Exelon Generation®

Order No. EA-12-049

RS-13-125
RA-13-051

August 28, 2013

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

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

Subject: First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)

References:

1. NRC Order Number EA-12-049, " Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012
2. NRC Interim Staff Guidance JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Revision 0, dated August 29, 2012
3. NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August 2012
4. Exelon Generation Company, LLC's Initial Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated October 25, 2012
5. Exelon Generation Company, LLC Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated February 28, 2013 (RS-13-023)

On March 12, 2012, the Nuclear Regulatory Commission ("NRC" or "Commission") issued an order (Reference 1) to Exelon Generation Company, LLC (EGC). Reference 1 was immediately effective and directs EGC to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event. Specific requirements are outlined in Attachment 2 of Reference 1.

Reference 1 required submission of an initial status report 60 days following issuance of the final interim staff guidance (Reference 2) and an overall integrated plan pursuant to Section IV, Condition C. Reference 2 endorses industry guidance document NEI 12-06, Revision 0 (Reference 3) with clarifications and exceptions identified in Reference 2. Reference 4 provided the EGC initial status report regarding mitigation strategies. Reference 5 provided the Oyster Creek Nuclear Generating Station overall integrated plan.

Reference 1 requires submission of a status report at six-month intervals following submittal of the overall integrated plan. Reference 3 provides direction regarding the content of the status reports. The purpose of this letter is to provide the first six-month status report pursuant to Section IV, Condition C.2, of Reference 1, that delineates progress made in implementing the requirements of Reference 1. The enclosed report provides an update of milestone accomplishments since the last status report, including any changes to the compliance method, schedule, or need for relief and the basis, if any.

The enclosed report, Section 4, describes changes to the method of compliance with NEI 12-06 (Reference 3) that have been made to the Oyster Creek FLEX conceptual designs. These changes are alternatives to NEI 12-06, but still meet the requirements of NRC Order EA-12-049 (Reference 1). The compensatory measures described in Section 4 provide technical justification for the alternative methods of compliance.

This letter contains no new regulatory commitments. If you have any questions regarding this report, please contact David P. Helker at 610-765-5525.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 28th day of August 2013.

Respectfully submitted,

James Barstow
Director - Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Enclosure:

1. Oyster Creek Nuclear Generating Station First Six-Month Status Report for the Implementation of Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

cc: Director, Office of Nuclear Reactor Regulation
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Enclosure

Oyster Creek Nuclear Generating Station

First Six-Month Status Report for the Implementation of Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

(8 pages)

Enclosure

Oyster Creek Nuclear Generating Station First Six Month Status Report for the Implementation of Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

1 Introduction

Oyster Creek Nuclear Generating Station developed an Overall Integrated Plan (Reference 1 in Section 8), documenting the diverse and flexible strategies (FLEX), in response to Reference 2. This enclosure provides an update of milestone accomplishments since submittal of the Overall Integrated Plan including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

2 Milestone Accomplishments

None.

3 Milestone Schedule Status

The following provides an update to Attachment 2 of the Overall Integrated Plan. It provides the activity status of each item, and whether the expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed.

The revised milestone target completion dates do not impact the order implementation date.

Milestone Schedule

Activity	Target Completion Date	Activity Status	Revised Target Completion Date
Submit 60 Day Status Report	October 2012	Complete	
Submit Overall Integrated Plan	February 2013	Complete	
Contract with RRC		Complete	
Submit 6 Month Updates:			
Update 1	August 2013	Complete with this submittal	
Update 2	February 2014	Not Started	
Update 3	August 2014	Not Started	
Update 4	February 2015	Not Started	
Update 5	August 2015	Not Started	
Update 6	February 2016	Not Started	
Update 7	August 2016	Not Started	

