Exelon Generation®

10 CFR 50.54(f)

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RA-16-037

May 11, 2016

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: Response to March 12, 2012, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, Enclosure 5, Recommendation 9.3, Emergency Preparedness – Staffing, Requested Information Items 1, 2, and 6 - Phase 2 Staffing Assessment

References:

1. NRC Letter, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated March 12, 2012
2. Exelon Generation Company, LLC's 60-Day Response to March 12, 2012 Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated May 14, 2012
3. NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0, dated May 2012
4. NRC Letter to NEI, dated May 15, 2012, USNRC Review of NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0, dated May 2012
5. 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

On March 12, 2012, the NRC staff issued a letter entitled Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendation 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident (Reference 1). Enclosure 5 of Reference 1 contains the specific Requested Actions, Requested Information, and Required Response associated with Recommendation 9.3 for Emergency Preparedness -

Staffing. In accordance with 10 CFR 50.54, "Conditions of licenses," paragraph (f), addressees were requested to submit a written response to the information requests within 90 days.

In accordance with Reference 1, Enclosure 5, Exelon Generation Company, LLC (EGC) submitted an alternative course of action for performing the requested actions and providing the requested information (Reference 2). Enclosure 1 of Reference 2 described the alternative course of action and schedule for responding to the Emergency Preparedness – Staffing, Requested Information Items 1, 2, and 6.

Enclosure 1 to this letter provides the Oyster Creek Nuclear Generating Station Phase 2 Staffing Assessment Report. The Oyster Creek Nuclear Generating Station Phase 2 Staffing Assessment Report follows the assessment process methodology described in NEI 12-01 (Reference 3), which was endorsed by the NRC in Reference 4.

In accordance with Reference 2, Enclosure 1, this letter provides the response to the following information requests:

- Reference 1, Enclosure 5, Staffing, Requested Information Item 1
- Reference 1, Enclosure 5, Staffing, Requested Information Item 2
- Reference 1, Enclosure 5, Staffing, Requested Information Item 6

Response to Information Request in Reference 1, Enclosure 5, Staffing, Requested Information Item 1

It is requested that addressees provide an assessment of the onsite and augmented staff needed to respond to a large scale natural event meeting the conditions described in the Discussion section (Reference 1, Enclosure 5). This assessment should include a discussion of the onsite and augmented staff available to implement the strategies as discussed in the emergency plan and/or described in plant operating procedures. The following functions are requested to be assessed:

- ***How onsite staff will move back-up equipment (e.g., pumps, generators) from alternate onsite storage facilities to repair locations at each reactor as described in the Order regarding the NRC Near-Term Task Force (NTTF) Recommendation 4.2. It is requested that consideration be given to the major functional areas of NUREG-0654, Table B-1, such as plant operations and assessment of operational aspects, emergency direction and control, notification/communication, radiological accident assessment, and support of operational accident assessment, as appropriate.***

- ***New staff or functions identified as a result of the assessment.***

- ***Collateral duties (personnel not being prevented from timely performance of their assigned functions).***

Response

Enclosure 1 provides the Oyster Creek Nuclear Generating Station on-shift staffing assessment conducted pursuant to Reference 2. As described in Enclosure 1, Section 5, a detailed timeline and table-top review of the on-shift response to the postulated Beyond-Design-Basis External Event (BDBEE) Extended Loss of AC Power (ELAP) was performed based upon Operations review of the applicable station procedures. The focus of the timeline was to identify all resources, both operators and support organizations that would be required to execute each task for the Initial and Transition Phases using the FLEX mitigating strategies being implemented in accordance with NRC Order EA-12-049 (Reference 5).

The data from the Operations timeline, as well as the review of Radiation Protection and Chemistry resource requirements, was analyzed by applying the methodology specified in NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0, to evaluate the capability of the minimum on-shift staffing complement to execute the actions specified for Operations, Radiation Protection and Chemistry, and the required Emergency Plan responsibilities.

The tables describing the required minimum staffing, the Operations timeline, and the NEI 10-05 staffing analysis tables for Oyster Creek Nuclear Generating Station are included in Enclosure 1.

This Phase 2 Staffing Assessment concluded that the current shift staffing is sufficient to execute all required initial and transition phase tasks prior to the arrival of additional site personnel.

The staffing assessment provided in Enclosure 1 determined that no new staff or functions have been identified as a result of the Phase 2 assessment. The analysis did not identify any non-validated tasks or potential overlap tasks that would require a Time Motion Study to be performed.

The staffing assessment provided in Enclosure 1 determined that the existing on-shift staff is sufficient to implement the FLEX mitigating strategies for the postulated BDBEE ELAP event, while supporting performance of the required Emergency Planning duties without unacceptable collateral duties.

Response to Information Request in Reference 1, Enclosure 5, Staffing, Requested Information Item 2

Provide an implementation schedule of the time needed to conduct the onsite and augmented staffing assessment. If any modifications are determined to be appropriate, please include in the schedule the time to implement the changes.

Response

The Phase 2 Staffing Assessment results for Oyster Creek Nuclear Generating Station do not require any additional modifications or staffing changes.

Response to Information Request in Reference 1, Enclosure 5, Staffing, Requested Information Item 6

Identify changes that have been made or will be made to your emergency plan regarding the on-shift or augmented staffing changes necessary to respond to a loss of all ac power, multi-unit event, including any new or revised agreements with offsite resource providers (e.g., staffing, equipment, transportation, etc.).

Response

As described in Enclosure 1, Section 6, the existing on-shift staff is sufficient to implement the existing mitigating strategies while supporting performance of the required Emergency Planning duties without unacceptable collateral duties. No staffing changes are required.

