Exelon Generation®

10 CFR 50.54(f)

RS-15-114

May 8, 2015

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

Peach Bottom Atomic Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277 and 50-278

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
6. Peach Bottom Atomic Power Station, Units 2 and 3 Letter to NRC, 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, dated May 8, 2015 (RS-15-115)

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 Peach Bottom Atomic Power Station Phase 2 Staffing Assessment Report. The Peach Bottom Atomic Power 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 Peach Bottom Atomic Power 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," 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 Peach Bottom Atomic Power 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 assessment identified the need for four (4) additional personnel to support the movement of hoses, and debris removal. These personnel will be drawn from the available auxiliary site personnel. An analysis of the use of these auxiliary personnel in support of the Initial and Transition Phase actions is provided under a separate submittal (Reference 6). Tasks assigned to the auxiliary personnel will be performed under the direction of qualified Operations personnel, do not involve the configuration of plant equipment, and do not require task-specific training. The applicable program document will be revised to require that, should Security personnel be deployed to support any of the Auxiliary tasks, Security personnel would only be used when all other available staff had been deployed, and would be given first priority for return to normal duties as soon as a non-Security staff member becomes available.

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 Peach Bottom Atomic Power Station require the establishment of procedural controls to activate the Expanded Response Capability for the BDBEE as defined for the Phase 2 Staffing Assessment. This staffing will be provided by the current site resources, supplemented by fleet resources, as necessary. Fleet procedural controls to activate the Expanded Response Capability have been implemented.

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 7, 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, provided that the staff is augmented with four (4) auxiliary personnel. No staffing changes are required.

Also as described in Enclosure 1, Section 7, the existing augmented ERO, supplemented by site staff, provides sufficient staffing to satisfy the Expanded Capability functions defined in NEI 12-01, Table 3.1. Exelon will address the expanded staffing requirements commencing at 6-hours post-event using available site resources augmented by resources from other Exelon sites and the corporate staff.

Exelon has incorporated instructions into applicable fleet procedures to activate the Expanded Response Capability and to request any necessary logistical support for site access based upon the following conditions, as described in NEI 12-01, Section 3.8:

- Loss of ALL offsite and ALL on-site power sources to AC emergency busses at more than 1 unit, OR
- Plant parameters or conditions require implementation of SAM strategies for more than 1 unit.

These procedure changes have been implemented concurrent with the implementation of the mitigating strategies at the first affected Exelon site (Byron Station) in the Fall of 2014. This action has been completed consistent with the FLEX implementation milestone schedule.

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. 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 8th day of May 2015.

Respectfully,

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

Enclosure:

1. Peach Bottom Atomic Power Station, Units 2 and 3 NEI 12-01 Phase 2 Staffing Assessment

cc: Director, Office of Nuclear Reactor Regulation
Regional Administrator - NRC Region I
NRC Senior Resident Inspector –Peach Bottom Atomic Power Station
NRC Project Manager, NRR – Peach Bottom Atomic Power Station
Mr. Peter J. Bamford, NRR/JLD/PPSD/JOMB, NRC
Mr. Stephen S. Philpott, NRR/JLD/PPSD/JOMB, NRC
Director, Bureau of Radiation Protection – Pennsylvania Department of Environmental Resources
S. T. Gray, State of Maryland
R. R. Janati, Chief, Division of Nuclear Safety, Pennsylvania Department of Environmental Protection, Bureau of Radiation Protection

Enclosure 1

Peach Bottom Atomic Power Station, Units 2 and 3

NEI 12-01 Phase 2 Staffing Assessment Report

(40 Pages)

Exelon Generation®

Enclosure 1

PEACH BOTTOM ATOMIC POWER STATION

NEI 12-01 Phase 2

Staffing Assessment

Table of Contents

1.0 EXECUTIVE SUMMARY

This report provides the Phase 2 Staffing Assessment for Peach Bottom Atomic Power Station Units 2 and 3 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's 60-Day Response for Peach Bottom Atomic Power 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. It also includes a discussion of any changes planned in response to the Phase 2 Staffing Assessment and the associated implementation schedule.

The Phase 2 Staffing Assessment concluded that the current minimum on-shift staffing as defined in EP-AA-1007, Radiological Emergency Plan Annex for Peach Bottom Atomic Power Station, is sufficient to support the implementation of the current mitigating strategies for a Beyond-Design-Basis External Event (BDBEE) on both Units 2 and 3, as well as the required Emergency Plan actions, with no unacceptable collateral duties, provided that the minimum staff is augmented with four additional auxiliary personnel on-site. The Phase 2 Staffing Assessment also identifies the staffing necessary to support the Expanded Response Capability for the BDBEE as defined in NEI 12-01, Section 3.4.

The Phase 2 Staffing Assessment was performed based upon the draft FLEX implementing procedures. The results of 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 of this report, an updated report will be submitted within 60 days of startup from P3R20 (Fall 2015), consistent with the Peach Bottom FLEX 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 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. In this letter, Exelon committed to the completion of a Phase 2 staffing assessment for Peach Bottom Atomic Power Station by December 6, 2014.

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 the Discussion section. 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.

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

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

Request # (Ref: Exelon 60- day Response to NRC Request for Information)	Requested Information
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 the Discussion section. 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. New staff or functions identified as a result of the assessment. Collateral duties (personnel not being prevented from timely performance of their assigned functions).
1B	Provide on-site and augmented staffing assessment considering all requested functions related to NTTF Recommendation 4.2. [Phase 2 staffing assessment]
2B	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]
2D	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.)
6B	Changes will be identified as follows: Those associated with the Phase 2 Staffing Assessment.

This report for Peach Bottom Atomic Power 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 BDBEEs. 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 to emergency response staffing that are determined to be appropriate should be included with the Phase 2 staffing assessment.

