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JAFP-17-0005
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U.S. Nuclear Regulatory Commission
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Subject: Response to March 12, 2012, Request for Information (RFI) Pursuant to Title 10 of the Code of Federal Regulation 50.54(f) Regarding Recommendations of the Near-Term Task Force (NTTF) Review of Insights from the Fukushima Dai-ichi Accident, Enclosure 5 Recommendation 9.3, Emergency Preparedness – Staffing, Requested Information Items 1, 2 and 3 – Phase 2 Staffing Assessment

James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
License No. DPR-59

- 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, ML12053A340, dated March 12, 2012
 2. ENOI letter, Entergy Nuclear Operations, Inc.'s 60-Day Response to the March 12, 2012, Information Request, Action Plan for Completing Emergency Communication and Staffing Assessments, JAFP-12-0054, dated May 11, 2012
 3. NRC letter, Status of 90-Day Response to Request for Information Regarding Recommendation 9.3 of the Near-Term Task Force Related to the Fukushima Dai-ichi Nuclear Power Plant Accident, ML12200A106, dated July 26, 2012
 4. NEI guidance, Guideline for Assessing Beyond-Design-Basis Accident Response Staffing and Communications Capabilities, NEI 12-01 Revision 0, dated May 2012
 5. NRC letter to 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, ML12131A043, dated May 15, 2012
 6. ENOI letter, Extension to Commitments Made in Response to March 12, 2012, Information Request Pursuant to 10CFR50.54(f) Regarding Recommendation 9.3, Emergency Communications and Staffing Assessments, JAFP-16-0060, dated April 14, 2016

Dear Sir or Madam:

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Reference 1 regarding Near Term Task Force (NTTF) Recommendation 9.3, Staffing. Enclosure 5 of Reference 1 contains the specific Requested Actions, Requested Information and Required Response. In the 60-Day response submittal [Reference 2], Entergy Nuclear Operations Inc. (ENOI) proposed an alternative two-Phase approach. The NRC found this approach acceptable in Reference 3.

Pursuant to Phase 2 of the alternative approach, the Attachment to this letter provides the requested information in Reference 1 Recommendation 9.3, Staffing, Items 1, 2, and 6. Part of the response includes an onsite and augmented staffing assessment considering functions related to NTTF Recommendation 4.2. The Enclosure to this letter provides the James A. FitzPatrick Phase 2 Staffing Assessment. The assessment was performed in accordance with the methodology described in NEI 12-01 [Reference 4], as endorsed by the NRC [Reference 5].

This letter contains no new regulatory commitments. Should you have any questions regarding this submittal, please contact Mr. William C. Drews, Regulatory Assurance Manager at (315) 349-6562.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 23rd day of January 2017.

Sincerely,



Brian R. Sullivan
Site Vice President

BRS/WCD/mh

Attachment: Responses to the Requested Information for the Near-Term Task Force (NTTF) Recommendation 9.3 for Emergency Preparedness – Staffing, Requested Information Items 1, 2, and 6

Enclosure: James A. FitzPatrick Nuclear Power Plant NEI 12-01 Phase 2 Staffing Assessment

cc: Director, Office of Nuclear Reactor Regulation
NRC Region I Administrator
NRC Resident Inspector
NRC Project Manager
NYSPSC
NYSERDA

Attachment

JAFP-17-0005

Responses to the Requested Information for the Near-Term Task Force (NTTF) Recommendation 9.3 for Emergency Preparedness – Staffing, Requested Information Items 1, 2, and 6

(3 Pages)

**Responses to the Requested Information for the Near-Term Task Force (NTTF)
Recommendation 9.3 for Emergency Preparedness – Staffing, Requested Information
Items 1, 2, and 6**

This Attachment provides James A. FitzPatrick Nuclear Power Plant (JAF) response to Items 1, 2, and 6 in the NRC 10 CFR 50.54(f) request for information made by Reference 1 for Near Term Task Force (NTTF) Recommendation 9.3, Staffing. The responses reflect a two-phased alternative approach proposed in Reference 2.

Requested Information Item 1

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 of Reference 1, Enclosure 5, Staffing.

Response:

The Enclosure to this letter provides the James A FitzPatrick NPP (JAF) Phase 2 Staffing Assessment conducted in accordance with Reference 3. A detailed timeline was developed based on a tabletop discussion and review of the on-shift response to the postulated beyond-design-basis external event (BDBEE) extended loss of alternating current (AC) power (ELAP). On-shift and augmented staff response was determined based upon the tabletop team members' review of applicable plant procedures and draft diverse and flexible strategies (FLEX) guidance for the strategies identified at the time of the assessment. The focus of the timeline was to identify all onsite resources that would be required to execute each task to implement the initial and transition phase FLEX mitigating strategies and the JAF Emergency Plan.

The tables describing the required minimum staffing, task implementation timelines and NEI 10-05 modified staffing analysis tables for JAF are included in the Enclosure.

The Phase 2 Staffing Assessment concluded that the current minimum shift staffing is sufficient to execute all required initial and transition phase tasks actions, as well as the Emergency Plan functions, without the assignment of collateral duties that would adversely affect the ability to execute the Emergency Plan functions. Any changes to this conclusion resulting from revisions to strategies or implementation guidance will be documented in the Final Integrated Plan.

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:

(1a) 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 NTTF Recommendation 4.2.

Response:

Portable FLEX equipment (ex. generators, equipment trailers, etc.) to be stored in the "N+1" FLEX Equipment Storage Building (FESB) is planned to be trailer-mounted or on wheels for ease of deployment. A tow vehicle and debris removal vehicle will also be stored inside the "N+1" FESB and equipped to tow FLEX portable equipment to the staging areas. A FLEX support guideline would be implemented to clear debris from the required FLEX strategy deployment paths to allow for moving and setup of applicable FLEX portable equipment.

**Responses to the Requested Information for the Near-Term Task Force (NTTF)
Recommendation 9.3 for Emergency Preparedness – Staffing, Requested Information
Items 1, 2, and 6**

FLEX equipment to be stored in the “N” FESB will be either pre-staged and will remain in that location or will be small and lightweight and able to be manipulated by hand for deployment. The FLEX portable 200KW generator stored inside the “N” FESB will be permanently pre-staged and will be operated in place from that location. The remaining FLEX portable equipment stored within the “N” FESB will be capable of being manipulated and deployed by hand and will be mounted on small wheeled carts, where appropriate, for ease of deployment. Due to the close proximity of the “N” FESB to FLEX strategy equipment connection points, the physical size and weight of the equipment that must be moved, and the characterization of any potential debris, supplemental tow equipment and debris removal equipment are not required at the “N” FESB in support of deployment. In addition to the equipment to be stored in the “N” FLEX Storage Building, some “N” equipment (e.g., hoses, connectors, adapters, splitters, and flow measurement instruments) will be pre-staged along the hose route paths in robust permanent plant structures/buildings to facilitate deployment and connection.

- (1b) 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.**

Response:

The Minimum Staffing Table shown in Section 4.0 of the Phase 2 Staffing Assessment Report in the Enclosure provides a table showing the on-shift staff responsible for each of the major functional areas of NUREG-0654, Table B-1, following the BDBEE.

- (1c) New staff or functions identified as a result of the assessment.**

Response:

The assessment did not identify the need for additional on-shift staff or changes to the Emergency Response Organization (ERO) structure. The assessment did not identify any new functions.