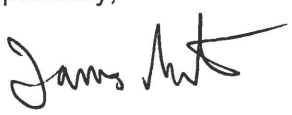
Exelon will be incorporating requirements for drills and exercises involving a BDBEE scenario in accordance with the guidance in NEI 13-06, "Enhancements to Emergency Response Capabilities for Beyond Design Basis Accidents and Events," Revision 0. The BDBEE requirements will be implemented in accordance with the implementation schedule for NEI 13-06.

This letter contains no new regulatory commitments.

If you have any questions regarding this submittal, please contact Ron Gaston at (630) 657-3359.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 11th day of May 2016.

Respectfully,



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

Enclosure: Oyster Creek Nuclear Generating Station NEI 12-01 Phase 2 Staffing Assessment

cc: Regional Administrator - NRC Region I
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Exelon Generation

Enclosure

Oyster Creek Nuclear Generating Station

NEI 12-01 Phase 2

Staffing Assessment

(27 Pages)

Table of Contents

1.0 Executive Summary 2

2.0 Background 2

3.0 Emergency Plan Minimum Staffing 5

4.0 Beyond Design Basis External Event 7

4.1 General Assumptions and Limitations 7

4.2 Scope/Sequence of Events 10

5.0 On-Shift Staffing Task Analysis Results 12

6.0 Changes Required to Support Phase 2 Staffing Assessment 17

7.0 Conclusion 17

8.0 Attachments 18

9.0 References 18

Attachment 1 19

1.0 EXECUTIVE SUMMARY

This report provides the Phase 2 Staffing Assessment for Oyster Creek Nuclear Generating Station, in response to the March 12, 2012, Nuclear Regulatory letter, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident." Specifically, this report provides Phase 2 information to address Staffing Request Numbers 1, 2, and 6 as committed in Exelon Generation Company, LLC's 60-Day Response Oyster Creek Nuclear Generating Station.

The Phase 2 Staffing Assessment was conducted using NEI 12-01, Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities; an approach endorsed by the NRC in a Letter from D. L. Skeen (NRR) to Susan Perkins-Grew (NEI) dated May 15, 2012. This report includes the results of the Phase 2 Staffing Assessment as described in NEI 12-01. The assessment process also includes consideration of any changes planned in response to the Phase 2 Staffing Assessment and the associated implementation schedule. The assessment concluded that there were no changes required.

The Phase 2 Staffing Assessment concluded that the current minimum on-shift staffing as defined in Oyster Creek Nuclear Generating Station's Emergency Response Plan is sufficient to support the implementation of the planned mitigating strategies for a Beyond-Design-Basis External Event (BDBEE) for Oyster Creek Nuclear Generating Station, as well as the required Emergency Plan actions, with no unacceptable collateral duties.

The Phase 2 Staffing Assessment was performed based upon the latest draft FLEX implementing procedures. These procedures will be validated and approved prior to startup from the OC1R26 refueling outage (Fall 2016), as part of the FLEX implementation for Oyster Creek Nuclear Generating Station. The results of the procedure validation will be reviewed and compared with the timeline as documented in this report. If the results of the validation alter staffing requirements or the conclusions contained within this report, an updated report will be submitted within 60 days of startup from OC1R26 (Fall 2016), consistent with the Oyster Creek Nuclear Generating Station FLEX full compliance submittal.

2.0 BACKGROUND

Response to Near-Term Task Force Recommendation 9.3, Staffing

In response to the Fukushima Dai-ichi accident, US Nuclear Regulatory Commission (NRC) issued a letter, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated March 12, 2012. The information requests related to Emergency Preparedness (EP) are contained in Enclosure 5, "Recommendation 9.3: Emergency Preparedness" of this §50.54(f) Letter. Within this enclosure are two Requested Actions (Communications and Staffing). Both Requested Actions involve performance of an assessment. The action for the staffing assessment is summarized below:

> *It is requested that addressees assess their current staffing levels and determine the appropriate staff to fill all necessary positions for responding to a multi-unit event during a beyond design basis natural event and determine if any enhancements are appropriate given the considerations of Near-Term Task Force (NTTF) Recommendation 9.3.*

The industry developed an alternative response based upon a phased approach to Recommendation 9.3. This approach was delineated in NEI 12-01 and was found acceptable by the NRC. In its letter to Susan Perkins-Grew, NEI, dated May 15, 2012, the US NRC stated, in part:

> *The staff has reviewed NEI-12-01, Revision 0, dated May 2012, and has found this guidance to be an acceptable method for licensees to employ when responding to the 10 CFR 50.54(f) letters regarding NTTF Recommendation 9.3.*

The phased approach and associated schedule was submitted to the NRC under Exelon's letter, "60-Day Response to March 12, 2012 Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated May 11, 2012 and May 14, 2012 (corrected). In this letter, Exelon committed to the completion of a Phase 2 Staffing Assessment for Oyster Creek Nuclear Generating Station, by four months prior to OC1R26 outage (Fall 2016). The Phase 2 actions are as follows:

1. *Provide an assessment of the on-site and augmented staff needed to respond to a large scale natural event meeting the conditions described in Enclosure 5 to the NRC's March 12, 2012 Request for Information. This assessment should include a discussion of the on-site and augmented staff available to implement the strategies as discussed in the emergency plan and/or described in plant operating procedures. The following functions are requested to be assessed:*

   > *How on-site staff will move back-up equipment (e.g., pumps, generators) from alternate on-site storage facilities to repair locations at each reactor as described in the order regarding the NRC Near-Term Task Force (NTTF) Recommendation 4.2. It is requested that consideration be given to the major functional areas of NUREG-0654, Table B-1, such as plant operations and assessment of operational aspects, emergency direction and control, notification/communication, radiological accident assessment and support of operational accident assessment, as appropriate.*

2.0 BACKGROUND (cont'd)

Response to Near-Term Task Force Recommendation 9.3, Staffing (cont'd)

New staff or functions identified as a result of the assessment.