This Peach Bottom Phase 2 Staffing Assessment Report provides the results of an assessment performed of the staffing necessary to implement actions that address the Order. 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

EP-AA-1007, Radiological Emergency Plan Annex for Peach Bottom Atomic Power Station, establishes the minimum on-shift staffing complement. The following table indicates the on-shift personnel necessary to perform the required emergency planning functions.

Functional Area	Major Tasks	Emergency Positions	Minimum Shift Size
1. Plant Operations/Safe Shutdown and Assessment of Operational Aspects	Control Room Staff	Shift Manager Shift Supervisor Reactor Operator [b] SSD Non Licensed Operator[b]	1 1 3 3
2. Emergency Direction and Control	Command and Control	Shift Emergency Director	1[a]
3. Notification and Communication	Emergency Communications	Plant Shift Personnel	2
4. Radiological Assessment	Offsite Dose Assessment In-Plant Surveys Chemistry	RP Personnel[e] Off-site Field Team (RP) Off-site Field Team (Driver) RP Personnel Chemistry Personnel	1 1 1 1 1
5. Plant System Engineering Repair and Corrective Action	Technical Support Repair and Corrective Actions	STA or Incident Assessor Mech Maintenance I&C Maintenance Electrical Maintenance Radwaste Operator	1 1[a] 1 1[a] 1
6. In Plant Protective Actions	Radiation Protection	RP Personnel	2[a]
7. Fire Fighting	--	Fire Brigade[c]	5
8. First Aid and Rescue Operations	--	Plant Personnel	2[a]
9. Site Access Control and Personnel Accountability	Security and Accountability	Security Team Personnel	(d)
		Total:	**23**

(a) May be provided by personnel assigned other functions
(b) Safe Shutdown per Fire Protection Report or per Technical Specifications. A Reactor Operator who maintains a Non Licensed Operator (NLO) qualification may fill an NLO position.
(c) Fire Brigade per UFSAR/Technical Specifications, as applicable
(d) Function performed by on-shift security personnel
(e) May be provided by RP Technician at Limerick Generating Station

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

For multi-unit plants, the Phase 1 staffing assessment performed in response to the Letter will be performed by March 29, 2013, and provided by April 30, 2013. This assessment will consider all requested functions except those related to Fukushima Near-Term Task Force (NTTF) Recommendation 4.2. An assessment considering these functions will be performed in Phase 2.

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 BDBEEs. 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 BDBEEs. 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. Licensees of multi-unit sites have two options for providing the Phase 2 staffing assessment:

- Provide one phase 2 staffing assessment applicable to all on-site units. This assessment should be provided 4 months prior to the first occurrence of a

second refueling outage at the site (i.e., the first "second refueling outage"). This option may be used by sites that will employ essentially identical mitigation strategies for all on-site units.

- Provide two or more phase 2 staffing assessments as applicable to the different on-site units. Each assessment should be provided 4 months prior to the occurrence of the second refueling outage of the unit to which the assessment is applicable. This option may be used by sites that will employ different mitigation strategies for on-site units.

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.

4.1.3 Additional Assumptions for Minimum Staffing

On-shift personnel are limited to the minimum complement 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.

4.1.4 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.*

4.1.5 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. 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 Emergency Response Organization (ERO), responders are not at the site (e.g., during a backshift, weekend or holiday). The ERO augmentation time is based on the time of event declaration until the time of turnover of the function/responsibility. Specifically, any time needed by the augmenting ERO to acquire materials or prepare for turnover is accounted for. Facility activation includes the turnover of functions from the on shift staff. For purposes of this analysis, 360 minutes 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 DBA but not the 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): Station Blackout (SBO)

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, both on-site reactors are operating at full power and are successfully shut down.

- Both units experience 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 Site Area Emergency based on EAL MS1, with a subsequent escalation to a General Emergency based on EAL MG1.

4.2.2 On-shift Response

Peach Bottom has a common Control Room for the operation of Units 2 and 3 with one Shift Manager (SRO) providing Operations oversight of both units, and one Control Room Supervisor (SRO) who directs the activities for both units. In addition, minimum staffing includes a Shift Technical Advisor or Incident Assessor (STA/IA), and three Reactor Operators (ROs).

During a plant transient, manual or automatic shutdown, the Control Room Supervisor directs implementation of response actions per applicable abnormal operating or emergency operating procedures. The STA/IA provides independent safety function status assessment (for both units during a dual unit event). The SM provides oversight and is also the Emergency Director when plant conditions reach emergency action declaration criteria.

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

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

The following procedures and documents support the event response:

- EP-AA-112-100-F-01, Shift Emergency Director Checklist
- T-100, SCRAM
- T-101, RPV Control
- T-102, Secondary Containment Control
- T-261, Placing the Backup Instrument Nitrogen Supply from CAD Tank in Service
- SE-11, Loss of Offsite Power
- SE-11, Attachment B, Responding to a Diesel Generator Trip or Failure to Start
- SE-11, Attachment T, DC Load Shed
- SE-11, Attachment U, Opening Secondary Containment Doors to Support Long-term HPCI/RCIC Operation
- FSG-001, FLEX Equipment Deployment Location Assessment
- FSG-002, Debris Removal
- FSG-004, FLEX F-750 Truck Operations
- FSG-010, Aligning FLEX Generator to Panel 3AS1061
- FSG-011, Aligning FLEX Generator to Panel 3BS1061
- FSG-012, ELAP DC Load Shed
- FSG-013, ELAP AC Load Shed
- FSG-014, Energizing AC Loads from FLEX Generator
- FSG-020, Deploying Alternate Radio Communications Antenna
- FSG-030, Establishing Control Room Ventilation and Lighting
- FSG-031, Establishing Battery Room Ventilation and Lighting
- FSG-032, Establishing HPCI/RCIC/Sump Room Ventilation, Lighting and Water Removal
- FSG-033, Establishing Refuel Floor Ventilation
- FSG-040, Aligning the FLEX Pump from the ECT to RHR
- FSG-041, Aligning the FLEX Pump from the Pump Bay to HPSW
- FSG-042, RPV, Torus and Fuel Pool Make-up Using the FLEX Pump
- FSG-043, Defeating RCIC Interlocks
- FSG-044, Bypassing Backup Instrument Nitrogen SV-9130A and SV-9130B