- (1d) Collateral duties (personnel not being prevented from timely performance of their assigned functions).**

Response:

The Phase 2 staffing assessment concluded that the current minimum on-shift staff is sufficient to support implementation of the FLEX mitigating strategies as well as the required emergency plan actions with no unacceptable collateral duties.

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 associated with the Phase 2 staffing assessment.

**Responses to the Requested Information for the Near-Term Task Force (NTTF)
Recommendation 9.3 for Emergency Preparedness – Staffing, Requested Information
Items 1, 2, and 6**

Response:

The Enclosure provides the JAF Phase 2 Staffing Assessment for a BDBEE and ELAP. The Phase 2 staffing assessment was completed on December 6, 2016. No modifications were identified in the Phase 2 Staffing Assessment.

Requested Information Item 6

Identify changes associated with the Phase 2 staffing assessment 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:

Staff: The existing on-shift staff is sufficient to implement the Emergency Plan and ELAP strategies during the first six-hour “no site access” period. No changes to the Emergency Plan on-shift staffing have been identified.

ERO: The existing augmented ERO provides sufficient staffing to fill the 24-hour ERO positions. No changes to the Emergency Plan augmented ERO staffing have been identified.

Agreements: Further review in the Phase 2 Staffing Assessment determined that no new or revised agreements are necessary.

Drills: NEI 12-01 states that a licensee should determine if any changes are necessary to documents describing the emergency response drill and exercise program. No changes to the JAF Emergency Plan drill and exercise program are being made; however, Entergy is planning to incorporate requirements for drills and exercises involving a BDBEE scenario in accordance with the guidance and implementation schedule of NEI 13-06, “Enhancements to Emergency Response Capabilities for Beyond Design Basis Accidents and Events,” when issued.

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 (ML12053A340)
2. ENOI letter, Entergy Nuclear Operations, Inc.’s 60-Day Response to the March 12, 2012, Information Request, Action Plan for Completing Emergency Communication and Staffing Assessments, dated May 11, 2012 (JAFP-12-0054)
3. NEI guidance NEI 12-01 Revision 0, Guideline for Assessing Beyond-Design-Basis Accident Response Staffing and Communications Capabilities, dated May 2012 (ML12125A412)

Enclosure

JAFP-17-0005

**James A. FitzPatrick Nuclear Power Plant
NEI 12-01 Phase 2 Staffing Assessment**



**JAMES A. FITZPATRICK NUCLEAR POWER PLANT
NEI 12-01 PHASE 2
STAFFING ASSESSMENT
DECEMBER 6, 2016**

James A Fitzpatrick Nuclear Power Plant Phase 2 Staffing Assessment

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1.0 EXECUTIVE SUMMARY

Beyond Design Basis External Events (BDBEE) are events initiated by natural phenomena that either exceed the protections provided by design basis features or involve natural phenomena within the design basis in combination with beyond design-basis failures leading to an extended loss of AC power (ELAP) and/or loss of ultimate heat sink (LUHS).

Using the methodology of (Nuclear Energy Institute) NEI 12-01, *Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities*, this report presents the results of an assessment of the capability of the James A. Fitzpatrick Nuclear Plant (JAF) on-shift staff and augmented Emergency Response Organization (ERO) to respond to a BDBEE. The assumptions for the NEI 12-01 Phase 2 scenario postulate that the BDBEE involves a large-scale external event that results in:

- an extended loss of AC power
- an extended loss of access to the ultimate heat sink
- impact on the unit (unit is operating at full power at the time of the event)
- impeded access to the unit by off-site responders as follows:
 - (1) 0 to 6 hours post event – No site access.
 - (2) 6 to 24 hours post event – 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).
 - (3) 24 hours post event – 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.

To conduct the on-shift portion of the assessment, a team of subject matter experts from Operations, Radiation Protection, Chemistry, Training, Emergency Planning, and the FLEX Project Team performed a tabletop the week of October 10, 2016. The participants reviewed the assumptions and applied procedural guidance, including applicable draft FLEX Support Guidelines (FSGs), for coping with a BDBEE using minimum on-shift staffing. Particular attention was given to the sequence and timing of each procedural step, its duration, and the on-shift individual performing the step to account for both the task and the estimated time to prepare for and perform the task.

The Phase 2 Staffing Assessment concluded that the current minimum on-shift staffing as defined in the JAF Emergency Plan is sufficient to support the implementation of the mitigating strategies (FLEX strategies) as well as the required Emergency Plan actions, with no unacceptable collateral tasks assigned to the on-shift personnel during the first 6 hours. The assessment concluded that the on-shift staffing, with assistance from augmented staff, is capable of implementing the FLEX strategies necessary after the 6 hour period within the constraints. It was concluded that the emergency response function would not be degraded or lost.

2.0 INTRODUCTION

The Nuclear Regulatory Commission (NRC) issued a Letter to All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred Status, dated March 12, 2012,

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Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendation 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident. Information requests related to Emergency Preparedness were contained in Enclosure 5 of the §50.54(f) letter. Enclosure 5 contained two requested actions; one involving performance of a staffing assessment and the other a communications assessment. The communications assessment is independent of the staffing assessment and not included as part of this report. The Phase 2 Staffing Assessment addresses Requested Information Items 1, 2, and 6 of NTTF Recommendation 9.3. The actions for the staffing assessment are summarized as follows:

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.

A two-phased approach was established by the industry to respond to the information requests contained in the §50.54(f) letter associated with staffing. Additionally, NEI developed technical report NEI 12-01, *Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities*, that includes the recommended criteria for use in performing the staffing assessment for a BDBEE.

Note – Use of the term ELAP throughout this report also assumes a loss of the ultimate heat sink as part of the event. The use of the terms Phases 1, 2, and 3 refers to Initial Phase, Transition Phase and Final Phase respectively as referenced in the Mitigating Strategies Order and NRC JLD-ISG-2012-1.

3.0 ASSESSMENT SCOPE

All sites with one or more operating units are required to perform a Phase 2 Staffing Assessment. The Phase 2 assessment considers the staffing necessary to implement actions that address functions related to Fukushima NTTF Recommendation 4.2.

Single unit sites should provide the requested information as it pertains to an Extended Loss of all AC Power and impeded access to the site.

The JAF Phase 2 Staffing Assessment was performed per the guidance of NEI 12-01 with a required submittal date no later than June 30, 2017. The assessment performed the following:

- Evaluated the ability of the on-shift staff to implement Initial Phase coping actions and, consistent with the site access assumption, evaluated Transition Phase actions that must be performed prior to the end of the “no site access” time period.
 - Initial Phase – Implementation of strategies that generally rely upon installed plant equipment.
 - Transition Phase – Implementation of strategies that involve the use of on-site portable equipment and consumables to extend the coping period, and prevent a loss of functions needed for core cooling, containment, and spent fuel pool makeup. Setup for these strategies may be performed prior to the end of the Initial Phase as determined by procedure.

James A Fitzpatrick Nuclear Power Plant Phase 2 Staffing Assessment

- Evaluated the ability of the on-shift staff to implement the Station Blackout (SBO) coping strategies before ELAP is declared.
- Evaluated the AOPs and FSGs for responding to an ELAP. (Note: FSGs and draft AOPs revised for FLEX implementation, were used for this assessment).
- Evaluated whether the ability of the on-shift staff to perform any required emergency response functions would be degraded or lost prior to the arrival of the augmented ERO.
- Consistent with the site access assumption, evaluated the ability of the on-shift staff and augmented staff to implement Transition Phase coping strategies performed after the end of the “no site access” time period.