Collateral duties (personnel not being prevented from timely performance of their assigned functions).

Provide on-site and augmented staffing assessment considering all requested functions related to NTTF Recommendation 4.2. [Phase 2 staffing assessment]

2.1 Conduct the on-site and augmented staffing assessment:

The on-site and augmented staffing assessment considering all requested functions related to NTTF Recommendation 4.2. [Phase 2 staffing assessment]

2.2 A schedule of the time needed to implement changes will be provided as follows:

Those associated with the Phase 2 staffing assessment.

6 *Identify changes that have been made or will be made to your emergency plan regarding the on-shift or augmented staffing changes necessary to respond to a loss of all AC power, multi-unit event, including any new or revised agreements with offsite resource providers (e.g., staffing, equipment, transportation, etc.).*

Changes will be identified as follows:

Those associated with the Phase 2 Staffing Assessment.

This report for Oyster Creek Nuclear Generating Station provides the NEI 12-01 Phase 2 Staffing Assessment, as requested by the §50.54(f) letter, conducted using the guidance in NEI 12-01 and material from NEI 10-05.

Phase 2 Staffing Assessment

The industry is responding to multiple regulatory actions resulting from the recommendations contained in the Fukushima NTTF Report, as modified in related Commission Papers (SECY's) and Staff Requirements Memoranda (SRM). One of these actions, in particular, has the potential to impact emergency response staffing levels. This action is NRC Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events EA-12-049 [the Order] which addresses Fukushima NTTF Recommendation 4.2.

In accordance with the Order, each licensee must develop new strategies for mitigating the effects of beyond-design-basis external events. To ensure accurate results, the staffing assessment for response functions related to NTTF Recommendation 4.2 must be based on the actions delineated in the procedures and guidelines developed in response to the Order. Once the site-specific actions associated with the new response strategies are defined (e.g., down to the procedure or guideline step level), the staffing needed to perform these actions can be assessed with the necessary level of accuracy.

As requested, an implementation schedule for any modifications that are determined to be appropriate should be included with the Phase 2 Staffing Assessment.

This Oyster Creek Nuclear Generating Station, Phase 2 Staffing Assessment Report provides the results of an assessment performed of the staffing necessary to implement actions that address NRC Order Modifying Licensed with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (EA-12-049). The assessment was performed in conjunction with the development of procedures or guidelines that address the Order using the guidance provided in NEI 12-01.

3.0 EMERGENCY PLAN MINIMUM STAFFING

The Emergency Response Plan for Oyster Creek Nuclear Generating Station establishes the licensing basis for the on-shift staffing complement. The following table indicates the on-shift personnel identified to perform the required emergency planning functions.

Table 1 – Oyster Creek On-Shift Staff Technical Basis

Position	Licensing Basis Requirement	E-Plan Function Area	Staffing Assessment Results
Shift Manager / Emergency Director	10 CFR 50.54(m)	Plant Operations & Safe Shutdown	1
Unit Supv (SRO)	10 CFR 50.54(m)	Plant Operations & Safe Shutdown	1
STA (SRO)	NUREG 0654	Plant System Engineering	1
RO #1	10 CFR 50.54(m) Fire Safe Shutdown	Plant Operations & Safe Shutdown	1
RO #2	10 CFR 50.54(m) Fire Safe Shutdown	Plant Operations & Safe Shutdown	1
EO #1 (SSD)	Fire Safe Shutdown	Plant Operations & Safe Shutdown	1
Fire Brigade Leader (EO)	Fire Protection Program	Fire Fighting	1
Fire Brigade #2 (EO)	Fire Protection Program	Fire Fighting	1
Fire Brigade #3 (EO)	Fire Protection Program	Fire Fighting	1
Fire Brigade #4 (EO or Maint Tech)	Fire Protection Program	Fire Fighting	1
Fire Brigade #5 (EO or Maint Tech)	Fire Protection Program	Fire Fighting	1
Shift Communicator	Emergency Plan	Notification and Communication	1
RP Tech #1	Emergency Plan	Radiological Assessment	1
RP Tech #2	Emergency Plan	Radiological Assessment	1
RP Tech #3	Emergency Plan	Radiological Assessment	1
Chem Tech	Emergency Plan	Radiological Assessment	1
		TOTAL	**16**

4.0 BEYOND DESIGN BASIS EXTERNAL EVENT (BDBEE)

4.1 General Assumptions and Limitations

4.1.1 NEI 12-01 Assumptions Common to Both Assessments (Staffing and Communications)

1. A large-scale external event occurs that results in:

    a. all on-site units affected
    b. extended loss of AC power
    c. impeded access to the units

2. Initially, all on-site reactors are operating at full power and are successfully shut down.

3. A Hostile Action directed at the affected site does not occur during the period that the site is responding to the event.

4. The event impedes site access as follows:

    a. Post event time: 6 hours - No site access. This duration reflects the time necessary to clear road way obstructions, use different travel routes, mobilize alternate transportation capabilities (e.g., private resource providers or public sector support), etc.

    b. Post event time: 6 to 24 hours - Limited site access. Individuals may access the site by walking, personal vehicle or via alternate transportation capabilities (e.g., private resource providers or public sector support).

    c. Post event time: 24+ hours - Improved site access. Site access is restored to a near-normal status and/or augmented transportation resources are available to deliver equipment, supplies, and large numbers of personnel.