Activity	Target Completion Date	Activity Status	Revised Target Completion Date
Submit Completion Report	October 2016	Not Started	
Modification Development & Implementation:			
Modification Development (All FLEX Phases)	August 2015	Not Started	August 2016
Modification Implementation (All FLEX Phases)	October 2016	Not Started	
Procedures:			
Create Site-Specific Procedures	October 2016	Not Started	
Validate Procedures (NEI 12-06, Sect. 11.4.3)	October 2016	Not Started	
Create Maintenance Procedures	October 2016	Not Started	
Perform Staffing Analysis	June 2016	Not Started	
Storage Plan and Construction	October 2016	Not Started	
FLEX Equipment Acquisition	October 2016	Started	
Training Completion	October 2016	Not Started	
Regional Response Center Operational	December 2015	Started	December 2014
Unit 1 FLEX Implementation	October 2016	Not Started	
Full Site FLEX Implementation	October 2016	Not Started	

4 Changes to Compliance Method

The following changes to the method of compliance with NEI 12-06 (Reference 3) have been made to the Oyster Creek FLEX conceptual designs. These changes are alternatives to NEI 12-06 but still meet the requirements of NRC Order EA-12-049 (Reference 2). The compensatory measures described below provide technical justification for the alternative methods of compliance.

1. NEI 12-06, Section 5.3.2 Deployment of FLEX Equipment

   Requirement: At least one connection point of FLEX equipment will only require access through seismically robust structures.

   Change to compliance method:

   Access to the Oyster Creek Reactor Building used for the strategies is not a robust structure.

Compensatory measure(s) implemented:

In the event of a seismic event, an alternate access path will be used. This path will be pre-identified in the implementing strategies. To satisfy the deployment in a seismic event Oyster Creek will utilize an alternate routing path for the hoses and cables. This path would be through the northwest door of the turbine building north mezzanine, through the hallway past the lower cable spreading room, and down the stairs to the northwest airlock to the manifold. The time to complete the routing will not significantly affect the time of deployment. This path will be validated once the strategies have been finalized.

2. Section 8.3.1 Protection of FLEX Equipment

Requirement: These considerations apply to the protection of FLEX equipment from snow, ice, and extreme cold hazards:

1. For sites subject to significant snowfall and ice storms, portable FLEX equipment should be stored in one of two configurations:
   a. In a structure that meets the plant's design basis for the snow, ice and cold conditions (e.g., existing safety-related structure).
   b. In a structure designed to or evaluated equivalent to ASCE 7-10, *Minimum Design Loads for Buildings and Other Structures* for the snow, ice, and cold conditions from the site's design basis
   c. Provided the N FLEX equipment is located as described in a. or b. above, the N+1 equipment may be stored in an evaluated storage location capable of withstanding historical extreme weather conditions and the equipment is deployable
2. Storage of FLEX equipment should account for the fact that the equipment will need to function in a timely manner. The equipment should be maintained at a temperature within a range to ensure its likely function when called upon. For example, by storage in a heated enclosure or by direct heating (e.g., jacket water, battery, engine block heater, etc.).

Change to compliance method:

Oyster Creek will store FLEX portable equipment outside. The equipment will have block heaters installed.

Compensatory measure(s):

The Oyster Creek severe weather procedure will be revised to require moving the FLEX portable equipment from the outside storage location to the inside truck bays (6) during periods of predicted snow fall, ice, or extreme cold to protect the equipment from these hazards.

5 Need for Relief/Relaxation and Basis for the Relief/Relaxation

Oyster Creek expects to comply with the order implementation date and no relief/relaxation is required at this time.

6 Open Items from Overall Integrated Plan and Draft Safety Evaluation

The following tables provide a summary of the open items documented in the Overall Integrated Plan or the Draft Safety Evaluation (SE) and the status of each item.

Section Reference	Overall Integrated Plan Open Item	Status
Sequence of events (p. 10-12)	The times to complete actions in the Events Timeline are based on operating judgment, conceptual designs, and current supporting analyses. The final timeline will be time validated once detailed designs are completed and procedures developed.	Not Started
Sequence of events (p. 11-12)	Initial evaluations were used to determine the fuel pool timelines. Formal calculations will be performed to validate this information during development of the spent fuel pool cooling strategy detailed design.	Not Started
Identify how strategies will be deployed in all modes (p. 13)	Transportation routes will be developed from the equipment storage area to the FLEX staging areas. An administrative program will be developed to ensure pathways remain clear or compensatory actions will be implemented to ensure all strategies can be deployed during all modes of operation. Identification of storage areas and creation of the administrative program are open items.	Not Started
Identify how the programmatic controls will be met (p. 14)	An administrative program for FLEX to establish responsibilities, and testing & maintenance requirements will be implemented.	Not Started
Maintain Spent Fuel Pool Cooling (p.36)	Complete an evaluation of the spent fuel pool area for steam and condensation.	Not Started
Safety Functions Support (p. 44)	Evaluate the habitability conditions for the Main Control Room and develop a strategy to maintain habitability.	Not started
Safety Functions Support (p. 44)	Develop a procedure to prop open	Not Started