The staffing level determined as a result of the Phase 2 Staffing Assessment will be verified and validated in the process used to reasonably assure required tasks, manual actions and decisions for FLEX strategies are feasible and may be executed within the constraints identified in the Overall Integrated Plan (OIP) / Final Integrated Plan (FIP). Validation will be performed per NEI guidance at a date after the submittal of the staffing assessment

4.0 EMERGENCY PLAN MINIMUM ON-SHIFT STAFFING

The JAF Emergency Plan establishes the licensing basis for the on-shift staffing complement as determined by the staffing assessment performed as part of the overall Emergency Preparedness rulemaking published in November of 2011. Only personnel required to be on shift are credited in the staffing for the initial 6 hours of the event. The following table indicates the on-shift personnel necessary to perform Initial Phase plant operations and the required emergency planning functions.

Minimum Staffing Table		
Position	NUREG-0654 Functional Area/Tasks	On-Shift Staffing
Shift Manager (SM)	Emergency Direction and Control / Assessment of Operational Aspects	1
Control Room Supervisor (CRS)	Plant Operations / Assessment of Operational Aspects	1
Shift Technical Advisor (STA)	Plant System Engineering / Technical Support	1
Senior Nuclear Operator (SNO)	Plant Operations / Assessment of Operational Aspects	3
Nuclear Plant Operator (NPO)	Plant Operations / Fire Fighting / Rescue Operations and First Aid / Repair and Corrective Actions	4
Nuclear Plant Operator (NPO)	Notifications / Communications	1
Plant Fire Brigade (NPO)	Fire Fighting / Rescue Operations and First Aid	1
Chemistry Technician (RP/Chem)	Chemistry / Radiochemistry / Offsite Surveys / Radiological Assessment	1
(RP) Technician	Onsite and In-plant Surveys / HP Coverage	1

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Minimum Staffing Table		
Position	NUREG-0654 Functional Area/Tasks	On-Shift Staffing
Security	Access Control and Accountability	Per Security Plan

Emergency plan tasks of firefighting, first aid and rescue operations are provided by personnel assigned other functions as allowed by NUREG-0654 Table B-1 and NEI 10-05. The JAF Fire Brigade complement is an SNO and four NPOs. The JAF Search and Rescue team is composed of the JAF Fire Brigade. The JAF First Aid Team is composed of one SNO, two NPOs and one RP Technician. For the purpose of this staffing assessment, it is assumed firefighting, first aid and rescue are not required

5.0 PHASE 2 STAFFING ASSESSMENT FOR BDBEE/ELAP

5.1 On-shift Staff Responsibilities

Responsibilities of the on-shift staff as shown in Section 4 are assumed as follows for the purpose of the tabletop conducted for this assessment:

- SM assumed the Emergency Director (ED) function.
- STA remained in role to provide advisory technical support to the SM in the areas of thermal hydraulics, reactor engineering, and plant event analysis.
- The Communicator NPO was available to perform off-site notifications.
- The CRS, three SNOs, and five NPOs (includes Plant Fire Brigade NPO) were available to perform plant operations to establish and maintain core cooling, spent fuel pool makeup, and containment integrity as directed by the CRS using AOPs, EOPs and FSGs.
- One (RP) Technician and one Chemistry Technician (RP/Chem) was available to perform their emergency plan function and other tasks as directed by the SM.
 - Chemistry samples and analysis could not be performed due to the loss of power. The Chemistry Technician (RP/Chem) was available to perform dose assessment or other tasks as directed by the Shift Manager.
 - The (RP) Technician was available to perform job support, in-plant surveys, and onsite surveys as directed by the Shift Manager. The (RP) Technician would be called upon to perform these tasks when needed; otherwise, the RP Technician was available to perform tasks as directed by the SM.
- Since the emergency diesel generators were assumed to be unavailable for the event, limited time was spent attempting to troubleshoot /repair.
- Existing strategies do not anticipate the use of security officers to perform duties unrelated to their assigned security roles. Tasks performed by security officers in response to FLEX actions are consistent with their normal duties such as monitoring and controlling site access, providing site access for FLEX equipment staging, and providing compensating measures for vital area doors that may need to remain open to facilitate room environmental conditions or staging and operation of FLEX equipment.
- The Emergency Director and Communicator functions and responsibilities remained assigned in the Control Room throughout the first 24 hour period although these and other emergency functions would be expected to transfer to the augmented ERO after T =

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6 hours. It is recognized that the augmented ERO would be expected to arrive on-site or at their designated off-site facilities and assume emergency functions (ex. Emergency Direction and Control, Communications / Notifications, Radiological Assessment, etc.) as soon as possible but no earlier than 6 hours following the event.

5.2 Methodology

- The Phase 2 Staffing Assessment 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 to ensure accurate results. Once the site specific actions associated with the FLEX implementation response strategies are defined (i.e., down to the procedure or guideline step level), the staffing needed to perform these actions can be assessed with the necessary level of accuracy.
- Draft AOP, EOP and FSG documents were used during the conduct of the Phase 2 Staffing Assessment and the development of this report.
- A tabletop assessment was used to determine which plant actions and emergency plan implementation actions were required based on procedures during an ELAP. In cases where multiple tasks were assigned to an individual, the team evaluated timing of the tasks to ensure that they could be performed by the individual in series within any specified time constraints. A team consisting of personnel from Operations, Radiation Protection, Chemistry, Training, Emergency Planning, and the FLEX Project Team completed the assessment of the on-shift staff's response to the event.
- The guidance of NEI 10-05 was used to determine if the number and composition of the on-shift staff is sufficient to implement the Emergency Plan, Initial Phase actions and, with assistance from augmented staff, implement Transition Phase mitigation strategies and repair or corrective actions intended to maintain or restore the functions of core cooling, containment integrity, and spent fuel pool cooling.
- The guidance of NEI 10-05 was used but the tables were modified to include tasks to implement the FLEX strategies.
- Due to the lead time before Phase 3, it was assumed that offsite equipment would arrive on site and appropriate staff would be available to receive, stage, and operate the equipment. Therefore, the staffing assessment did not consider Phase 3 FLEX strategies.

5.3 NEI 12-01 General Assumptions and Limitations

- A large-scale external event occurs that results in:
 - onsite unit affected
 - extended loss of AC power with simultaneous LUHS
 - impeded access to unit
- Initially, the reactor was operating at full power and was successfully shut down.
- A Hostile Action directed at the affected site does not occur during the period that the site is responding to the event.
- The event impedes site access as follows:
 - Post event time: 0 to 6 hours – No site access. This duration reflects the time necessary to clear road way obstructions, use different travel routes, mobilize alternate transportation capabilities, etc.

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- Post event time: 6 to 24 hours – Limited site access. Individuals may access the site by walking, personal vehicle or via alternate transportation capabilities.
- 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.