A staffing assessment may utilize a "no site access" end time of less than 6 hours and greater than or equal to 4 hours, if supported by a documented basis. This basis should include a discussion of the site-specific transportation-related resources and capabilities, and related supporting arrangements, which provide assurance that augmented staff would be available on the site starting at the time used in the assessment. These resources and capabilities could be provided by Company-internal, private or public sources (including vehicles and aircraft, such as helicopters from military and National Guard organizations). All arrangements with the anticipated service providers should be documented (e.g., Letter of Agreement, contract, etc.). A staffing assessment may not utilize a "no site access" end time of less than 4 hours.

4.1.2 NEI 12-01 Assumptions for Staffing Assessment

Each licensee should determine a date for completing the Phase 2 Staffing Assessment; the assessment will be provided no later than 4 months prior to beginning of second refueling outage (as used within the context of NRC Order EA-12-049). This assessment will consider the requested functions related to Fukushima Near-Term Task Force (NTTF) Recommendation 4.2.

The industry will be responding to multiple regulatory actions resulting from the recommendations contained in the Fukushima NTTF Report, as modified in related Commission Papers (SECY's) and Staff Requirements Memoranda (SRM). One of these actions, in particular, has the potential to impact emergency response staffing levels. This action is NRC Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events EA-12-049 [the Order] which addresses Fukushima NTTF Recommendation 4.2. A summary of the Order is provided below.

This Order requires a three-phase approach for mitigating beyond-design-basis external events. The initial phase requires the use of installed equipment and resources to maintain or restore the functions of core cooling, containment and spent fuel pool cooling. The transition phase requires providing sufficient, portable, on-site equipment and consumables to maintain or restore these functions until they can be accomplished with resources brought from off site. The final phase requires obtaining sufficient offsite resources to sustain those functions indefinitely.

In accordance with the Order, each licensee must develop new strategies for mitigating the effects of beyond-design-basis external events. To ensure accurate results, the staffing assessment for response functions related to NTTF Recommendation 4.2 must be based on the actions delineated in the procedures and guidelines developed in response to the Order. Once the site-specific actions associated with the new response strategies are defined (e.g., down to the procedure or guideline step level), the staffing needed to perform these actions can be assessed with the necessary level of accuracy.

Based on a review of the planned actions necessary to comply with the Order, an assessment of the staffing for the functions related to NTTF Recommendation 4.2 can be provided by 4 months prior to beginning of the second refueling outage (as used within the context of NRC Order EA-12-049). Licensees of single-unit sites should adhere to this submittal milestone.

4.1.2 NEI 12-01 Assumptions for Staffing Assessment (cont'd)

As requested, an implementation schedule for any modifications that are determined to be appropriate should be included with the Phase 2 Staffing Assessment.

The Phase 2 Staffing Assessment is one component of an overall licensee work plan to support implementation of the requirements of the Order. As stated in the Order, all holders of operating licenses issued under Part 50 shall complete full implementation no later than two (2) refueling cycles after submittal of the overall integrated plan, as required in Condition C.1.a, or December 31, 2016, whichever comes first. Full compliance shall include procedures, guidance, training, and acquisition, staging, or installing of equipment needed for the strategies.

Additional Assumptions for Minimum Staffing

On-shift personnel are limited to the minimum compliment allowed by the site regulatory requirements (e.g., Emergency Plan and Security Plan) and commitments. This would typically be the on-shift complement present during a backshift, weekend, or holiday.

4.1.3 Additional Guidance for Staffing Assessment

Per NEI 12-01, Section 3.1, for purposes of assessing augmented staffing, it is assumed that the on-shift staff successfully performs all Initial Phase, and any Transition Phase, coping actions.

Initial Phase – *Implementation of strategies that generally rely upon installed plant equipment.*

Transition Phase – *Implementation of strategies that involve the use of portable equipment and consumables to extend the coping period, and maintain or restore the functions of core cooling, containment, and spent fuel pool cooling.*

4.1.4 NEI 10-05 Applicable Assumptions to Support Methodology

1. On-shift personnel can report to their assigned response locations within timeframes sufficient to allow for performance of assigned actions.

2. The on-shift staff possesses the necessary Radiation Worker qualifications to obtain normal dosimetry and to enter Radiologically Controlled Areas (but not high, locked high or very high radiation areas) without the aid of a Radiation Protection Technician.

3. It is assumed that personnel assigned to the major response area of Plant Operations & Safe Shutdown meet the requirements and guidance established by NRC regulations and are able to satisfactorily perform the functions and tasks necessary to achieve and maintain safe shutdown. Staff performance within this area is not evaluated as part of this assessment, unless a role/function/task from another major response area is assigned as a collateral duty.

4. Individuals holding the position of radiation protection or chemistry technician are qualified to perform the range of tasks expected of their position.

5. The task of making a simple and brief communication has minimal impact on the ability to perform other assigned functions/tasks, and is therefore an acceptable collateral duty for all positions. Examples include making a plant page announcement or placing a call for assistance to an offsite resource such as local law enforcement. This assumption does not apply to emergency notification to an Offsite Response Organization (ORO) or the NRC.

6. The task of performing a peer check has minimal impact on the ability to perform other assigned functions/tasks, and is therefore an acceptable collateral duty for all positions. Examples include performing a peer check on a recommended emergency classification or notification form for transmittal to offsite authorities.

7. The analyzed event occurs during off-normal work hours at a time when augmented ERO responders are not at the site (e.g., during a backshift, weekend or holiday). For purposes of this analysis and consistent with NEI 12-01 – Assumption 4, 360 minutes (6 hours) will be used as the time period for the conduct of on-shift ERO response actions.

Per NEI 10-05, the analysis methodology allows flexibility in the assignment of on-shift response functions and tasks, dependent upon the event or accident. For example, members of a fire brigade may be assigned other response duties if the event or accident does not include a fire. Likewise, a security officer might be assigned to perform offsite notifications during a Design basis Accident (DBA) but not the Design Basis Threat (DBT). For the purposes of this assessment, members of the fire brigade are utilized to perform actions during the initial and transition phases of the response.

