 feet or greater, when the water depth in the SFP is not 23 feet or greater. In addition, explain the methodology used to calculate the decontamination factor. Please state the estimated water level [in linear feet] above the damaged fuel assembly as applied in the radiological consequence analysis.

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**Mail Envelope Properties** (John.Lamb@nrc.gov20180309134300)

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Tracking Status: None

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Tracking Status: None

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