5.4 Other Assumptions for Staffing Assessment

- The result of the beyond-design-basis event may place the plant in a condition where it cannot comply with certain Technical Specifications and/or with its Security Plan, and as such, may warrant invoking 10 CFR 50.54(x) and/or 10 CFR 73.55(p).
- For purposes of assessing augmented staffing, it is assumed that the on-shift staff successfully performs all Initial Phase and any necessary Transition Phase coping actions during the 0-6 hour period. It is assumed an adequate number of augmented ERO members arrive on site between 6 hours and 24 hours to assist the on-shift staff successfully implement the appropriate FLEX strategies and FSGs.

***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 integrity, and spent fuel pool cooling.*

- On-shift personnel are limited to the minimum complement allowed by the site emergency plan (i.e., the minimum required number for each required position). This would typically be the on-shift complement present during a backshift, weekend, or holiday.
- Off-site emergency response facilities and staging areas are available, including those located within the 25 mile telecommunications blackout range.

5.5 NEI 12-06 Staffing Assumptions

- The FLEX strategies documented in the event sequence analysis assume:
 - No independent, concurrent events
 - All personnel onsite are available to support site response
 - The reactor is initially operating at power, unless site has procedural direction to shut down due to the impending event.

5.6 NEI 10-05 Applicable Assumptions to Support Methodology

- On-Shift personnel can report to their assigned response locations within timeframes sufficient to allow for performance of assigned actions.
- 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 unless allowed by procedure or Emergency Plan) without the aid of a Radiation Protection Technician.
- Performance of site and protected area access control function is regularly analyzed through other station programs and will not be evaluated here, unless a role or function from the major response area is assigned as a collateral duty.

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- 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.
- 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.
- 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).

5.7 Severe Accident Management Guideline (SAMG)

- It was concluded in the Phase 2 Staffing Assessment that the on shift staff and augmented ERO would not be called upon to perform SAMG activities for the event analyzed for this assessment.

5.8 Assessment of the INITIAL PHASE Coping Strategies and Capability

- The assessment of actions expected to be performed during the first 6-hours concluded there were no task overlaps for the activities assigned to the on-shift staff and the ability of the on-shift staff to perform any required emergency response functions were not degraded or lost. Refer to Attachment 1, *Phase 2 Staffing Assessment NEI 10-05 Tabletop Data* and Attachment 2, *JAF FLEX Implementation Timelines*.

5.9 Assessment of TRANSITION PHASE Coping Strategies and Capability

- On-shift Staff Transition Phase Coping Actions (Hours 0 – 6)

The Transition Phase requires providing sufficient, portable, on-site equipment and consumables to maintain or restore functions until they can be accomplished with resources brought from off site. Actions include:

- (1) DC Load Shed
- (2) Setup and alignment of FLEX DG, cables, and breakers in preparation for re-powering electrical buses and battery chargers
- (3) Conducting lineups to vent Containment
- (4) Establishing Spent Fuel Pool area ventilation and setup of equipment for SFP spray / fill
- (5) Establishing ventilation paths for critical plant areas
- (6) Performing initial damage assessment

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- Augmented ERO and On-shift Staff Transition Phase Coping Actions

The following tasks are assumed to be performed by the on-shift and augmented staff, if available, after the 6 hour no access period as shown in Attachment 2.

- (1) Energizing electrical buses and battery chargers
- (2) Completing deployment of and connection of hoses to support Spent Fuel Pool (SFP) and Reactor Pressure Vessel (RPV) makeup
- (3) Providing makeup to the SFP
- (4) Providing makeup to the RPV
- (5) Preparing for and commencing refueling of FLEX equipment
- (6) Setting up electrical power needs to ensure long-term communication capabilities
- (7) Performing debris removal as needed to support site access for Phase 3 equipment

6.0 AUGMENTED ERO

6.1 ERO Response

- The methods to notify and augment the ERO was identified in Entergy's letter to the NRC dated June 8, 2012, *Entergy's 90-Day Response to the March 12, 2012 Information Request, Action Plan for Completing Emergency Communication and Staffing Assessments* (JAF Letter JAFP-12-0065).
- The ERO is trained to report to their assigned emergency response facilities when made aware of an area-wide loss of electrical grid that results in degraded communications capability. If access to the assigned facilities is not possible, personnel report to the pre-established alternate offsite facilities.

6.2 Site Access for Augmented ERO

- The methods of site access for the augmented ERO was identified in Entergy's letter to the NRC dated June 8, 2012, *Entergy's 90-Day Response to the March 12, 2012 Information Request, Action Plan for Completing Emergency Communication and Staffing Assessments* (JAF Letter JAFP-12-0065).
- Various types of transport to JAF are applicable including: walking, personal vehicle, helicopter, and watercraft.
- The Oswego County Emergency Management Office (OCEMO) provides support in response to actual events through an existing Letter of Agreement. OCEMO is the central coordinating agency for mutual aid in Oswego County for all local, state and federal resources. The need for additional agreements for air and water transportation to the site were evaluated and determined not to be needed.
- In addition to the support provided through OCEMO, Entergy Nuclear would use the Corporate Emergency Center to provide support and obtain additional resources (if needed) to respond to the event.
- JAF has designated a staging area for emergency responders to serve as a common muster location for transport to the site if normal access is restricted. This muster/staging area is located at the Oswego County Airport (adjacent to the JAF Emergency Operations

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Facility – (EOF), approximately 13 miles from the site and will host JAF personnel while preparing for re-entry to the plant.

7.0 PHASE 2 STAFFING ASSESSMENT CONCLUSION

7.1 Staffing Level

This assessment concluded that the current minimum on-shift staffing as defined in the JAF Emergency Plan, is sufficient to support the implementation of the ELAP strategies, as well as the required Emergency Plan actions, with no unacceptable collateral duties. The staffing assessment did not identify the need for additional on-shift staff.

The non-licensed operators perform tasks in series when necessary and are able to perform all assigned functions. The operators take actions to ensure core cooling, containment integrity, and spent fuel pool cooling are maintained. The performance of coping strategies does not affect the ability of the on-shift staff to perform any required emergency response function. Emergency response functions are not degraded or lost prior to the arrival of the augmented ERO.

The JAF Emergency Plan will not be changed as a result of the shift staffing assessment and no interim actions have been taken or are planned as a result of this assessment.

7.2 Task Analysis Results

Refer to Attachment 1, *Phase 2 Staffing Assessment NEI 10-05 Tabletop Data*, and Attachment 2, *JAF FLEX Implementation Timelines*, for the analysis of on-shift staffing tasks.

- The task analysis did not identify any unassigned tasks.
- The task analysis did not identify any task overlaps that were performed by the on-shift staff.
- The time to perform the task was best estimate of the assessment team based on operating experience.

7.3 Time Motion Study (TMS) Results

In response to a BDBEE the task of ERO Notification may be performed by the SM and if so, could potentially challenge the SM's ability to maintain emergency direction and control of the event response. The collateral task of ERO Notification was evaluated using a TMS and is documented in Attachment 3. The TMS was performed during an ELAP scenario in the plant Simulator to validate on-shift Control Room actions. The TMS demonstrated the Shift Manager was able to maintain Emergency Direction and Control during the approximate 2 minutes (130 seconds) it took to activate the ERO. The task of ERO Notification was evaluated and determined to be an acceptable task for the SM to perform for this event.

7.4 Augmented ERO Assessment Results

The existing ERO is sufficient to fill the augmented ERO positions and assist the on-shift staff response to a BDBEE. JAF has four ERO teams that have been trained to respond to the site. No changes to the Emergency Plan augmented ERO staffing have been identified.