4.2 Scope/Sequence of Events

4.2.1 Beyond Design Basis External Event (BDBEE):

Per NEI 12-01, Section 2.2, a large-scale external event occurs that results in:

- All on-site units affected
- Extended loss of AC power
- Impeded access to the units

Initially, the unit is operating at full power and is successfully shut down.

- The unit experiences a loss of offsite power and a failure of all emergency AC power sources resulting in a Station Blackout (Loss of all AC power).

- The BDBEE occurs such that restoration of any AC power source is not possible before the arrival of the augmented ERO personnel. (e.g., 360 minutes)

- The event initially results in a declaration of a General Area Emergency based on EAL Classification MG1.

4.2.2 On-Shift Response

The Oyster Creek Nuclear Generating Station is staffed with one Shift Manager (SM/SRO) providing Operations oversight, one Unit Supervisor (SRO) who directs activities for the unit, a Shift Technical Advisor (STA) or Incident Assessor (IA), and two Nuclear Station Operators (ROs).

During a plant transient, manual or automatic shutdown, the Unit Supervisor directs implementation of response actions per applicable Special Operating Procedures (SOP) and Emergency Operating Procedures (EOP). The STA provides independent oversight. The Shift Manager provides independent oversight of shift operations and is also the Emergency Director (ED) when plant conditions reach emergency action level declaration criteria. The ED provides direction to execute the required Emergency Plan actions in accordance with the applicable Emergency Plan Implementing procedures.

Non-licensed plant operators, on shift Radiation Protection technicians, Chemistry technicians and on-site fire brigade members will report to the control room for direction, or immediate direction will be provided to them via portable radio or other communications, as available.

For the Phase 2 Staffing Assessment, on-shift personnel respond to the initiating events in accordance with plant procedures.

4.2.2 On-Shift Response (cont'd)

The following procedures and documents were referenced during the event review:

- ABN-1, Reactor Scram
- ABN-36, Loss of Offsite Power & Station Blackout (Plant Control)
- ABN-60, Grid Emergency
- ABN-31, High Winds
- ABN-32, Abnormal Intake Level
- ABN-38, Station Seismic Event
- FSG-OC-1: OPERATION OF THE FLEX PORTABLE PUMP
- FSG-OC-2: USING THE FLEX GENERATOR TO POWER THE REPEATER IN THE UPPER CABLE SPREADING ROOM
- FSG-OC-3: USING THE FLEX GENERATOR TO POWER TSC COMMUNICATIONS EQUIPMENT
- FSG-OC-4: DC LOAD SHED/Battery Rm Ventilation
- FSG-OC-5: DEPLOYMNENT OF FLEX PUMP AND HOSES
- FSG-OC-6: OF FLEX GENERATOR AND CABLES
- FSG-OC-7: ISOLATE USS 1A2/USS 1B2 FROM MAIN GEN
- FSG-OC-8: DIESEL FUEL OIL TRANSFER – POST DBBEE
- FSG-OC-9: ESTABLISH MAIN STACK NATURAL DRAFT FLOW
- FSG-OC-10: LOWER REACTOR BUILDING TEMPERATURE – POST BDBEE
- FSG-OC-11: OPERATION OF HVCS – POST BDBEE
- FSG-OC-12: ENERGIZING LOAD BREAKERS ON FLEX 500 KW DG – POST BDBEE
- FSG-OC-13: OBTAIN SPENT FUEL POOL TEMPERATURE READING – POST BDBEE
- FSG-OC-14: DETERMINING HVCS POSITION IND FOLLOWING LOSS OF AC & DC POWER – POST BDBEE
- EP-AA-112-100-F-01, Shift Emergency Director Checklist
- EP-AA-1010, Radiological Emergency Plan Annex for Oyster Creek Station

5.0 ON-SHIFT STAFFING TASK ANALYSIS RESULTS

Oyster Creek Nuclear Generating Station operations personnel conducted a table-top review of the on-shift response to the postulated BDBEE and extended loss of AC power for the Initial and Transition Phases using the FLEX mitigating strategies. Resources needed to perform initial event response actions were identified from the Emergency Operating Procedures (EOPs) and Special Operating Procedures (SOPs).

Per NEI 12-01, Oyster Creek Nuclear Generating Station performed an assessment of the ability to execute the required EP functions using the methodology specified in NEI 10-05. Per NEI 10-05, the analysis is performed using five tables to evaluate the on-shift staffing and functions. The on-shift resources were entered in the appropriate tables (Attachment 1, Tables 2 and 3). Applicable RP and Chemistry tasks and the time required to perform expected emergency plan functions were documented in Attachment 1, Table 4. This information was documented on the applicable tables from NEI-10-05 located in Attachment 1 of this report. The Emergency Plan functions for the event were reviewed and assigned to the on-shift resource responsible for performance of the

identified function and documented as per NEI 12-01 using the NEI 10-05 documentation (Table 5). Finally, the on-shift resources and their actions were summarized in Table 1 using the NEI 10-05 documentation process.

This Phase 2 Staffing Assessment concluded that the current shift staffing is sufficient to execute all required initial and transition phase tasks prior to the arrival of additional site personnel.

The Operating tasks were assigned as shown in Table 5.1 below. None of these operating tasks require the use of the Shift Manager / Shift Emergency Director, STA, or the dedicated shift communicator. As such, no unacceptable collateral duties were identified. Refer to Attachment 1, NEI 10-05 Staffing Tables Oyster Creek Generating Station, for documentation of the on-shift staffing analysis results. The analysis did not identify any non-validated tasks or potential overlap tasks that would require a Time Motion Study to be performed.

