



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

September 14, 2017

Mr. Bryan C. Hanson
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

**SUBJECT: OYSTER CREEK NUCLEAR GENERATING STATION - REQUEST FOR
ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT
REQUEST FOR EMERGENCY PLAN CHANGES TO REVISE THE ON-SHIFT
STAFFING AND THE EMERGENCY RESPONSE ORGANIZATION STAFFING
FOR A PERMANENTLY DEFUELED CONDITION (CAC NO. MF9352)**

Dear Mr. Hanson:

By letter dated January 7, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML110070507), 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 28, 2017 (ADAMS Accession No. ML17060A289), Exelon submitted a license amendment request for OCNGS. The proposed amendment would revise the site emergency plan regarding on-shift staffing and the emergency response organization staffing for a permanently defueled condition.

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

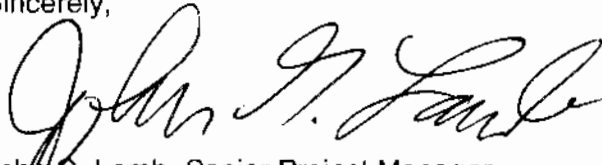
The enclosure to this letter provides the request for additional information (RAI). On July 24, 2017, the draft RAI questions were sent to Messrs. David Helker, Richard Gropp, and Paul Bonnet of your staff to ensure that they were understandable, the regulatory bases for the questions were clear, and to determine if the information was previously docketed. A teleconference was held on August 7, 2017, to clarify the RAI questions. Exelon stated it they would respond to the RAI within 30 days of the date of this letter.

B. Hanson

- 2 -

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

Sincerely,

A handwritten signature in black ink, appearing to read "John G. Lamb". The signature is fluid and cursive, with the first name "John" being the most prominent.

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

cc: Listserv

REQUEST FOR ADDITIONAL INFORMATION
RELATED TO LICENSE AMENDMENT REQUEST FOR
EMERGENCY PLAN CHANGES TO REVISE THE ON-SHIFT STAFFING AND THE
EMERGENCY RESPONSE ORGANIZATION STAFFING
FOR PERMANENTLY DEFUELED CONDITION
EXELON GENERATION COMPANY, LLC
OYSTER CREEK NUCLEAR GENERATING STATION
DOCKET NO. 50-219

By letter dated January 7, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML110070507), 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 28, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17060A289), Exelon submitted a license amendment request to revise the OCNGS site emergency plan (SEP) in support of Exelon's intent to permanently cease power operations at OCNGS no later than December 31, 2019. The proposed amendment to the OCNGS SEP would revise the OCNGS Emergency Response Organization (ERO) on-shift and augmented staffing, based on the certifications for permanent cessation of power operations and permanent removal of fuel from the reactor vessel to the NRC in accordance with §50.82(a)(1)(i) and (ii) to Title 10 of the *Code of Federal Regulations* (10 CFR).

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

RAI-OCNGS- 1

On page 10 in Section 5.1, "On-Shift Staffing Assessment (OSA)," of Attachment 1 to the OCNGS application, Exelon states, in part:

- (3) OCNGS will either qualify an existing on-shift person to perform liquid sampling and analysis at various locations throughout the plant or maintain a Chemistry Technician on shift."

On page 31 (Chemistry Technician) in Section 5.3.1, "On-Shift Staffing," of Attachment 1 to the OCNGS application, Exelon states, in part:

OCNGS will either qualify an existing on-shift person to perform sampling and analysis at various locations throughout the plant or maintain a

Chemistry Technician on shift. If a Chemistry Technician is placed on shift, the Chemistry Technician may be assigned other collateral duties (e.g., Fire Brigade).

...

For gaseous releases, the only credible scenario for releasing gas would be to mechanically damage spent fuel during handling or by impact of a heavy object. Activities that could cause mechanical damage will require that a Chemistry Technician be on-site or the radiation monitor listed in gaseous effluent [Emergency Action Levels (EALS)] is in service, thereby alleviating any reliance on a potentially delayed sample analysis to determine EAL applicability. A new regulatory commitment to revise applicable fuel handling procedures to incorporate this prerequisite is included in Attachment 6.

Based on the above, the proposed change in on-shift operations staffing to qualify the existing [Radiation Protection (RP)] Technician to perform samples is appropriate given the permanent cessation of operations and removal of fuel from the reactor vessel.

In the OCNGS letter to the State of New Jersey dated February 10, 2017, provided in Attachment 7 to the OCNGS LAR, Exelon provided the following as part of its response to Question #7 posed by the New Jersey Bureau of Engineering:

In consideration of deleting on-shift staffing, an evaluation was completed to ensure that necessary actions required to manage various emergency scenarios could still be performed in a timely manner to ensure safety. The conclusion was that six (6) staff personnel can perform the required tasks. As a separate note, **the Chemistry function must be maintained and it is expected that a Chemistry Technician will be retained on shift rather than qualifying an RP Technician to perform the Chemistry function.**

Please explain the apparent contradiction as to whether a Chemistry Technician will continue to be on shift to perform sampling and analysis at various locations throughout the plant.