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8.0 REFERENCES

- 8.1 NEI 12-01, Rev 0, *Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities*, dated May 2012.
- 8.2 NEI 10-05, Rev 0, *Assessment of On-Shift Emergency Response Organization Staffing and Capabilities*, dated June 2011.
- 8.3 NSIR DPR-ISG-01, *Interim Staff Guidance – Emergency Planning for Nuclear Power Plants*, dated November 2011.
- 8.4 NRC Letter, *Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendation 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident*, ML12053A340, dated March 12, 2012.
- 8.5 NRC Order Number EA-12-049, *Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events*, dated March 12, 2012.
- 8.6 Entergy letter, *Entergy Nuclear Operations, Inc.'s 60-Day Response to the March 12, 2012, Information Request, Action Plan for Completing Emergency Communication and Staffing Assessments*, JAFP-12-0054, dated May 11, 2012.
- 8.7 Entergy letter, *Entergy's 90-Day Response to the March 12, 2012, Information Request, Action Plan for Completing Emergency Communication and Staffing Assessments*, JAFP-12-0065, dated June 8, 2012.
- 8.8 NRC Interim Staff Guidance JLD-ISG-2012-01, Rev. 0, *Compliance with Order EA-12-049, Order Modifying Strategies for Beyond-Design-Basis External Events*, dated August 29, 2012.
- 8.9 NEI 12-06 Rev. 2, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*, dated December 2015.
- 8.10 EC-0000052736, *JAF Fukushima FLEX Basis EC Strategy Development*.
- 8.11 JAF Emergency Plan.
- 8.12 Entergy letter, *Extension to Commitments Made in Response to March 12, 2012, Information Request Pursuant to 10CFR50.54 (f) Regarding Recommendation 9.3, Emergency Communications and Staffing Assessments*, JAFP-16-0060, dated April, 14, 2016.

9.0 ATTACHMENTS

ATTACHMENT 1	PHASE 2 STAFFING ASSESSMENT NEI 10-05 TABLETOP DATA
ATTACHMENT 2	JAF FLEX IMPLEMENTATION TIMELINES
ATTACHMENT 3	ERO ACTIVATION TIME MOTION STUDY

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Attachment 1

Phase 2 Staffing Assessment NEI 10-05 Tabletop Data

Note

NEI-10-05 Tables are modified to include the Emergency Plan and FLEX implementation tasks.

1. Accident Summary:
 - A large-scale external event occurs that results in:
 - The unit is affected
 - Extended loss of AC power (ELAP) and loss of access to Ultimate Heat Sink (LUHS)
 - Impeded access to the unit
 - Initially, the reactor is operating at full power and is successfully shut down.
 - The event results in a Site Area Emergency based on EAL SS1.1. The event is upgraded to a General Emergency SG1.1 once it has been determined that power cannot be restored before the station blackout coping time will be exceeded.
 - The most limiting hazard for on-shift staffing resources was used for the assessment. On-shift personnel respond as shown in Attachment 2.
2. Accident Specific Assumptions:
 - Attachment 2 assumptions include:
 - SM/CRS are expected to use available staff to provide periodic relief (if needed) for individuals working in extreme environmental conditions (e.g., high heat areas) or for extended periods of time.
 - Estimated task times include expected pre-job and safety briefings
 - Assumptions are identified in Section 5.0 of this document.
3. Procedures Reviewed for Accident Response Include:
 - EAP-1.1, *Offsite Notifications*
 - EAP-4A, *On-shift Dose Assessment*
 - EAP-8, *Personnel Accountability*
 - EAP-17, *Emergency Organization Staffing*
 - IAP-1, *Emergency Plan Implementation Checklist*
 - IAP-2, *Classification of Emergency Conditions*
 - AOP-1, *Reactor Scram*
 - AOP-49, *Station Blackout*
 - FSG-ELAP, *Extended Loss of AC Power*
 - FSG-001, *Initial Assessment and FLEX Equipment Staging*
 - FSG-002, *ELAP DC Bus Load Shed and Management*
 - FSG-003, *Alternate Reactor Vessel Cooling*
 - FSG-004, *Alternate Containment Cooling and Hydrogen Control*
 - FSG-005, *Alternate SFP Makeup and Cooling*
 - FSG-100, *Emergency Response To An Extended Loss of AC Site Power (ELAP)*
 - FSG-101, *Beyond Design Basis External Events EP Communications*

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- EN-OP-115, *Conduct of Operations*, Attachment 9.5, *JAF Plant Specific Addendum*
- EN-EP-310, *Emergency Response Organization Notification System*

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NOTE: NEI 10-05 Tables 1-5 shown here are modified to include Emergency Plan and FLEX implementation tasks

NEI 10-05 TABLES

JAF TABLE 1 – ON-SHIFT POSITIONS Single Unit ELAP/LUHS				
Line #	On-shift Position	Role in Table # / Line #	Unanalyzed Task?	Collateral Tasks? (See Attachment 2 for specific tasks, sequence & timeline)
1	SM	T2/L1 T5/L1 T5/L2 T5/L3 T5/L5 T5/L6 (note 1)	No	No
2	CRS	T2/L2	No	No
3	STA	T2/L3	No	No
4	SNO #1	T2/L4	No	No
5	SNO #2	T2/L5	No	No
6	SNO #3	T2/L6	No	No
7	NPO #1	T2/L7	No	No
8	NPO #2	T2/L8	No	No
9	NPO #3	T2/L9	No	No
10	NPO #4	T2/L10	No	No
11	Communicator NPO #5	T5/L8 T5/L9 T5/L10 T5/L13	No	No
13	RP/Chemistry	T2a/L11 T4/L7	No	No
14	(RP) Technician	T2a/L12 T4/L1 T4/L2 T4/L4	No	No
15	Plant Fire Brigade NPO	T2/L11	No	No
16	Security	T5/L15	No	No

Note 1- Task T5/L6 (ERO Notification) was evaluated to be an acceptable task for the SM to perform for this event. This task was evaluated using a time motion study (see Att. 3) and is discussed in Section 7.3 of this report.

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JAF TABLE 2 - PLANT OPERATIONS & SAFE SHUTDOWN			
Single Unit ELAP/LUHS			
Minimum Operations Crew Necessary to Implement EOPs, SAMGs or FSGs as Applicable			
Line #	Generic Title/Role	On-Shift Position * (Note 1)	Task Analysis Controlling Method (Note 2)
1	Shift Manager	SM	Licensed Operator Training Program
2	Unit Supervisor	CRS	Licensed Operator Training Program
3	Shift Technical Advisor	STA	Licensed Operator Training Program
4	Reactor Operator #1	SNO #1	Licensed Operator Training Program
5	Reactor Operator #2	SNO #2	Licensed Operator Training Program
6	Reactor Operator #3	SNO #3	Licensed Operator Training Program
7	Nuclear Plant Operator #1	NPO #1	Non-Licensed Operator Training Program
8	Nuclear Plant Operator #2	NPO #2	Non-Licensed Operator Training Program
9	Nuclear Plant Operator #3	NPO #3	Non-Licensed Operator Training Program
10	Nuclear Plant Operator #4	NPO #4	Non-Licensed Operator Training Program
11	Plant Fire Brigade NPO	Plant Fire Brigade NPO	Non-Licensed Operator Training Program

*The Communicator NPO does not perform EOP, SAMG, or FSG procedures other than those needed to perform emergency communications and is therefore not shown in Table 2.