Oyster Creek Nuclear Generating Station PHASE 2 STAFFING ASSESSMENT TIMELINE – Table 5.1

Time (Mins.) Position	0-15	15-30	30-45	45-60	60-75	75-90	90-105	105-120
Shift Manager	**Emergency Director / Oversight Declare ELAP T = 5:11** **General Emergency EAL MG1 – T= 6:00 Declare 50.54x T = 30:05**							
Unit Supv	Direct steps per Station Blackout ABN 36, EOPs and FSGs							
STA	Accident Assessment/Control Room Monitoring							
Shift Communicator	Notify State/Local/NRC							
RO #1	Monitor and Control Plant Parameters and cool down							
RO #2	ABN 36 / DC Load Shed per FSG-OC-04			Oversight of all FSG Implementation				
EO #1 (SSD)	Debris Removal and deliver Hose trailer to intake				Traverse back and deliver Flex Pump	Hose connection and Flex Pump start and commence make-up to ICs. FSG-OC-1; FLEX Pump Ready for RPV Makeup and line-up for core spray TS 3.3	Perform FSG-OC -7 Isolate 1A2 and 1B2 from generator	FSG-OC-6 – Install temporary load breakers
FBL EO	T-10 cable run FSG-OC-6						Support 1A2 and 1B2 isolation from generator	FSG-OC-6 – Support temporary load breakers
EO# 2 (FBM)	T-6 TB Flex hoses to manifold in RB 23' FSG-OC- 5		Support debris removal for hose run from intake to TB		Running hoses from Intake to NW TB door	Deliver Generator to NW TB	FSG-OC-6 Connect cable to generator	
EO #3 (FBM)	EDG assessment	Stage and Install Flex Hose from Riser to IC drain line RB 95'	Support IC operation and make-up as required					
MMT #4 (FBM)	Support Debris Removal and deliver Hose trailer to intake				Support traverse back and deliver Flex Pump	Support EO #1 with final hose connections at intake	Pump observation	
MMT #5 (FBM)	T-10 cable run FSG-OC-6							
RPT 1	T-10 Stage Flex Hose from Riser to IC drain line RB 95'		Support debris removal for hose run from intake to TB		Running hoses from Intake to NW TB door	Deliver Generator to NW TB door	Support Operations as needed	
RPT 2	Support staging of Flex Hose from Riser to IC 95'		Support FBL for cable and hose runs as necessary					
RPT 3	T-10 cable run FSG-OC-6							
Chemistry	T-10 cable run FSG-OC-6							

Oyster Creek Nuclear Generating Station - NEI 12-01 Phase 2 Staffing Assessment

Time (Mins.) Position	120-135	135-150	150-165	165-180	180-195	195-210	210-225	225-240
Shift Manager	SM/ED Oversight							
Unit Supv	Direct steps per Station Blackout ABN 36, EOPs and FSGs							
STA	Accident Assessment/Control Room Monitoring							
Shift Communicator	Notify State/Local/NRC							
RO #1	Monitor Plant Parameter/Rx Pressure and IC Level			Isolate 4 of 5 RCP Loops – FSG-OC-12 **TS 3.0 hrs**	Monitor Plant Parameter/Rx Pressure and IC Level			
RO #2	Oversight of all FSG Implementation							
EO #1 (SSD)	Install temporary Load Breakers and Connect Cables FSG-OC-6	Review FSG-OC-12	Re-energize Station Battery Chargers FSG-OC-12 **TS 2.5 hrs**	Monitor Flex Pump Operation per FSG-OC-1				
FBL EO	Install temporary Load Breakers and Connect Cables FSG-OC-6	Review FSG-OC-12	Support Re-energize Station Battery Chargers FSG-OC-12	Verify power to Rx Recirc Loop Isolation valves	Debris Removal and Diesel Fuel Oil Transfer station set-up and transfer fuel as necessary (FSG-OC-8 as needed)			
EO# 2 (FBM)	Connect Cable to generator FSG-OC-6	Start Flex Generator FSG-OC-12 to re-energize USS 1A2/1B2 **TS 2.5**	Monitor Flex Generator Operation FSG-OC-12					
EO #3 (FBM)	Line-up hoses for Fuel Pool Makeup (both at B.5.b connection & 119 FSG-OC-05 and continue to Support IC operation and make-up as required. **TS 6.0**			Continue to Support IC operation and make-up as required; support RPV make-up to Core Spray **TS 3.3 hrs**	Continue to Support IC operation and make-up as required; support RPV make-up to Core Spray			
MMT #1 (FBM)	Support Line-up hoses for Fuel Pool Makeup (both at B.5.b connection & 119 FSG-OC-05			Support Debris Removal				
MMT #2 (FBM)	Support Debris Removal							
RPT 1	Support Line-up hoses for Fuel Pool Makeup (both at B.5.b connection & 119) FSG –OC-05			Conducting plant walk downs and damage assessment				
RPT 2	Conducting plant walk downs and damage assessment							
RPT 3	Plant surveys and activities as directed by Emergency Director							
Chemistry	Conducting plant walk downs and damage assessment							

Oyster Creek Nuclear Generating Station - NEI 12-01 Phase 2 Staffing Assessment

Time (Mins.) Position	240-255	255-270	270-285	285-300	300-315	315-330	330-345	345-360
Shift Manager	SM/ED Oversight							
Unit Supv	Direct steps per Station Blackout ABN 36, EOPs and FSGs							
STA	Accident Assessment/Control Room Monitoring							
Shift Communicator	Notify State/Local/NRC							
RO #1	Monitor Plant Parameter/Rx Pressure and IC Level							
RO #2	Oversight of all FSG Implementation							
EO #1 (SSD)	Monitor Flex Pump Operation per FSG-OC-1							
FBL EO	Debris Removal and Diesel Fuel Oil Transfer station set-up and transfer fuel as necessary (FSG-OC-8 as needed)							
EO# 2 (FBM)	Monitor Flex Generator Operation FSG-OC-12							
EO #3 (FBM)	Continue to Support IC operation and make-up as required; support RPV make-up to Core Spray							
MMT #1 (FBM)	Support Debris Removal and Diesel Fuel Oil Transfer Station set-up (FSG-OC-8) as needed							
MMT #2 (FBM)	Support Debris Removal and Diesel Fuel Oil Transfer Station set-up (FSG-OC-8) as needed							
RPT 1	Conducting plant walk downs and damage assessment							
RPT 2	Conducting plant walk downs and damage assessment							
RPT 3	Plant surveys and activities as directed by Emergency Director							
Chemistry	Conducting plant walk downs and damage assessment							