RAI-OCNGS-2

On page 36 ([Technical Support Center (TSC)] Mechanical and Electrical Engineers) in Section 5.3.2, "ERO Minimum Staff," of Attachment 1 to the OCNGS application, Exelon states, in part:

The TSC Engineers' responsibilities include providing engineering support in response to an accident condition. At OCNGS, the engineers are also qualified to perform the function of the State/local communicator.

The Engineering function will continue to be maintained by the TSC Technical Manager. Support for this position is also maintained by the [Emergency Operations Facility (EOF)] Technical Support Manager, which has been designated as a Minimum Staff position per this License Amendment Request. OCNGS staff engineers would be available to provide technical insight for specific issues as needed. ERO members who are engineers and who respond

to the ERO Notification in excess of the required fill count for facility activation can be retained to support identified technical issues as necessary. Additionally, Oyster Creek's work management process ensures engineering support is available 24 hours a day/ 7 days a week to support emergent conditions. Exelon corporate staff is also available to support emergency engineering issues at the station 24 hours a day/ 7 days a week.

Please clarify if the TSC Technical Manager is or will be qualified to provide "engineering support in response to an accident condition," specifically in response to a fuel handling accident or an event resulting in damage to the spent fuel pool (SFP) integrity or the loss of SFP cooling or inventory.

RAI-OCNGS-3

On page 42 (Operations Support Center (OSC) – Non-Minimum Augmented Staff) in Section 5.3.3, "ERO 30 minute and Full Augmented Staff," of Attachment 1 to the OCNGS application, Exelon states, in part:

OCNGS proposes to only maintain the OSC Director minimum staff position, and if at any time the OSC Director determines that additional support is necessary to accomplish the mission of the OSC, the OSC Director will contact the Logistics Manager in the EOF to arrange for support by additional personnel.

On page 53 in Section 6.2, "Precedent," of Attachment 1 to the OCNGS application, Exelon further states:

The requested changes to the on-shift staffing and ERO staffing are similar in nature to the post-shutdown changes implemented by Vermont Yankee Nuclear Power Station. The NRC issued a Safety Evaluation Report dated February 4, 2015, entitled "Vermont Yankee Nuclear Power Station – Issuance of Amendment to Renewed Facility Operating License, RE: Changes to the Emergency Plan" (Accession Number ML14346A065).

However, the proposed Table 8.4, "Minimum Staffing Requirements for the ENVY ERO," for the Vermont Yankee Nuclear Power Station, contained in a letter from Entergy Nuclear Operations, Inc. to the NRC, dated August 14, 2014 (ADAMS Accession No. ML14231A019), provided the following:

Major Task	ENVY Position Title	Response Time
Offsite Surveys	Field monitoring teams (2)	30 min.
	Field monitoring teams (2)	60 min.
Onsite (out of plant)	Field monitoring teams (1)	30 min.
	Field monitoring teams (1)	60 min.
In Plant Surveys	RP staff (1)	30 min.
	RP staff (1)	60 min.
Mechanical Maintenance	Maintenance (1)	60 min.
Rad Waste Operator	AO/CRO/NCO	60 min.
Electrical Maintenance / I & C Technician	Maintenance (1)	30 min.
	Maintenance (1)	60 min.
I & C Technician	Maintenance (1)	30 min.

Major Task	ENVY Position Title	Response Time
Radiation Protection	RP staff (2)	30 min.
	RP staff (2)	60 min.

The proposed Table 5-1, "Plant Personnel – Emergency Activity Assignments," for the James A. FitzPatrick Nuclear Power Plant, contained in a letter from Entergy Nuclear Operations, Inc., to the NRC, dated February 4, 2016 (ADAMS Accession No. ML16043A424), provided the following:

Major Task	JAFNPP Position Title	Number available within 60 minutes
Surveys	(RP) Specialist	6
Protective actions	(RP) Specialist (RP/Chem)	1
Repair and Corrective Actions	Mechanical Maintenance	2
	Electrical Maintenance I & C	2
	Technician	1

The proposed Table B-1, "OPPD Emergency Response Organization (ERO) Functions and Shift Staff Augmentation Plan," for the Fort Calhoun Station, contained a letter from the Omaha Public Power District to the NRC, dated September 2, 2016 (ADAMS Accession No. ML16246A321), provided the following:

Major Task	Emergency Positions	Goals for 1 hour augmentation
Onsite (out of plant)	RP Technician	1 RP Technician
Protective actions	RP Technician	1 RP Technician
Repair and Corrective Actions	Mechanical Maintenance	1 Machinist/or Steam Fitter Mechanic
Repair and Corrective Actions	Electrical Maintenance	1 Equipment Operator/NCO 1 Electrical Maintenance Technician
Repair and Corrective Actions	I & C Technician	1 I & C Technician

Until the granting of an exemption relieving the licensee of the requirements for full radiological emergency planning, the licensee needs to provide sufficient staffing and resources to mitigate an event with emergency classification levels up to and including a General Emergency. Please provide additional information regarding augmenting RP and maintenance support personnel expected following an Alert classification to support the control room to mitigate an event.