5.0 On-Shift Staffing Task Analysis Results

Peach Bottom 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), Abnormal Operating Procedures (AOPs), FLEX Support Guidelines (FSGs), or other supporting procedures. This assessment was extended to include the establishment of injection prior to T = 7 hours to provide additional assurance that all required transition phase actions initiated during the initial 6 hour period can be completed within the times specified in the Peach Bottom Overall Integrated Plan (Reference 10.14).

Per NEI 12-01, Peach Bottom 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 assessment identified the need for 4 additional personnel to support debris removal and the movement of hoses. These personnel will be drawn from the available auxiliary site personnel. An analysis of the use of these auxiliary personnel in support of the Initial and Transition Phase actions is provided under a separate submittal. Tasks assigned to the auxiliary personnel will be performed under the direction of qualified Operations personnel, do not involve the manipulation of plant equipment, and do not require task-specific training. The applicable program document will be revised to require that, should Security personnel be deployed to support any of the Auxiliary tasks, Security personnel would only be used when all other available staff had been deployed, and would be given first priority for return to normal duties as soon as a non-Security staff member becomes available.

The Operating tasks were assigned as shown in Table 5.1. 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 for Peach Bottom, 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.

Table 5.1: Peach Bottom Staffing Timeline

Time (Mins.) Position	0-15	15-30	30-45	45-60	60-75	75-90	90-105	105-120
Shift Manager	**Emergency Director – Declare EAL MS1**	**Emergency Director - Escalate from EAL MS1 to General Emergency MG1**			**Emergency Director - Declare ELAP; Invoke 50.54(x) to support use of Security personnel, as required**			
Unit Supv	Direct TRIPs / SE-11				Direct TRIPs / SE-11 / FSGs			
STA	Independent assessment							
Shift Communicator	State / Local Notification	Perform State / Local follow-up notifications as required /Unit assist field communications (as available)						
NRC Communicator		NRC Notification / Maintain open line with NRC						
PRO	Unit assist field communications							
U2 RO	Maintain Level / Pressure / Containment control per TRIPs / SE-11				Maintain Level / Pressure / Containment control per TRIPs / SE-11 / FSGs			
U3 RO	Maintain Level / Pressure / Containment control per TRIPs / SE-11				Maintain Level / Pressure / Containment control per TRIPs / SE-11 / FSGs			
R2 / T2 FBL (EO)		EDG start attempt per SE-11 Att B			Connect N2 for ADS per FSG-044		Strip AC loads per FSG-013	
R3/T3/FB#1 (EO)		EDG start attempt per SE-11 Att B			FLEX building	Debris removal per FSG-002 (F750 driver)		
RW (EO)			Open U2 and U3 RCIC / HPCI doors per SE-11 Att U		Deploy antenna per FSG-020 Open doors / Hatches per FSG-033			Debris removal per FSG-002
SSD #1 (EO or SRO)		DC load shed SE-11 Att T			DC Deep load shed per FSG-012		Debris removal per FSG-002 (F750 driver)	
SSD #2 (EO or SRO)			Vent Generator per SE-11 Att S		FLEX Building	Debris removal per FSG-002 (F750 driver)		
SSD #3 (EO, SRO, or RO)		Site assessment per FSG-001			FLEX Building	Debris removal per FSG-002 (F750 driver)		
FB #2 (EO)		Backup N2 per T-261			Connect N2 for ADS per FSG-044		Strip AC loads per FSG-013	
FB #3		Distribute keys / lights			FLEX building	Debris removal per FSG-002		
FB #4			Vent Generator per SE-11 Att S		FLEX building	Debris removal per FSG-002		
I&C Tech #1					Install RCIC jumpers per FSG-043	Debris removal per FSG-002		
I&C Tech #2					Install RCIC jumpers per FSG-043	Debris removal per FSG-002		
Chemistry					FLEX building	Work trailer / F750 assist		
RP Tech #1			Open U2 and U3 RCIC / HPCI doors per SE-11 Att U		Open doors / hatches per FSG-033			
RP Tech #2		Backup N2 per T-261			FLEX building	Debris removal per FSG-002		
Auxiliary 1					FLEX building	Debris removal per FSG-002		
Auxiliary 2					FLEX building	Debris removal per FSG-002		
Auxiliary 3					FLEX building	Debris removal per FSG-002		
Auxiliary 4					FLEX building	Debris removal per FSG-002		