6.0 CHANGES REQUIRED TO SUPPORT PHASE 2 STAFFING ASSESSMENT

6.1 Staffing Changes

This Phase 2 Staffing Assessment concluded that the existing on-shift staff is sufficient to implement the existing mitigating strategies for Oyster Creek Nuclear Generating Station while supporting performance of the required Emergency Planning duties without unacceptable collateral duties. No staffing changes are required.

6.2 Emergency Plan and Procedure Changes

Per NEI 12-01, Section 3.10, the capability for responding to a BDBEE does not need to be described in the emergency plan. A licensee may, however, choose to incorporate implementing instructions for expanded response functions into emergency plan implementing procedures, and/or extended loss of AC power, SAMG or other program documents.

NEI 12-01 further states that a licensee should determine if any changes are necessary to documents describing the emergency response drill and exercise program. In particular, standard objectives and extent-of-play may need to be revised to clarify the expected demonstration of functions that are dependent upon the type of scenario event or accident (i.e., within or beyond design basis, and number of affected units).

Exelon will be incorporating requirements for drills and exercises involving a BDBEE scenario in accordance with the guidance in NEI 13-06, Enhancements to Emergency Response Capabilities for Beyond Design Basis Accidents and Events.

7.0 CONCLUSION

This Phase 2 Staffing Assessment concluded that the current minimum on-shift staffing as defined in the Emergency Response Plan for Oyster Creek Nuclear Generating Station, is sufficient to support the implementation of the current station blackout (SBO) strategies, including BDBEE mitigating strategies, as well as the required Emergency Plan actions, with no unacceptable collateral duties.

8.0 ATTACHMENTS

Attachment 1, NEI 10-05 Staffing Tables for Oyster Creek Nuclear Generating Station.

9.0 REFERENCES

9.1 NEI 12-01, Rev. 0, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities"

9.2 NEI 10-05, Rev. 0, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities"

9.3 NSIR DPR-ISG-01, "Interim Staff Guidance – Emergency Planning for Nuclear Power Plants"

9.4 NEI 13-06, "Enhancements to Emergency Response Capabilities for Beyond Design Basis Accidents and Events"

9.5 NRC Letter "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated March 12, 2012

9.6 EP-AA-1010, Radiological Emergency Plan Annex for Oyster Creek Station

9.7 NRC Letter to Susan Perkins-Grew, NEI, "U.S. Nuclear Regulatory Commission Review of NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0, May 2012," dated May 15, 2012

9.8 Exelon Generation Company, LLC Letter to NRC, "Exelon Generation Company, LLC's (EGC) 90-Day Response to March 12, 2012 Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendation 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Daiichi Accident; dated March 12, 2012 (Emergency Preparedness)," dated June 11, 2012

Attachment 1

NEI 10-05 Staffing Tables

For

Oyster Creek Nuclear Generating Station

NEI 12-01 Phase 2 Staffing Assessment

Attachment 1
NEI 12-01 Phase 2 On-Shift Staffing Assessment (OSA)

- **Accident Summary:**
  - A BDBEE results in a loss of all offsite AC power coincident with the trip of the unit. All station emergency diesel generators fail to start.
- **Procedures Reviewed for Accident Response Include:**

  For a list of procedures see Section 4.2.2.

Attachment 1

Oyster Creek Nuclear Generating Station

TABLE 1 – On-Shift Positions Analysis **NEI 12-01 Phase 2**

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min) Note 2	Role in Table#/Line#
1.	Shift Manager / Shift ED	EP-AA-1010, Table 2-1	N/A	T2/L1 T5/L1 T5/L2 T5/L3 T5/L4 T5L5 T5/L8 T5/L10
2.	Unit Supv (SRO)	EP-AA-1010, Table 2-1	N/A	T2/L2
3.	STA	EP-AA-1010, Table 2-1	N/A	T2/L3
4.	Reactor Operator (RO #1)	EP-AA-1010, Table 2-1	N/A	T2/L4
5.	Reactor Operator (RO #2)	EP-AA-1010, Table 2-1	N/A	T2/L5
6.	EO #1 (SSD)	EP-AA-1010, Table 2-1	N/A	T2/L6
7.	Fire Brigade Leader (EO)	EP-AA-1010, Table 2-1	N/A	N/A
8.	Fire Brigade #2 (EO)	EP-AA-1010, Table 2-1	N/A	N/A
9.	Fire Brigade #3 (EO)	EP-AA-1010, Table 2-1	N/A	N/A

Attachment 1 (cont'd)

Oyster Creek Nuclear Generating Station

TABLE 1 – On-Shift Positions Analysis **NEI 12-01 Phase 2**

10.	Shift Communicator	EP-AA-1010, Table 2-1	N/A	T5/L6 T5/L9 T5/L13
11.	RP Tech #1	EP-AA-1010, Table 2-1	N/A	N/A
12.	RP Tech #2	EP-AA-1010, Table 2-1	N/A	N/A
13.	RP Tech #3 (Offsite Dose Assessor)	EP-AA-1010, Table 2-1	N/A	N/A
14.	Chem Tech	EP-AA-1010, Table 2-1	N/A	N/A
15.	Fire Brigade #4 (EO or Maint Tech)	EP-AA-1010, Table 2-1	N/A	N/A
16.	Fire Brigade #5 (Maint Tech or EO)	EP-AA-1010, Table 2-1	N/A	N/A

NOTES:

1. The Shift Communicator can be filled by any available qualified individual who is not assigned STA, Fire Brigade, Plant Operator, or Shift Emergency Director.