Note 1: During a BDBEE that results in an ELAP/LUHS, these positions are expected to be available to implement or assist in the implementation of FLEX strategies using FSGs under the direction of the CRS and oversight by the SM.

Note 2: Each position will receive as a minimum; the INPO initiated NANTEL Generic Basic FLEX Initial Course. SMs and CRSs will also receive the NANTEL Generic Advanced FLEX Training Course. A training plan will be developed using the Systematic Approach to Training (SAT) process for additional FLEX training.

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JAF Table 2a			
Other on-shift staff available to perform (or assist Operators) FLEX related tasks (not safe shutdown)			
Line #	Generic Title/Role	On-Shift Position (Note 1)	Task Analysis Controlling Method
11	Chemistry	Chemistry Technician (RP/Chem)	N/A
12	Radiation Protection	(RP) Technician	N/A

Note 1: During a BDBEE that results in an ELAP/LUHS, these positions are expected to be utilized if available to assist in the implementation of FLEX strategies using FSGs under the instructions of Operations personnel as necessary.

JAF TABLE 3 – FIREFIGHTING*		
Single Unit ELAP/LUHS		
Line #	Performed by	Task Analysis Controlling Method
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

*Fire Brigade (No firefighting tasks are included in this accident).
Staff filling fire brigade positions are shown in the minimum staffing table in Section 4.0.

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JAF TABLE 4 – RADIATION PROTECTION AND CHEMISTRY Single-Unit ELAP/LUHS																		
L I N E	Position Performing Function / Task	Performance Time Period After Station Blackout (hours)*																
		0-.5	.5-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0	10.0-11.0	11.0-12.0	12.0-13.0	13.0-14.0	14.0-15.0	15.0-16.0
1	In-Plant Survey: (RP) Technician	As directed by SM* (See Attachment 2 of this report)																
2	On-site Survey: (RP) Technician	As directed by SM* (See Attachment 2 of this report)																
3	Personnel Monitoring:																	
4	Job Coverage: (RP) Technician	As directed by SM* (See Attachment 2 of this report)																
5	Offsite Rad Assessment: (Included in Table 5- RP/Chem Technician)																	
6	Other site specific RP																	
7	Chemistry Function task RP/Chem Technician	As directed by SM* (See Attachment 2 of this report)																
8	Chemistry Function task #2																	

*The team determined there are no time sensitive RP or RP/Chem tasks and that task performance is directed and prioritized by the Shift Manager. The time RP or RP/Chem is directed to perform a task and the amount of time taken to complete tasks are estimated. No Chemistry samples are taken due to the loss of power to the equipment necessary to analyze samples. No fuel damage or significant radiological release is anticipated since core cooling, containment integrity, and spent fuel pool cooling are maintained. RP and RP/Chem are available to assist with staging and setup of FLEX equipment when not performing dose assessment, radiological surveys, or radiological monitoring of in-plant activities.

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JAF TABLE 5 – EMERGENCY PLAN IMPLEMENTATION Single Unit ELAP/LUHS			
Line#	Function / Task	On-Shift Position	Task Analysis Controlling Method
1	Declare the emergency classification level	SM	Emergency Planning Training Program / EP Drills
2	Approve Offsite Protective Action Recommendations	SM	Emergency Planning Training Program / EP Drills
3	Approve content of State/local notifications	SM	Emergency Planning Training Program / EP Drills
4	Approve extension to allowable dose	N/A	N/A
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	SM	Licensed Operator Training Program / Emergency Planning Training Program
6	ERO notification	SM	Emergency Planning Training Program
7	Abbreviated NRC notification for DBT event	N/A	N/A
8	Complete State/local notification form	Communicator NPO	Emergency Planning Training Program
9	Perform State/local notifications	Communicator NPO	Emergency Planning Training Program
10	Complete NRC event notification form	Communicator NPO	Emergency Planning Training Program
11	Activate ERDS	(Note 1)	N/A
12	Offsite radiological assessment	(Note 2)	Emergency Planning Training Program
13	Perform NRC notifications	Communicator NPO	Emergency Planning Training Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	(Note 3)	Licensed Operator Training Program / Emergency Planning Training Program
15	Personnel Accountability	Security (Note 4)	Emergency Planning Training Program / Security Training Program / EP Drills

Note 1: ERDS is normally activated by the SM when needed using a computer link. It is recognized however, that the BDBEE is assumed to result in the loss of normal communication paths for ERDS. If ERDS capability is lost, critical information would be communicated directly to the NRC over other communication paths, such as satellite phones.

Note 2: The on-shift RP/Chem Technician will report to the Control Room to perform the task of dose assessment (if needed). A significant radiological release is not anticipated however, since core cooling, spent fuel pool makeup and containment integrity are maintained during the 24 hour period.

Note 3: The SM will not make these communications, other than the initial brief notification to SAFER and the station Duty Manager. The Duty Plant Manager will report to the site or the off-site staging area and make any additional communications.

Note 4: Security Shift Supervisor is responsible for performing site accountability.

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ATTACHMENT 2: JAF FLEX IMPLEMENTATION TIMELINES

Timeline

It is assumed on-shift staff will be augmented and/or relieved after +6 hours as personnel are able to access the site. The relief staff will continue the tasks for the job position as shown. The intent of this table is to identify the job position, tasks, and estimated timeline to complete the Emergency Plan, initial phase and transition phase tasks and to demonstrate that no collateral duties have an adverse impact on implementing the Emergency Plan or FLEX strategies.

JOB POSITION	TIME	TASK	Collateral Duty?
SM	(1) T = 0 – 15 min (2) T= 15- 30 min (3) T = 1 hr. (4) T = 1.0 – 1.5 hrs. (5) T = 0 – until EOF is operational	(1) Assess event and declare Site Area Emergency (SAE - EAL SS1.1). (2) Approve Notification Message Form and direct communicator to make notifications / Direct SAE evacuation & accountability. (3) Declare ELAP. (4) Call SAFER / Notify Security that FLEX is being implemented / Declare General Emergency (GE – EAL SG1.1). The timing of the GE declaration may occur anytime between T = 0 – 4 hrs. depending on information available to the SM / Develop PAR, approve Notification Message Form and direct Communicator to make notifications. (5) Perform oversight and ED responsibilities.	No
CRS	(1) T = 0 – 1.0 hr. (2) T = 1.0 hr. - duration	(1) Direct immediate plant AOP and EOP actions. (2) Direct and coordinate ELAP and FSG actions.	No
STA	(1) T = 0 – duration	(1) Technical Support, plant monitoring and technical assessment.	No
SNO #1	(1) T = 0 – 1.0 hr. (2) T = 1.0 – 3.5 hrs. (3) T = 3.5 – 21 hrs. (4) T = 21 – 22 hrs. (5) T = 22 – 24 hrs. (6) T = 0.5 – duration	(1) Immediate plant actions / post trip actions. (2) Perform cooldown not to exceed 100 degrees/hr. (target pressure of 200-400 lbs. to maintain RCIC operation). (3) Maintain RPV pressure at 200-400 lbs. to support RCIC operation. (4) Prior to depleting the CST, depressurize the RPV to < 50 psig using SRVs; Open 10MOV-25B and direct the opening of 76FPS-55 to establish UHS flow to the RPV using the DG Fire Pump ; Close the RCIC trip throttle valve after RPV flow is established. (5) Direct RPV and SFP makeup as needed. (6) Plant monitoring.	No