Time (Mins.) Position	120-135	135-150	150-165	165-180	180-195	195-210	210-225	225-240
Shift Manager	**Emergency Director**							
Unit Supv	Direct TRIPs / SE-11 / FSGs							
STA	Independent Assessment							
Shift Communicator	Perform State / Local follow-up notifications as required /Unit assist field communications (as available)							
NRC Communicator	NRC Notification / Maintain open line with NRC							
PRO	Unit assist field communications							
U2 RO	Maintain Level / Pressure / Containment control per TRIPs / SE-11 / FSGs							
U3 RO	Maintain Level / Pressure / Containment control per TRIPs / SE-11 / FSGs							
R2 / T2 FBL (EO)	RCIC Vent per FSG-032				RCIC Vent per FSG-032			
R3/T3/FB#1 (EO)	Debris removal per FSG-002				Transport cable then diesels and lay cable per FSG-010 /011			
RW (EO)	Debris removal per FSG-002				Transport cable then diesels and lay cable per FSG-010 /011			
SSD #1 (EO or SRO)	Debris removal per FSG-002 (F750 driver)				Transport work trailer			
SSD #2 (EO or SRO)	Debris removal per FSG-002 (F750 driver)				Transport cable then diesels and lay cable per FSG-010 /011			
SSD #3 (EO, SRO, or RO)	Debris removal per FSG-002 (F750 driver)				Transport cable then diesels and lay cable per FSG-010 /011			
FB #2 (EO)	RCIC Vent per FSG-032				Transport cable then diesels and lay cable per FSG-010 /011			
FB #3	Debris removal per FSG-002				Transport cable then diesels and lay cable per FSG-010 /011			
FB #4	Debris removal per FSG-002				Transport cable then diesels and lay cable per FSG-010 /011			
I&C Tech #1	Debris removal per FSG-002				Transport cable then diesels and lay cable per FSG-010/011			
I&C Tech #2	Debris removal per FSG-002				Transport cable then diesels and lay cable per FSG-010 /011			
Chemistry	Work trailer / F750 assist							
RP Tech #1	RCIC Vent per FSG-032				RCIC Vent per FSG-032			
RP Tech #2	Debris removal per FSG-002				Transport cable then diesels and lay cable per FSG-010 /011			
Auxiliary 1	Debris removal per FSG-002							
Auxiliary 2	Debris removal per FSG-002							
Auxiliary 3	Debris removal per FSG-002							
Auxiliary 4	Debris removal per FSG-002							

Time (Mins.) Position	240-255	255-270	270-285	285-300	300-315	315-330	330-345	345-360
Shift Manager	**Emergency Director**							
Unit Supv	Direct TRIPs / SE-11 / FSGs							
STA	Independent Assessment							
Shift Communicator	Perform State / Local follow-up notifications as required /Unit assist field communications (as available)							
NRC Communicator	NRC Notification / Maintain open line with NRC							
PRO	Unit assist field communications							
U2 RO	Maintain Level / Pressure / Containment control per TRIPs / SE-11 / FSGs							
U3 RO	Maintain Level / Pressure / Containment control per TRIPs / SE-11 / FSGs							
R2 / T2 FBL (EO)	Battery room vent per FSG-031			Control room vent per FSG-030				Prep pump per FSG-042
R3/T3/FB#1 (EO)	Plug in diesels per FSG-010 /011	Start diesels per FSG-014			SFP hoses per FSG-042			
RW (EO)	Plug in diesels per FSG-010 /011	Start diesels per FSG-014			Connect hose per FSG-040/041			
SSD #1 (EO or SRO)	Transport cable then diesels and lay cable per FSG-010 /011			Energize AC loads per FSG-014	Transport hose and pump per FSG-040 /041 (Tractor)			Prep pump per FSG-042
SSD #2 (EO or SRO)	Transport cable then diesels and lay cable per FSG-010 /011			Energize AC loads per FSG-014	Transport hose and pump per FSG-040 /041 (Tractor)			
SSD #3 (EO, SRO, or RO)	Transport work trailer	Transport hose then pumps per FSG-040/041			Connect hose per FSG-040/041			Commence refueling activities per FSG-050
FB #2 (EO)	Transport cable then diesels and lay cable per FSG-010 /011	Transport hose then pumps per FSG-040/041			SFP hoses per FSG-042			
FB #3	Transport cable then diesels and lay cable per FSG-010 /011	Transport hose then pumps per FSG-040/041			Monitor diesel			
FB #4	Transport cable then diesels and lay cable per FSG-010 /011	Transport hose then pumps per FSG-040/041			Monitor diesel			
I&C Tech #1	Transport cable then diesels and lay cable per FSG-010 /011	Transport hose then pumps per FSG-040/041			Connect hose per FSG-040/041			
I&C Tech #2	Plug in diesels per FSG-010 /011	Transport hose then pumps per FSG-040/041			Connect hose per FSG-040/041			
Chemistry	Work trailer / F750 assist							
RP Tech #1	Battery room vent per FSG-031			Control room vent per FSG-030				Monitor dose
RP Tech #2	Plug in diesels per FSG-010 /011	Transport hose then pumps per FSG-040/041			Connect hose per FSG-040/041			
Auxiliary 1	Debris removal per FSG-002	Assist hose deployment per FSG-040/041						
Auxiliary 2	Debris removal per FSG-002	Assist hose deployment per FSG-040/041						
Auxiliary 3	Debris removal per FSG-002	Assist hose deployment per FSG-040/041						
Auxiliary 4	Debris removal per FSG-002	Assist hose deployment per FSG-040/041						

Time (Mins.) Position	360 - 375	375 - 390	390 - 405	405 - 420
Shift Manager	**Emergency Director**			
Unit Supv	Direct TRIPs / SE-11 / FSGs			
STA	Independent Assessment			
Shift Communicator	Perform State / Local follow-up notifications as required /Unit assist field communications (as available)			
NRC Communicator	NRC Notification / Maintain open line with NRC			
PRO	Unit assist field communications			
U2 RO	Maintain Level / Pressure / Containment control per TRIPs / SE-11 / FSGs			
U3 RO	Maintain Level / Pressure / Containment control per TRIPs / SE-11 / FSGs			
R2 / T2 FBL (EO)	Prep pump per FSG-042		Start / run pump per FSG-042	Monitor pump
R3/T3/FB#1 (EO)	SFP hoses per FSG-042			Establish injection per FSG-042
RW (EO)	Connect hose per FSG-040/041			Establish injection per FSG-042
SSD #1 (EO or SRO)	Prep pump per FSG-042		Start / run pump per FSG-042	Monitor pump
SSD #2 (EO or SRO)	Transport hose and pump per FSG-040 /041			Establish injection per FSG-042
SSD #3 (EO, SRO, or RO)	Commence refueling activities per FSG-050			
FB #2 (EO)	SFP hoses per FSG-042			Establish injection per FSG-042
FB #3	Monitor diesel			
FB #4	Monitor diesel			
I&C Tech #1	Connect hose per FSG-040/041			Establish injection per FSG-042
I&C Tech #2	Connect hose per FSG-040/041			Establish injection per FSG-042
Chemistry	Work trailer / F750 assist			
RP Tech #1	Monitor dose			
RP Tech #2	Connect hose per FSG-040/041			Establish injection per FSG-042
Auxiliary 1				
Auxiliary 2				
Auxiliary 3				
Auxiliary 4				