	battery room doors upon energizing the battery chargers to prevent a buildup of hydrogen in the battery rooms.	
Sequence of events (p. 10)	Issuance of BWROG document NEDC-33771P, "GEH Evaluation of FLEX Implementation Guidelines" on 01/31/2013 did not allow sufficient time to perform the analysis of the deviations between Exelon's engineering analyses and the analyses contained in the BWROG document prior to commencing regulatory reviews of the Integrated Plan. This analysis is expected to be completed, documented on Attachment 1B, and provided to the NRC in the August 2013 six month status update.	Completed. Attached to this 6-month update (Attachment 1)

Draft Safety Evaluation Open Item	Status
N/A	N/A

7 Potential Draft Safety Evaluation Impacts

There are no potential impacts to the Draft Safety Evaluation identified at this time.

8 References

The following references support the updates to the Overall Integrated Plan described in this enclosure.

1. Oyster Creek's Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated February 28, 2013.
2. NRC Order Number EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012.
3. NEI 12-06, Rev. 0, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, dated August 2012.
4. NEDC-33771P, GEH Evaluation of FLEX Implementation Guidelines, Rev. 1, January 2013.

9 Attachments

1. NSSS Significant Reference Analysis Deviation Table (Attachment 1B of Overall Integrated Plan)

Attachment 1
NSSS Significant Reference Analysis Deviation Table
(Attachment 1B of Overall Integrated Plan)

Item	Parameter of Interest	NEDC-33771P Rev 2 Value	NEDC-33771 P Page	Plant Applied Value	Design Value	Gap and Discussion
NEDC-33771P Rev 1 Section 4.5.1.1 (BWR/2/3. Mark I and EC System Assumptions) and Table 4.5.2-1 Appendix A are closest to the Oyster Creek Nuclear Generating Station and associated response. Differences between the GEH SHEX case and the MAAP analysis of the Oyster Creek strategy are listed below.						
Input Parameter Values						
1	Core thermal power	Proprietary information. Refer to report for value.	15	1930 MWT	NA	The GEH model BWR 2/3 Mark I reference plant has lower core thermal power rating.
2	Primary System Leakage	Proprietary information. Refer to report for value.	15	35 gpm	NA	The reference plant has a higher leak rate. The leak rate for Oyster Creek was calculated using the Recirculation pump seal vendor input and worst case unidentified leakage.

Item	Parameter of Interest	NEDC-33771P Rev 2 Value	NEDC-33771P Page	Plant Applied Value	Design Value	Gap and Discussion
3	Emergency Condenser capacity	Proprietary information. Refer to report for value.	15	(2.05×10^8 Btu/hr)x2 Oyster Creek has two Emergency condensers	4.1×10^8 Btu/hr	Two Emergency condensers provide a heat removal capability of 4.1×10^8 Btu/hr which is more than what was used in the referenced plant (accounts for higher thermal power).
4	Wetwell Free Volume	Proprietary information. Refer to report for value.	16	122,400 ft^3	NA	The differences in reference plant structural design and minor differences in assumed parameter values at time zero should have a negligible effect on the progression of the event after a few hours.
5	EC actuation pressure	Proprietary information. Refer to report for value	16	1051 psig		EC actuation pressure for Oyster Creek is at a lower pressure than the referenced plant. ECs will initiate at a lower reactor pressure to limit the reactor pressure on the RPV isolation.
6	Suppression pool volume and initial temperature	Proprietary information. Refer to report for value	16	87,000 cubic feet at 90.2 degrees (F)		The differences in reference plant structural design and minor differences in assumed parameter values at time zero should have a negligible effect on the progression of the event after a few hours.