LUMINANT POWER

COMANCHE PEAK NUCLEAR POWER PLANT
UNITS 1 AND 2

NEI 12-01 PHASE 2
STAFFING ASSESSMENT
Revision 1

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1. Introduction

In May, 2012, NEI published NEI 12-01, "*Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities*". These guidelines provide criteria to assist with the preparation of assessments used to determine the required staff needed to respond to a Beyond Design Basis External Event (BDBEE) that affect multiple units at a site, and the identification of enhancements that could provide a means to power equipment needed to communicate with on-site and offsite personnel during an extended loss of AC power event. These assessments were necessary for responding to certain information requests contained in US Nuclear Regulatory Commission (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. As discussed in SECY-11-0137, "*Prioritization of Recommended Actions to be taken in Response to Fukushima Lessons Learned*", dated October 3, 2011, responses to the information requests will be used to inform possible future regulatory actions. A 2-phase approach was used to respond to the information requests associated with staffing.

The Phase 1 staffing assessment, performed in response to the Letter was submitted by April 30, 2013, considered all requested functions except those related to Fukushima Near-Term Task Force (NTTF) Recommendation 4.2. This Phase 2 staffing assessment considers the requested functions related to Fukushima Near-Term Task Force (NTTF) Recommendation 4.2.

Recommendation 4.2 requires a three-phase approach for mitigating beyond-design-basis external events. The Initial Phase requires the use of installed equipment and resources to maintain or restore the functions of core cooling, containment and spent fuel pool cooling. The Transition Phase requires providing sufficient, portable, on-site equipment and consumables to maintain or restore these functions until they can be accomplished with resources brought from off site. The Final Phase requires obtaining sufficient offsite resources to sustain those functions indefinitely. Additionally, the event analyzed impedes site access such that for the first 6 hours no personnel from off-site can access the site, from 6 to 24 hours there is limited site access and after 24+ hours there is improved site access.

Section IV.A.9 of 10 CFR 50, Appendix E, states that nuclear power reactor licensees shall perform "a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan." The Nuclear Energy Institute (NEI) On-Shift ERO Staffing Task Force developed NEI 10-05, "*Assessment of On-Shift Emergency Response Organization Staffing and Capabilities*" to establish a standard methodology for performing analyses of the ability of on-shift staff to perform all required functions and tasks necessary to respond to a declared emergency. Licensees used this methodology to meet the requirement of 10 CFR 50, Appendix E, Section IV.A.9 in a manner acceptable to the US Nuclear Regulatory Commission (NRC) staff. This was Comanche Peak Nuclear Power Plant's (CPNPP) first On-Shift Staffing Assessment (OSSA), conducted in June 2012. The methodology provided in this guidance was used to perform the Phase 1 and Phase 2 OSSAs.

This report provides the Phase 2 staffing assessment results for CPNPP Units 1 and 2.

2. Analysis Overview

- Staffing Analysis Scope

All sites with one or more operating units are required to perform a Phase 2 staffing assessment no later than four months prior to the beginning of the second refueling outage (as used within the context of NRC Order EA-12-049). The Phase 2 assessment considers the staffing necessary to implement actions that address functions related to Fukushima NTTF Recommendation 4.2. 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 four 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 four 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 all sites that will employ different mitigation strategies for on-site units.

CPNPP Unit 1 and Unit 2 staffing assessments were performed using the guidance of the first option to conduct one assessment applicable to both units. The intent of this assessment was to perform the following:

1. Evaluate the ability of the on-shift staff to implement Initial Phase coping actions and, consistent with the site access assumption, evaluate Transition Phase actions which 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 involving 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 integrity, and spent fuel pool cooling. Setup for these strategies may be performed prior to the end of the Initial Phase as determined by procedure.

   2. Evaluate the ability of the on-shift staff to implement the Station Blackout (SBO) coping strategies in place before Extended Loss of AC Power (ELAP) is declared.

3. Evaluate the EOPs and FSGs for responding to an ELAP affecting both units. (Note: Draft FSGs and draft EOPs, revised for FLEX implementation, were used.)

4. Evaluate 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.

5. Consistent with the site access assumption, evaluate 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 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. Validation will be performed at a date after the submittal of the staffing assessment report per NEI guidance "FLEX Beyond Design Basis Validation Process" dated July 18, 2014. Necessary corrective actions will be tracked using the CPNPP corrective action program if the validation determines the assumed resources cannot complete a time sensitive action within the constraints identified in the Overall Integrated Plan (OIP) per NRC Order EA-12-049.

- Methodology

A tabletop assessment was performed to determine what operational and emergency response actions were procedurally required during an ELAP. Representatives from CPNPP Operations, Maintenance, Radiation Protection, Chemistry, Procedures, Engineering, Training, Security, and Emergency Preparedness met with an industry consultant in a tabletop exercise in February 2014. The participants reviewed the assumptions and applied procedural guidance, including draft FLEX Support Guidelines (FSGs) for coping with a BDBEE using minimum on-shift staffing.[1] Particular attention was given to the sequence and timing of each procedural step, its duration, and the on-shift individual performing the step. Because the FSGs were not yet finalized, the results of the assessment are preliminary and will require validation prior to FLEX implementation. All gaps identified will be addressed through the CPNPP corrective action program.