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JOB POSITION	TIME	TASK	Collateral Duty?
SNO #2	(1) T = 0 – 1.0 hr. (2) T = 5.0 – 5.5 hrs. (3) T = 1.0 – 7.0 hrs. (4) T = 0.5 – duration	(1) Immediate plant actions / post trip actions. (2) Coordinate opening 27AOV-117/118 to commence Containment venting. (3) Monitor DC battery voltage after DC load shedding is performed and until battery charging has commenced. (4) Plant monitoring.	No
SNO #3	(1) T = 0 – 0.5 hr. (2) T = 0.5 – 1.0 hrs. (3) T = 1.0 – 1.5 hrs. (4) T = 1.5 – 3.0 hrs. (5) T = 3.0 – 4.0 hrs. (6) T = 4.5 – 5.5 hrs. (7) T = 5.5 - duration	(1) Immediate plant actions. (2) Immediate plant actions / Defeat HPCI and RCIC trips and isolations / Verify RCIC exhaust fan running. (3) Perform Deep DC Load shed (Relay Room Actions). (4) Perform damage assessment (as needed). (5) Perform actions needed in preparation for Containment venting. (6) As directed by SNO#2, open 27AOV-117/118 using the manual operator to commence venting. (7) Available to provide oversight and direction of field activities and provide periodic relief to plant operators as needed.	No
NPO #1	(1) T = 0 – 0.5 hr. (2) T = 0.5 – 1.0 hr. (3) T = 1.0 – 1.5 hrs. (4) T = 1.5 – 2.0 hrs. (5) T = 2.0 – 3.0 hrs. (6) T = 3.0 – 4.0 hrs. (7) T = 4.0 – 5.0 hrs. (8) T = 5.0 – 5.5 hrs. (9) T = 5.5 – 7.0 hrs. (10) T = 8.0 – 11.0 hrs.	(1) Immediate plant actions / verify RCIC operation. (2) Close fire protection water spray isolations / Open all RCIC and HPCI room fire doors. (3) Prop open Reactor Building doors (RB369-1, RB369-2, RB272-1, and RB272-2) (4) Verify 391AS-25 and 391AS-28 are closed / Prop open Reactor Building doors RB369-1, RB369-2, RB272-1 and RB272-2. (5) Prepare 600VAC busses for energizing (Electric Bay Actions). (6) Perform actions needed in preparation for Containment venting. (7) Route electrical cables for powering battery chargers from portable 200 KW diesel generator. (8) Route electrical cables for powering EP Communications equipment. (9) Place battery charger in operation and repower 600 VAC busses. (10) Remove expansion joint at discharge of RHRSW pump for RPV injection and install adapter piece with Storz connection. Complete installation of remaining hose connections.	No

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JOB POSITION	TIME	TASK	Collateral Duty?
NPO #2	(1) T = 0 – 0.5 hr. (2) T = 0.5 – 1.0 hr. (3) T = 1.0 – 1.5 hrs. (4) T = 1.5 – 2.0 hrs. (5) T = 3.0 – 4.0 hrs. (6) T = 4.0 – 5.0 hrs. (7) T = 5.0 – 5.5 hrs. (8) T = 5.5 – 7.0 hrs. (9) T = 7.0 - duration	(1) Isolate Hydrogen to the main generator / Vent the main generator. (2) Place 99A-S1A to 99UPS-11FLEX / Remove UPS inverter from service. (3) Perform DC Deep Load Shed (Battery Room actions). (4) Prop open Battery Room and DC Equipment Room doors (76FDR-HB-272-2, 76FDR-HB-272-3, 76FDR-HB-272-4, and 76FDR-HB-272-5). (5) Route hoses in Reactor Building for SFP cooling and makeup. (6) Insert modified MCC bucket into MCC and connect cables from Y-connection to modified bucket. (7) Connect color coded cables to portable FLEX DG. (8) Start and monitor FLEX DG while loading. (9) Available for periodic monitoring of FLEX DG.	No
NPO #3	(1) T = 0 – 0.5 hr. (2) T = 0.5 – 1.0 hr. (3) T = 1.0 – 3.5 hrs. (4) T = 3.5 – 4.0 hrs. (5) T = 4.0 – 4.5 hrs. (6) T = 4.5 – 5.0 hrs. (7) T = 5.0 – 6.0 hrs. (8) T = 6.0 – 9.0 hrs. (9) T = 10 – 13 hrs. (10) T = 18 – 20 hrs. (11) T = 20 – 21 hrs. (12) T = 21 – 22 hrs. (13) T = 22 – 24 hrs.	(1) Immediate plant actions (equipment monitoring) / DC load shed including opening lighting breakers and securing RWR recirculation oil pump. (2) Shutdown EPIC and remove ceiling tiles above EPIC computer. (3) Perform debris removal assessment and debris removal to allow the transfer of FLEX equipment to the staging areas. (4) Transfer portable 200KW diesel generator to staging area (west side of plant outside EDG rooms). (5) Transfer Mechanical (Hose) trailer to staging area (NE of Screenhouse). (6) Transfer refueling skid and air compressor to staging area (west of Division 2 Standby Diesel Generator Room). (7) Transfer and setup portable light towers (as needed). (8) Lineup alternate RPV injection strategy (76P-4 to RHR “B” LPCI) including removal of blind flange from 76P-4, connecting adapter and Storz connection and hose, and routing hose to RHRSW Pump Room. (9) Lineup alternate strategy #1 for SFP makeup or spray using 76P-4 including removal of blind flange and connecting adapter, routing hoses in the Screen House and Turbine Building and making connections to Reactor Building hoses. (10) Perform Att. 2 for Alternate Fire Protection lineup in preparation for low pressure injection to the RPV using 76P-4. (11) Prop open Diesel Driven Fire Pump doors (SP-225-5) and start 76P-4. (12) As directed by the Control Room, slowly open 76FPS-55 (FP P-1 & 2 Discharge Internal Loop Isolations) to establish flow to the RPV. (13) Monitor 76P-4 pump operation and adjust flow to the RPV and SFP (as needed).	No