RAI –OCNGS-4

On page 42 (Operations Support Center (OSC) – Non-Minimum Augmented Staff) in Section 5.3.3 of Attachment 1 to the OCNGS application, Exelon states, in part:

Events involving a loss of SFP cooling and/or water inventory can be addressed by implementation of normal and emergency SFP inventory makeup strategies and mitigating strategies required under license condition C.8, "Mitigation Strategy License Condition" and 10 CFR 50.54(hh)(2)....

However, there is no reference to any personnel specifically assigned to perform SFP inventory makeup strategies in the proposed post-shutdown emergency plant.

Please explain who implements SFP inventory makeup strategies and verify that the strategies can be implemented by the on-shift personnel and what equipment will be maintained to perform mitigating functions.

RAI-OCNGS-5

On page 45 (Emergency Operations Facility (EOF) - Non-Minimum Augmented Staff) Section 5.3.3 of Attachment 1 to the OCNGS application, Exelon proposes to keep the following ERO non-minimum augmented staff EOF positions as minimum staff:

- Technical support manager
- Field team communicator
- Field monitoring teams (4 persons)

However, Table 5-2, "Emergency Response Organization Non-Minimum Staff," on page 40, lists the Field Monitoring Teams as minimum staff in the OSC.

Please indicate to what location the Field Monitoring Teams will report: the EOF or the OSC.

RAI-OCNGS-6

In Section 5.3.4, "Assessment of Staff Changes on Off-site Emergency Response Organizational Interfaces," of Attachment 1 to the OCNGS application (page 50), the [Joint Information Center (JIC)] Director position is listed twice with different duties:

- JIC Director – Coordinate with Federal, state and local agencies, as well as with other organizations involved in the emergency response, to maintain factual consistency of information to be conveyed to the news media/public.
- JIC Director – Coordinate with the Corporate Spokesperson, Public Information Director, Federal, State and Local agencies, regarding the content, format and timing of press releases and news briefings.

Please indicate which specific functions the JIC Director will perform as provided on this list.

RAI-OCNGS-7

On page J-6 (Implementation of Protective Action Recommendations) in "Part II: Planning Standards and Criteria," of the Oyster Creek Radiological Emergency Plan (Procedure EP-OC-1000), provided in Attachment 3 / Appendix A to the OCNGS application, Exelon states:

At a General Emergency classification, Oyster Creek will provide the state with recommendations for protective actions for the public. For incidents involving actual, potential, or imminent releases of radioactive material to the atmosphere, EPA 400-R-92-001, the NRC Response Technical Manual (RTM-96) and

NUREG-0654, Supp. 3, Revision 1 are used as the basis for the general public PARs.

In "Part II: Planning Standards And Criteria," and other sections of the OCNCS Radiological Emergency Response Plan, Exelon uses as guidance the U.S. Environmental Protection Agency (EPA) Protective Action Guides (PAG) Manual dated October 1991 – EPA 400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." However, the most recent version, EPA-400/R-17/001, dated January 2017 -- PAG Manual: "Protective Action Guides and Planning Guidance for Radiological Incidents," should be referenced.

RAI-OCNGS-8

Attachment 5, "Oyster Creek Nuclear Generating Station ERO Task Analysis," to the OCNCS application, provides the following, in part:

Note that tasks which are assigned to a person who remains on the **Quad Cities** ERO were not dispositioned.

It is not clear why Quad Cities is referenced in the OCNCS ERO task analysis.

Please clarify the intent of this statement, or revise accordingly.

RAI-OCNGS-9

In Section 5.3.3 (subsections a through d) of Attachment 1 to the OCNCS application, Exelon repeatedly states, in part:

...OC will perform a drill to confirm the ability of the post-shutdown ERO to perform the necessary functions of each emergency response facility and to utilize the post-shutdown procedures being developed depicting the revised assignment of duties... ***State and local response organizations will be offered the opportunity to participate, and the NRC and FEMA will be provided advance notice and the opportunity to observe drill activities.***

However, the Regulatory Commitment contained in Attachment 6 to the OCNCS application does not address the statement repeated in Section 5.3.3 that "*State and local response organizations will be offered the opportunity to participate, and the NRC and FEMA will be provided advance notice and the opportunity to observe drill activities.*"

The State of New Jersey's letter to Exelon, dated February 24, 2017, contained in Attachment 7 of the OCNCS application, specifically states, in part:

[Bureau of Nuclear Engineering (BNE)] appreciates the invitation to observe and participate in the demonstration drills for the effectiveness of emergency facility operation under the Defueled Emergency Plan. We will withhold final judgment on staffing levels until we observe a drill.

Based on the BNE's comment above, please incorporate the following statement into the regulatory commitment, or provide justification why it should not be included:

State and local response organizations will be offered the opportunity to participate, and the NRC and FEMA will be provided advance notice and the opportunity to observe drill activities.

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***via memo**

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