Notes:

- Gray highlight indicates unassigned time period
- Shift Emergency Communicator (SEC) will make all required follow-up notifications. The SEC will assist with communications to in-plant personnel when not performing required notifications.
- Security will support access points for FLEX equipment in accordance with the Security Plan

6.0 EXPANDED RESPONSE CAPABILITY

A typical augmented ERO for a multi-unit site would be challenged to effectively respond to a BDBEE that resulted in an extended loss of AC power affecting more than one unit. In an event of this magnitude, it would be necessary to "expand" the capability of the augmented ERO in order to facilitate timely and effective performance of critical emergency response functions. The focus of this "expanded response capability" at Peach Bottom should be to enable the performance of unit-specific accident assessment and mitigation functions.

In accordance with NEI 12-01, to be effective, the expanded response capability should encompass those functions necessary for preventing damage to irradiated fuel, or if such damage occurs, minimizing radiological releases. Selected functions must directly support the assessment and implementation of a range of mitigation strategies intended to maintain or restore the functions of core cooling, containment, and spent fuel pool cooling.

NEI 12-01, Tables 3.1 and 3.2, list the emergency response functions identified by the NEI Beyond Design Basis Event Response Staffing Study Task Force as meeting these requirements. These tables provide key roles and staffing considerations for each expanded response function and specify the staffing necessary to support the simultaneous deployment of emergency repair and corrective action teams to each affected unit.

Table 6.1 of this report describes the recommended expanded response capability staffing for Peach Bottom, based upon the NEI 12-01 guidance for the phase 2 staffing assessment.

Table 6.1
Expanded Response Functions for Peach Bottom Phase 2 Staffing Assessment

Expanded Response Function	Typical Location	Key Roles and Staffing Considerations	Required Staffing	Function Fulfilled By
Unit Response Coordination	TSC	• Overall cognizance of the activities related to implementation of repair and corrective actions, and implementation of Transition Phase coping and Severe Accident Management (SAM) strategies for an assigned unit • One individual per unit; individuals should not be assigned other functions	2	Station ED - Normal ERO Response (Required staffing* + 1)
Operations Coordination	TSC	• Provides coordination of Operations staff and support for an assigned unit • One individual per unit; individuals should not be assigned other functions	2	Operations Manager - Normal ERO Response (Required staffing* + 1)
Maintenance Coordination	TSC or OSC	• Provides coordination of Maintenance staff and support for an assigned unit • One individual per unit; individuals should not be assigned other functions	2	Maintenance Manager - Normal ERO Response (Required staffing* + 1)
Engineering Coordination	TSC or OSC	• Provides coordination of Engineering staff and support for an assigned unit • One individual per unit; individuals should not be assigned other functions	2	Technical Manager - Normal ERO Response (Required staffing* + 1)
Engineering Assessments	TSC or OSC	• One team for each unit to perform engineering assessments in support of repair and corrective actions • Team composition (i.e., number and represented disciplines) as described in the emergency plan • Team may include personnel responsible for performing other	6	Core Th/Hyd Eng Mech Eng Elect Eng Normal ERO

Expanded Response Function	Typical Location	Key Roles and Staffing Considerations	Required Staffing	Function Fulfilled By
		functions for the same assigned unit		Response (Required staffing* + 1)
Evaluation of Severe Accident Management (SAM) Strategies	TSC or OSC	• One team for each unit to evaluate selection of SAM strategies; team performs evaluations not done by Control Room personnel • Team composition (i.e., number and represented disciplines) as described in governing site programs, procedures and guidelines • Team may include personnel responsible for performing other functions for the same assigned unit	(4) Duty concurrent with Technical Manager and /or Operations Manager	Technical Manager / Operations Manager
Unit In-Plant Team Coordination	OSC	• Overall cognizance of on-site and in-plant teams performing or supporting repair and corrective actions for an assigned unit • One individual per unit; individuals should not be assigned other functions	2	OSC Director Asst OSC Director Normal ERO Response (Required staffing + 1)
Non-Licensed Operators	OSC	• Two individuals per unit to implement repair and corrective actions • Should not include members of the on-shift staff	4	Site NLOs and/or regional NLO resources
Mechanical Maintenance Repair and Corrective Action	OSC	• Two individuals per unit to implement repair and corrective actions • Staffing may include an on-shift individual (i.e., 2 individuals for a unit composed of 1 on-shift and 1 augmented)	4	Site Technicians and/or regional resources
Electrical	OSC	• Two individuals per unit to implement repair and corrective	4	Site