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JOB POSITION	TIME	TASK	Collateral Duty?
NPO #4	(1) T = 0 – 1.0 hr. (2) T = 1.0 – 1.5 hrs. (3) T = 2.0 – 2.5 hrs. (4) T = 2.5 – 3.0 hrs. (5) T = 3.0 – 4.0 hrs. (6) T = 4.0 – 5.0 hrs. (7) T = 5.0 – 5.5 hrs. (8) T = 6.0 – 7.0 hrs. (9) T = 7.0 – 8.0 hrs. (10) T = 8.0 – 11 hrs.	(1) Replace radio antenna (if needed). (2) Perform DC Deep Load Shed (Relay Room actions). (3) Prepare 600 VAC busses for energizing (Diesel Switchgear actions). (4) Prepare 600 VAC busses for energizing (Battery Room actions). (5) Route hoses in Reactor Building for SFP cooling and makeup. (6) Route electrical cables for powering battery chargers from portable 200 KW diesel generator. (7) Route electrical cables for powering EP communications equipment. (8) Repower Control Room Zetron 99CNS-1C communications from FLEX DG. (9) Provide power to EP communications loads via UPS static inverter. (10) Remove expansion joint at discharge of RHRSW pump for RPV injection and install adapter piece with Storz connection. Complete installation of remaining hose connections.	No
Fire Brigade NPO	(1) T = 0 – 1.0 hr. (2) T = 1.0 – 3.5 hrs. (3) T = 3.5 – 4.0 hrs. (4) T = 4.0 – 5.0 hrs. (5) T = 5.0 – 5.5 hrs. (6) T = 6.0 – 9.0 hrs. (7) T = 10 – 13 hrs.	(1) Attempt to start Emergency diesel generators. (2) Perform debris removal assessment and debris removal to allow the movement of FLEX equipment to the staging areas. (3) Transfer electrical trailer to staging area (West of Emergency Diesel Generator Building). (4) Route electrical cables for powering battery chargers from portable 200 KW diesel generator. (5) Route electrical cables for powering EP communications equipment. (6) Lineup alternate RPV injection strategy (76P-4 to RHR “B” LPCI) including removal of blind flange from 76P-4, connecting adapter and Storz connection and hose, and routing hose to RHRSW Pump Room. (7) Lineup alternate strategy #1 for SFP makeup or spray using 76P-4 including removal of blind flange and connecting adapter, routing hoses in the Screen House and Turbine Building and making connections to Reactor Building hoses.	No
Communicator (NPO#5)	(8) T = 0 – duration	(8) Establish communications capabilities using satellite phones (if needed). Communicator remains available for ERO notification and communications with offsite agencies throughout the event until relieved by augmented staff.	No

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Attachment 2**

JOB POSITION	TIME	TASK	Collateral Duty?
Chemistry Technician (RP/Chem)	(1) T = 0 – 1.0 hr. (2) T = 1.0 – 3.0 hrs. (3) T = 3.0 – 4.0 hrs. (4) T = 4.0 – 5.0 hrs. (5) T = 5.0 - duration	(1) Reports to the Control Room / provides support to NPO#4 to replace radio antenna (if needed). (2) Provide support as directed by the Emergency Director / available for dose assessment (if needed). (3) Provide support to Operations routing hoses in Reactor Building for SFP cooling and makeup. (4) Provide support to Operations routing electrical cables for powering battery chargers form portable 200 KW Diesel Generator. (5) Provide support as directed by the Emergency Director / available for dose assessment (if needed).	No
(RP) Technician	(1) T = 0 – 1.5 hrs. (2) T = 1.5 – 3.0 hrs. (3) T = 3.0 – 4.5 hrs. (4) T = 4.5 – 6.0 hrs. (5) T = 6.0 - duration	(1) Initially reports to the Control Room / Available for radiation monitoring, job coverage and radiological briefings as needed / perform actions per RPSO-03. (2) Radiation monitoring and job coverage during damage assessment (as needed). (3) Provide radiation monitoring and job coverage (as needed). (4) Provide radiological coverage and assistance for venting Containment. (5) Provide radiation monitoring and job coverage (as needed).	No
Security	(1) T = 0 – 1.0 hr. (2) T = 1.0 – 2.0 hrs. (3) T = 2.0 – duration	(1) Perform and maintain on-site personnel accountability / security function. (2) Support FLEX equipment access to the protected area / maintain on-site personnel accountability / provide damage assessment update to CR based on visual observations from Security Officers / security function. (3) Maintain on-site personnel accountability / security function.	No
Augmented Staff	Assumes augmented staff is available after 6 hours and will assist as directed. Examples of tasks expected of augmented staff include supporting lineup for SFP makeup, setup and implementation of FLEX equipment refueling strategy, follow-up debris removal in preparation for receipt of NSRC equipment, etc. Additionally, augmented staff will be expected to provide relief to on-shift staff as needed and directed by the SM.		No

**James A Fitzpatrick Nuclear Power Plant Phase 2 Staffing Assessment
Attachment 3**

ATTACHMENT 3: ERO NOTIFICATION TIME MOTION STUDY

JAMES A. FITZPATRICK

TIME MOTION STUDY OF OVERLAPPING TASKS

TASK 1: ACTIVATE THE ERO USING EVERBRIDGE

JOB: SHIFT MANAGER

TASK 2: EMERGENCY DIRECTION AND CONTROL

JOB: SHIFT MANAGER

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TASK:

Perform a Time Motion Study to evaluate whether assigning the performance of ERO notification using Everbridge to the Shift Manager can be justified as an acceptable overlap to the Shift Manager's primary emergency plan function of Emergency Direction and Control.

LOCATION:

The TMS should be conducted in the Station Simulator to allow evaluation of the Shift Manager's ability to maintain Emergency Direction and Control of the response while performing the task of ERO Notification. The "TRAINING" event code should be used to avoid inadvertent ERO activation for an EMERGENCY event. Codes are site specific.

REQUIRED TOOLS/EQUIPMENT:

- A. Instructions and codes for activating Everbridge in the TRAINING mode. [Staged Instruction sheet for activating Everbridge may be used in lieu of EN-EP-310, *Emergency Response Organization Notification System, or EAP-17, "Emergency Organization Staffing"*]. The "TRAINING" event code should be used to avoid inadvertent ERO activation for an EMERGENCY event. Codes are site specific.
- B. Actual or simulated satellite phone for contacting Everbridge.

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Event: BDBEE Site: JAF Position: Shift Manager Line #: 1

Function	Responsibility (Task)	Action Step	Duration
1.Notification	1. Activate the ERO using EverBridge	Retrieve the Everbridge instruction that contains the [TRAINING] User ID and Password.	15 seconds
		1. Using EAP-17 Attachment 2 or staged instruction sheet: Select the first digit of the Template ID as follows: 1 = Emergency 2 = Drill 3 = Test 4 = Training	10 seconds
		2. Select the appropriate template by following the Attachment 2 flowchart or staged instruction sheet:	10 seconds
		3. Enter the number from Step 1 into the appropriate template box selected in Step 2.	10 seconds
		4. Enter the resultant 4 digit Template ID into the box in step 5.c.i.	15 seconds
		5.Contact EverBridge as follows: a. Dial 800-971-5015 b. When you hear "Welcome to the message center powered by EverBridge", then: I. Enter your User ID followed by the # sign. II. Enter your password followed by the # sign. III. Wait while the system accesses the message templates. DO NOT HANG UP. THIS MAY TAKE UP TO 30-45 SECONDS. c. When you hear, "To select a template, enter the template ID followed by the # sign," then: I. Enter the 4 digit template ID number recorded earlier and press # sign. II. The system will state, "You have selected Notification Template (Number you entered) and the title of the Message to be sent." III. Press 1 to send the message now. IV. Hang up when instructed.	70 seconds
		END OF Activate the ERO Using EverBridge TASK	
2.Emergency Direction and Control	2.1 Maintain emergency direction and control of the event response.	Oversight of the emergency response.	Maintained throughout
		Initiate any emergency actions.	Maintained throughout
		END OF EMERGENCY DIRECTION AND CONTROL TASK	

Task Performer: Chris Smolinski /  Position: Manager Operations Support Date: 12/6/16
Name Signature Job Title

Evaluator: Milton F. Guynn /  Position: Fleet Project Mgr. Fukushima Project Date: 12/6/16
Name Signature Job Title