The team reviewed the tasks of each member of the minimum on-shift staff in responding to the ELAP and constructed a timeline (Table 5.2) recording the tasks and the approximate time at which they were performed following the event. Task duration was recorded in half-hour intervals. In reviewing on-shift staffing tasks, the team was alert to identify instances where staff members were assigned conflicting tasks or collateral duties that would distract from their ability to fulfill Emergency Plan responsibilities.

The assessment team used the guidance of NEI 10-05 to determine if the number and composition of the on-shift staff was sufficient to implement the Emergency Plan, Initial Phase actions, and, with the assistance from augmented staff, Transition Phase actions intended to maintain or restore core cooling, containment integrity, and spent fuel pool makeup for both units. The NEI 10-05 data tables (Table 5.1) were modified to include tasks associated with FLEX strategies.

3. Analysis Summary

The assessment concluded that the on-shift staff as defined in the current CPNPP Emergency Plan and augmented ERO alone are not adequate, and that additional shift personnel as currently required by CPNPP procedure ODA-102, "Conduct of Operations, Attachment 8A Minimum Shift Crew Composition" are necessary to implement existing and planned BDBEE and ELAP strategies on both units simultaneously while continuing to perform required Emergency Planning tasks without unacceptable collateral duties.[2] Additionally, the process to assign and utilize an expanded ERO, and the facilities and resources needed by them to perform their functions have not been established.[3] These gaps were captured and will be addressed through the CPNPP corrective action program.

[1] GAP #1 - The staffing assessment was not performed with the final approved versions of FLEX Support Instructions (FSI's).
[2] GAP #2 - Site Administrative Procedures and the site Emergency Plan are not aligned as to the minimum shift staffing levels.
[3] GAP #3 - The process to assign and utilize an expanded ERO, and the facilities and resources needed by them to perform their functions have not been established.

4. Assumptions

- NEI 12-01 Assumptions for Staffing Analysis

The set of standard assumptions that were used in the development of this report:

1. A large-scale external event occurs that results in:
    - all on-site units affected
    - extended loss of AC power
    - impeded access to the units

2. 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 roadway 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.

5. Personnel were limited to the minimum complement allowed by the site procedure ODA-102, "Conduct of Operations, Attachment 8A Minimum Shift Crew Composition." This would be the minimum on-shift complement present during a backshift, weekend or holiday. Augmented ERO staff assistance was not credited until six hours following the event.[2]

[2] GAP #2 - Site Administrative Procedures and the site Emergency Plan are not aligned as to the minimum shift staffing levels.

- NEI 10-05 Applicable Assumptions

  In accordance with this guidance, the following assumptions and limitations apply to the Phase 2 OSSA:

  1. On-shift personnel can report to their assigned response locations within the 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. Personnel assigned to the major response area of Plant Operations and Safe Shutdown meet the requirements and guidance established by NRC regulations and are able to satisfactorily perform the functions and tasks necessary to achieve and maintain safe shutdown.

     Note: Staff performance within this area was not evaluated as part of this assessment, unless a role/function/task from another major response area is assigned as a collateral duty.

  4. Performance of the on-site security organization's function is regularly analyzed through other station programs and was not evaluated in the OSSA, unless a role or function from another major response area was assigned as a collateral duty.

  5. Individuals holding the position of Radiation Protection Technician or Chemistry Technician are qualified to perform the range of tasks expected of their position.

  6. The task of making a simple and brief communication has minimal impact on the ability to perform other assigned functions/tasks, and was 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. Communications methods will be different, i.e. Satellite phones instead of dedicated phone lines. Satellite phones require clear view of southern sky and therefore the communicator must go outside or set up an outside antenna. As such the communication to the State, Counties and the NRC will be done in series as each phone must be dialed separately. The satellite phones have simple usage cards with each phone and the use is similar to the use of a Cellular phone within the capability of the communicator.

  7. The task of performing a peer check had minimal impact on the ability to perform other assigned functions/tasks, and was 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.

  8. The analyzed events occur 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. Event Staffing Analysis

- Minimum On-Shift Staffing

The shift staffing requirements for CPNPP are listed in the Table 5.1 below (Reference 3). The methodology of NEI 12-01 requires that only personnel required to be on-shift complement can be credited in the staffing analysis.