Expanded Response Function	Typical Location	Key Roles and Staffing Considerations	Required Staffing	Function Fulfilled By
Maintenance Repair and Corrective Action		actions • Staffing may include an on-shift individual (i.e., 2 individuals for a unit composed of 1 on-shift and 1 augmented)		Technicians and/or regional resources
I&C Repair and Corrective Action	OSC	• Two individuals per unit to implement repair and corrective actions • Staffing may include an on-shift individual (i.e., 2 individuals for a unit composed of 1 on-shift and 1 augmented)	4	I&C Tech #1 and Site Technicians and/or regional resources
Implementation of SAM Strategies	OSC	• Number and composition of personnel capable of simultaneous implementation of any 2 SAM strategies at each unit (See **Note 1** below) • Should not include personnel assigned to other functions (e.g., emergency repair and corrective actions); however, may include members of the on-shift staff and personnel responsible for implementation of Transition Phase coping strategies	2 ROs, 4 EOs, 4 I&C Techs	2 ROs and 4 EOs, 2 I&C Techs from on-shift crew; 2 I&C Techs from Site staff and/or regional resources
Evaluation of Transition Phase Coping Strategies	TSC or EOF	• One team for each unit to evaluate selection of Transition Coping strategies; team performs evaluations not done by Control Room personnel • Team composition (i.e., number and represented disciplines) as described in governing site programs, procedures and guidelines • Team may include personnel responsible for performing other functions for the same assigned unit	(4) Duty concurrent with Technical Manager / Operations Manager / Core Thermal Engineer NOTE: Site FLEX	Technical Manager / Operations Manager / Core Thermal Engineer

Expanded Response Function	Typical Location	Key Roles and Staffing Considerations	Required Staffing	Function Fulfilled By
			strategy structure does not include an evaluator function	
Implementation of Transition Phase Coping Strategies	OSC	• Number and composition of personnel capable of simultaneous implementation of any 2 Transition Phase coping strategies at each unit (see **Note 2** below) • Should not include personnel assigned to other functions (e.g., emergency repair and corrective actions); however, may include members of the on-shift staff and personnel responsible for implementation of SAM strategies	10 NLOs/ 9 non-discipline specific labor	6 NLOs from on-shift crew, supplemented with 4 NLOs and 9 additional personnel from site staff and/or regional resources

*** - The required staffing for each position is specified in EP-AA-1007, Radiological Emergency Plan Annex for Peach Bottom Station. Normal augmentation is the required staffing plus one additional qualified individual.**

Notes:

1 The SAM strategies selected for Peach Bottom were T-261, Placing the Backup Instrument Nitrogen Supply from CAD Tank In Service, and T-202-2(3), Primary Containment Nitrogen Injection for Combustible Gas Control.

2 The transition phase coping strategies selected for Peach Bottom were FSG-010/011, Aligning FLEX Generator to Panel 3A(B)S1061 and FSG-42, RPV, Torus and Fuel Pool Make-up Using the FLEX Pump.

6.1 On-Site Radiation Protection Technicians

Following a beyond design basis external event, on-site Radiation Protection (RP) Technicians should be available in sufficient numbers to support performance of assigned emergency plan functions and the expanded response capability. Per NEI 12-01, the equation is used to determine the required number of on-site RP Technicians (RPTs):

RPTT = RPTCOP + RPTRCA + RPTNC

Where:
RPTT = Total required number of on-site RP Technicians

RPTCOP = Number needed to support implementation of any 2 extended loss of AC power coping strategies per unit. Determine this number by reviewing strategies for each unit.

RPTRCA = Number needed for repair and corrective action
= 2 x the number of units

RPTNC = Number of on-site RP Technicians performing other emergency plan functions that would preclude them from performing job coverage for extended loss of AC power coping, repair or corrective action teams.

For Peach Bottom Station:

RPTCOP = 2 RP Technicians (Assessment of Radiological Conditions)

RPTRCA = 4 RP Technicians (2 per Unit)

RPTNC = 2 RP Technician (Off-site Surveys)

RPTT = 8 RP Technicians

For Peach Bottom, the complement of RP Technicians specified in the augmented ERO per EP-AA-1007 is 8. Therefore, sufficient RP Technicians are anticipated to be available from Site resources to support the initial staffing of the Expanded Capability. Additional RP Technician resources are available from the Site staff, as well as other Exelon sites.

6.2 Administrative Support Personnel

Administrative support personnel positions are not required for the Peach Bottom On-call ERO Staffing Requirements. Should the need for administrative support arise, this support would be obtained through a combination of site personnel and personnel from the Corporate organization, as well as other regional Exelon nuclear sites. Therefore, no enhancements have been identified in the assessment of administrative support personnel.

6.3 Training for Expanded Capability

No new ERO tasks or functions are required for implementing the expanded response capability. There are a sufficient number of qualified ERO personnel to implement the expanded response; qualification of additional personnel will not be required.

6.4 Work Areas for Expanded Capability

The site has multiple locations that can be utilized to support the expanded response capabilities if available. These areas include the Outage Control Center and Maintenance Shop. Should these locations not be available due to the BDBEE, other available office space may be utilized, as appropriate, based upon the nature and effects of the event.

7.0 CHANGES REQUIRED TO SUPPORT PHASE 2 STAFFING ASSESSMENT

7.1 Staffing Changes

This Phase 2 Staffing Assessment concluded that the existing on-shift staff is sufficient to implement the existing mitigating strategies on both units, simultaneously, while supporting performance of the required Emergency Planning duties without unacceptable collateral duties, provided that the staff is augmented with 4 auxiliary personnel. No staffing changes are required.

7.2 Expanded Capability Staffing

The existing augmented ERO, supplemented by site staff, provides sufficient staffing to satisfy the Expanded Capability functions as defined in NEI 12-01, Table 3.1. Due to the initiating event, personnel close to the plant (nominally, within a 25 mile radius of the site), may not be able to respond. Exelon has multiple resources available to address the impact of such conditions. These include site personnel residing outside the 25 mile radius, as well as personnel resources from other Exelon sites and the Corporate organization. It is standard practice for Exelon sites to share Operator, Maintenance, RP, and technical staff during outages. This has provided organizational flexibility that would support additional staffing in response to a BDBEE. Similarly, the Corporate organization maintains technical expertise in the Engineering, Maintenance, RP, and Chemistry disciplines that are shared during outages and emergent plant issues. Based upon the available pool of resources outside of the site organization with the requisite skill set, Exelon will address the expanded staffing requirements commencing at 6 hours post-event using available site resources augmented by resources from other Exelon sites and the Corporate staff.