2. Augmentation Elapsed Time - Per the site access assumptions in NEI 12-01, augmentation will begin at T = 6 hours. This assessment is based upon the ability to execute the required functions for the initial 6 hours following the initiating event.

Attachment 1 (cont'd)
Oyster Creek Nuclear Generating Station

TABLE 2 – Plant Operations & Safe Shutdown Analysis **NEI 12-01 Phase 2**

One Unit - One Control Room **Applicable to site unit(s) # 1**

Minimum Operations Crew Necessary to Implement SOPs and EOPs, or SAMGs if applicable

Line	Generic Title/Role	On-Shift Position	Task Performance Validation
1	Shift Manager	Shift Manager	Ops Training Program
2	Unit Supervisor	Unit Supervisor (SRO)	Ops Training Program
3	Shift Technical Advisor	STA (SRO)	Ops Training Program
4	Reactor Operator #1	Reactor Operator #1	Ops Training Program
5	Reactor Operator #2	Reactor Operator #2	Ops Training Program
6	Auxiliary Operator #1	Equipment Operator (EO #1)	Ops Training Program
7	Other	n/a	n/a
8	Other	n/a	n/a
9	Other	n/a	n/a
10	Other	n/a	n/a

Attachment 1 (cont'd)
Oyster Creek Nuclear Generating Station

TABLE 3 – Firefighting Analysis **NEI 12-01 Phase 2**

Line	Performed By	Task Performance Validation
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

Notes:
Scenario assumes no concurrent fire therefore no Fire Brigade response required for this event

Attachment 1 (cont'd)
Oyster Creek Nuclear Generating Station

TABLE 4 – Radiation Protection & Chemistry Analysis **NEI 12-01 Phase 2**

Line	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)																	
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
1	In-Plant Survey On-Shift Position:																		
2	On-Site Survey On-Shift Position:																		
3	Job Coverage On-Shift Position:																		
4	Other Site Specific Describe: RPT 1 stage hoses and support debris removal	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
5	Other Site Specific Describe: RPT 2 stage hoses and cables	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
6	Other Site Specific Describe: RPT 3 stage cables	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
7	Chemistry function/task #1 – Describe: stage cables	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Attachment 1 (cont'd)
Oyster Creek Nuclear Generating Station

TABLE 4 – Radiation Protection & Chemistry (cont'd)

Line	Position Performing Function/Task	90-120	120-150	150-180	180-210	210-240	240-270	270-300	300-330	330-360
1	In-Plant Survey On-Shift Position: RPT 3 Dose Assessment		x	x	x	x	x	x	x	x
2	On-Site Survey On-Shift Position:									
3	Job Coverage On-Shift Position:									
4	Other Site Specific Describe: RPT 1 stage hoses and support debris removal; conduct plant walk downs	x	x	x	x	x	x	x	x	x
5	Other Site Specific Describe: RPT 2 Conduct plant walk downs	x	x	x	x	x	x	x	x	x
6	Other Site Specific Describe: RPT 3 stage cables	x								
7	Chemistry function/task #2 – Describe: Conduct plant walk downs	x	x	x	x	x	x	x	x	x

Attachment 1 (cont'd)
Oyster Creek Nuclear Generating Station

TABLE 4 – Radiation Protection & Chemistry (cont'd)

Notes:

RP and Chemistry personnel will perform assignments at the direction of the Shift Manager.

Rad Protection:

Three RP technicians are assigned to the MCR to support emergency response. The RP Technicians will support Operations activities as necessary and as prioritized by the Shift Emergency Director/Shift Manager.

Chemistry:

One Chemistry technician is assigned to the MCR to support emergency response. The Chemistry Technician will support Operations activities as necessary and as prioritized by the Shift Emergency Director/Shift Manager.

Attachment 1 (cont'd)
Oyster Creek Nuclear GeneratingStation

TABLE 5 – Emergency Plan Implementation Analysis **NEI 12-01 Phase 2**

Line	Function/Task	On-Shift Position	Task Performance Validation
1	Declare the Emergency Classification Level (ECL)*	Shift Manager	Ops Training Program
2	Approve Offsite Protective Action Recommendations*	Shift Manager	Ops Training Program
3	Approve content of State/local notifications*	Shift Manager	Ops Training Program
4	Approve extension to allowable dose limits	Shift Manager	Ops Training Program/EP Drills and Exercises
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	EP/Ops Training and EP Drill Program
6	ERO notification	Shift Communicator	Ops Training Program/ EP Drills and Exercises
7	Abbreviated NRC notification for DBT event	N/A	Ops Training Program
8	Complete State/local notification form	Shift Manager	Ops Training Program
9	Perform State/local notifications	Shift Communicator	Ops Training Program/ EP Drill Program
10	Complete NRC event notification form	Shift Manager	Ops Training Program/EP Drill Program
11	Activate ERDS	N/A	N/A
12	Offsite radiological assessment	N/A	N/A
13	Perform NRC notifications	Shift Communicator	Ops Training Program/ EP Drills and Exercises
14	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15	Personnel accountability	Security	EP/Security Training and EP Drill Program
16	Other: Specify	N/A	N/A

*Shift Manager (Shift/Station Emergency Director) non-delegable duty