7.3 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, SAM or other program documents.

Exelon has incorporated instructions into applicable fleet procedures to activate the Expanded Response Capability and to request any necessary logistical support for site access based upon the following conditions, as described in NEI 12-01, Section 3.8:

- Loss of ALL offsite and ALL on-site power sources to AC emergency busses at more than 1 unit, OR
- Plant parameters or conditions require implementation of SAM strategies for more than 1 unit.

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). For example, functions associated with an expanded response capability would not be demonstrated during a drill or exercise that involved a design basis accident affecting only one unit.

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.

8.0 CONCLUSION

This Phase 2 Staffing Assessment concluded that the current minimum on-shift staffing as defined in EP-AA-1007, Radiological Emergency Plan Annex for Peach Bottom Atomic Power Station, as augmented by site auxiliary personnel, is sufficient to support the implementation of the current mitigating strategies for a BDBEE on Units 2 and 3, as well as the required Emergency Plan actions, with no unacceptable collateral duties.

The Phase 2 Staffing Assessment also identified the staffing necessary to support the Expanded Response Capability for the BDBEE as defined for the Phase 2 staffing assessment. This staffing will be provided by the current site resources, supplemented by fleet resources, as necessary.

9.0 ATTACHMENTS

9.1 Attachment 1, NEI 10-05 Staffing Tables for Peach Bottom Atomic Power Station.

10.0 REFERENCES

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

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

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

10.4 EP-AA-1000, Exelon Nuclear Standardized Radiological Emergency Plan, Rev. 21

10.5 EP-AA-1007, Exelon Nuclear Radiological Emergency Plan Annex for Peach Bottom Atomic Power Station

10.6 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.

10.7 Exelon Generation Company, LLC Letter to NRC, "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).

10.8 EA-12-049, NRC Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

10.9 HU-AA-1081-F-15, Emergency Response Organization Fundamentals

10.10 EP-AA-1007, Addendum 1, Peach Bottom Atomic Power Station On-shift Staffing Technical Basis

10.11 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 Dai-Ichi Accident; dated March 12, 2012 (Emergency Preparedness)," dated June 11, 2012.

10.12 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, dated May 15, 2012.

10.13 Exelon Generation Company, LLC Letter to NRC, "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 1 Staffing Assessment," dated April 30, 2013.

10.14 Exelon Generation Company, LLC Letter to NRC, "Response to March 12, 2012, 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.

10.15 EP-AA-1007, Addendum 3, Emergency Action Levels for Peach Bottom Atomic Power Station

Attachment 1

NEI 10-05 Staffing Tables

For

Peach Bottom Atomic Power Station

NEI 12-01 Phase 2 Staffing Assessment

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NEI 12-01 Phase 2 On-shift Staffing Assessment (OSA)

1. **Accident Summary:**

   - A Beyond Design Basis External Event results in a loss of all offsite AC power coincident with the trip of both units. All station emergency diesel generators fail to start.

2. **Procedures Reviewed for Accident Response Include:**

   - Refer to Section 4.2.2 of the report for the list of procedures used in this assessment.

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This OSA is applicable to Analysis **NEI 12-01 Phase 2**.

TABLE 1 – On-shift Positions

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min) Note 2	Role in Table#/Line #
1.	Shift Manager / Shift ED	EP-AA-1007, Table 2-1	N/A	T2/L1 T5/L1 T5/L2 T5/L3 T5/L4 T5/L5 T5/L8 T5/L10
2.	U2 Control Room Supv (SRO)	EP-AA-1007, Table 2-1	N/A	T2/L2
3.	STA	EP-AA-1007, Table 2-1	N/A	T2/L3
4.	U2 Reactor Operator (RO #1)	EP-AA-1007, Table 2-1	N/A	T2/L4
5.	U3 Reactor Operator (RO #2)	EP-AA-1007, Table 2-1	N/A	T2/L5
6.	Plant Reactor Operator (PRO) (RO #3)	EP-AA-1007, Table 2-1	N/A	T2/L6
7.	SSD #1 (EO or SRO)	EP-AA-1007, Table 2-1	N/A	T2/L7
8.	SSD #2 (EO or SRO)	EP-AA-1007, Table 2-1	N/A	T2/L8
9.	SSD #3 (EO, SRO, or RO)	EP-AA-1007, Table 2-1	N/A	T2/L9
10.	Fire Brigade Leader (R2/T2 EO)	EP-AA-1007, Table 2-1	N/A	T2/L10
11.	Fire Brigade #1 (R3/T3 EO)	EP-AA-1007, Table 2-1	N/A	T2/L11
12.	Fire Brigade # 2(EO)	EP-AA-1007, Table 2-1	N/A	T2/L12
13.	Fire Brigade #3	EP-AA-1007, Table 2-1	N/A	T2/L17
14.	Fire Brigade #4	EP-AA-1007, Table 2-1	N/A	T2/L18
15.	NRC Communicator	EP-AA-1007, Table 2-1	N/A	T5/L13

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min) Note 2	Role in Table#/Line #
	Note 1			
16.	Shift Communicator **Note 1**	EP-AA-1007, Table 2-1	N/A	T5/L6 T5/L9
17.	Radwaste Operator (EO)	EP-AA-1007, Table 2-1	N/A	T2/L15
18.	Rad Pro Tech #1	EP-AA-1007, Table 2-1	N/A	T4/L1
19.	Rad Pro Tech #2	EP-AA-1007, Table 2-1	N/A	-
20.	Rad Pro Tech #3 (Limerick)	EP-AA-1007, Table 2-1	N/A	--
21.	Chem Tech	EP-AA-1007, Table 2-1	N/A	-
22.	I&C Tech #1	EP-AA-1007, Table 2-1	N/A	-
23.	I&C Tech #2	EP-AA-1007, Table 2-1	N/A	-
24.	Security	EP-AA-1007, Table 2-1 (Function performed by on-shift security personnel)	N/A	T5/L15

Notes:

1. The Shift EP Communicator can be filled by any available qualified individual who is not assigned STA, Fire Brigade, SSD 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.

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

Two Units - One Control Room Applicable to site unit(s) # 2 & 3

Minimum Operations Crew Necessary to Implement AOPs 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	U2 Control Room Supv (SRO)	Ops Training Program
3	Shift Technical Advisor	STA (SRO)	Ops Training Program
4	Reactor Operator #1	U2 Reactor Operator (RO #1)	Ops Training Program
5	Reactor Operator #2	U3 Reactor Operator (RO #2)	Ops Training Program
6	Reactor Operator #3	Plant Reactor Operator (PRO) (RO #3)	Ops Training Program
7	Auxiliary Operator #1	SSD #1 (EO or SRO)	Ops Training Program
8	Auxiliary Operator #2	SSD #2 (EO or SRO)	Ops Training Program
9	Auxiliary Operator #3	SSD #3 (EO, SRO, or RO)	Ops Training Program
10	Auxiliary Operator #4	Fire Brigade Leader (R2/T2 EO)	Ops Training Program
11	Auxiliary Operator #5	Fire Brigade (R3/T3 EO)	Ops Training Program
12	Auxiliary Operator #6	Fire Brigade (EO)	Ops Training Program
13	Auxiliary Operator #10	Radwaste Operator (EO #10)	Ops Training Program

Other (non-Operations) Personnel Necessary to Implement AOPs and EOPs, or SAMGs if applicable

Line	Generic Title/Role	On-Shift Position	Task Performance Validation
14	Mechanic	n/a	n/a

15	Electrician	n/a	n/a
16	I&C Technician	n/a	n/a
17	Other	Fire Brigade #3	Operations Training
18	Other	Fire Brigade #4	Operations Training

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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:

1. Fire Brigade not utilized for this scenario.

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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: **RP#1**	X	X	X	X	X	X												
2	On-Site Survey On-Shift Position: Procedure support							X	X	X	X	X	X	X	X	X	X	X	X
3	Personnel Monitoring On-Shift Position:																		
4	Job Coverage On-Shift Position: **RP#2** **See Notes**	X	X	X							X	X	X						
5	Offsite Radiological Assessment On-Shift Position: Procedure Support				X	X	X	X	X	X				X	X	X	X	X	X
6	Other Site-Specific RP Describe: On-Shift Position:																		
7	Chemistry function/task #1 – Describe: **See Notes** On-Shift Position: **Chem Tech #1**	X	X	X	X	X	X	X	X	X	X	X	X						
8	Chemistry function/task #2 – Describe: Procedure On-Shift Position:Support													X	X	X	X	X	X

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TABLE 4 – Radiation Protection & Chemistry Cont'd

Analysis **NEI 12-01 Phase 2**

Line	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)									
		90-120	120-150	150-180	180-210	210-240	240-270	270-300	300-330	330-360	360-390
1	In-Plant Survey On-Shift Position: **RP#1**										
2	On-Site Survey On-Shift Position: Procedure support	X	X	X	X	X	X	X	X		
3	Personnel Monitoring On-Shift Position:									X	X
4	Job Coverage On-Shift Position: **RP#2** **See Notes**										
5	Offsite Radiological Assessment On-Shift Position:										
6	Other Site-Specific RP – Describe: On-Shift Position: Procedure Support	X	X	X	X	X	X	X	X	X	X
7	Chemistry function/task #1 – Describe: **See Notes** On-Shift Position: **Ch Tech**										
8	Chemistry function/task #2 – Describe: Procedure On-Shift Position:Support	X	X	X	X	X	X	X	X	X	X

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TABLE 4 – Radiation Protection & Chemistry

Analysis **NEI 12-01 Phase 2**

Notes:

When not performing specific tasks noted below, RP and Chemistry personnel will perform assignments at the direction of the Shift Manager.

RP Techs

- **RP #1**
    - EP-AA-112-100-F-01, Step 1.10 – An RP tech is assigned to the MCR to support emergency response. This RP Tech will support Operations activities as necessary and as prioritized by the Shift Emergency Director. However, there are no specific actions for RP identified under this procedure step.
- **RP #2**
    - RP-PB-300-1004, Use of RP Response Cards directs RP Tech to survey Scram Discharge Volume and other plant areas. There is no time requirement for this action.

Chemistry – no immediate actions.

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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	Ops Training Program
6	ERO notification	Shift EP Communicator	Ops Training Program/ EP Drills and Exercises
7	Abbreviated NRC notification for DBT event	n/a	n/a
8	Complete State/local notification form	Shift Manager	Ops Training Program
9	Perform State/local notifications	Shift EP Communicator	Ops Training Program/ EP Drills and Exercises
10	Complete NRC event notification form	Shift Manager	Ops Training Program
11	Activate ERDS	n/a	n/a
12	Offsite radiological assessment**	n/a	n/a
13	Perform NRC notifications	Shift NRC 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 Drills and Exercises
16	Other: Specify	n/a	n/a

* Shift Manager non-delegable duty

**Offsite radiological assessment for Peach Bottom is performed by an on-shift RP Technician at Limerick Generating Station