Table 5.1

Minimum On-shift Staffing		
Functional Area	**Task**	**On-Shift Position**
Station Operations	Overall command of both units Emergency Plan implementation	Shift Manager (SM)
Station Operations	Unit 1 supervision	Unit Supervisor (US) #1
Station Operations	Unit 2 supervision	Unit Supervisor (US) #2
Station Operations	Engineering oversight in the Control Room	Shift Technical Advisor (STA)
Station Operations	Manipulation of Unit 1 controls	Reactor Operator (RO) #1
Station Operations	Manipulation of Unit 1 controls	Reactor Operator (RO) #2
Station Operations	Manipulation of Unit 2 controls	Reactor Operator (RO) #3
Station Operations	Manipulation of Unit 2 controls	Reactor Operator (RO) #4
Station Operations	Perform local equipment manipulations as needed	Nuclear Equipment Operator (NEO) #1
Station Operations	Perform local equipment manipulations as needed	Nuclear Equipment Operator (NEO) #2
Station Operations	Perform local equipment manipulations as needed	Nuclear Equipment Operator (NEO) #3
Station Operations	Perform local equipment manipulations as needed	Nuclear Equipment Operator (NEO) #4
Station Operations	Perform local equipment manipulations as needed	Nuclear Equipment Operator (NEO) #5
Station Operations	Perform local equipment manipulations as needed	Nuclear Equipment Operator (NEO) #6
Station Operations	Perform local equipment manipulations as needed	Nuclear Equipment Operator (NEO) #7
Station Chemistry	Chem/ Radiochemistry support Perform actions as directed by the Emergency Coordinator.	Chemistry Technician (Chem) #1
First Aid Team Member	Chem/ Radiochemistry support Perform actions as directed by the Emergency Coordinator. Provide First Aid	First Aid Team Member (Chem) #2
Station Radiation Protection	Surveys and Protective Actions	Radiation Protection Technician (RP) #1
Station Radiation Protection	Surveys and Protective Actions	Radiation Protection Technician (RP) #2
Station Maintenance	Perform local equipment manipulations as needed	Mechanical Maintenance (MM) #1
Station Maintenance	Perform local equipment manipulations as needed	Electrical Maintenance (EM) #1
Station Maintenance	Perform local equipment manipulations as needed	I&C Maintenance (IC) #1
Station Maintenance	Emergency Communicator	I&C Maintenance (IC) #2

- Scenario Overview

  The BDBEE assumes a loss of off-site power combined with a failure of the emergency diesel generators to load. All remaining power is supplied by the station batteries. The loss of AC power to emergency buses initially results in the declaration of a Site Area Emergency (EAL SS4.1). When it becomes apparent that power will be unavailable for a prolonged period, the event classification is escalated to a General Emergency (EAL SG1.1).

  CPNPP utilizes a three-phase approach for mitigating beyond-design-basis external events. The Initial Phase utilizes installed equipment and resources to monitor, 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 uses offsite resources to sustain those functions indefinitely. Portable and off-site equipment location and operation during the Transition and Final Phases is addressed through the FSI's.

  ECA-0.0 A/B (Unit 1 & 2 "*Loss of All AC Power*" procedures) are the governing procedures for the BDBEE. Battery life to support instrumentation, with load shedding as prescribed in ECA 0.0 A/B and FSI-4.0 A/B, is at least 12 hrs. Valve and breaker operation were performed locally by Nuclear Equipment Operators (NEO). ABN-601, "*Response to a 138/345KV System Malfunction,*" provides Operations personnel additional guidance in response to the SBO event.

  The strategy employed in the event analyzed was to establish core cooling by natural circulation and to perform a plant cooldown using the steam-driven auxiliary feedwater pump. The Steam Generator Atmospheric Relief Valves (ARVs) have safety related air accumulators capable of supplying air to the valves for a minimum of 4 hours, therefore within the minimum staffing response time the ARV will have to be taken to local manual control to control the Reactor Coolant System temperature. The Auxiliary Feedwater Flow Control Valves have safety related air accumulators for 30 minutes. Therefore within the minimum staffing response time, AFW flow will have to be controlled manually from the TDAFW Pump room. Because no condenser vacuum existed due to the loss of AC power, heat removed from the steam generators was achieved by venting steam directly to the atmosphere thereby continually depleting the feedwater supply.

  Table 5.2 illustrates this strategy by providing a timeline of each position during the event. This table lists the major activities (by position) in increments for the first seven hours of the event. Table 5.6 lists the major activities as directed by the FSI's and typically performed by the Augmented or Expanded ERO. FSI steps performed by on-shift personnel are noted.

- Staffing Analysis Summary

  Table 5.3 provides the results to the BDBEE transient using installed plant and portable equipment and the available staffing complement. The on-shift staff performed actions required by operating and emergency plan procedures in the 6-hour period, relying only on installed structures, systems and components available in the Initial Phase of the response. Some preparation activities, as identified in the FSI's, are performed by shift personnel.

  Additionally, the subject matter experts also identified the following potential impediments to implementation and/or assumptions that need to be validated:

  - Specific guidance to direct RP actions in response to a BDBEE needs to be developed.[4]

[4] GAP #4 - There is insufficient procedural guidance available to support RP response to a BDBEE.

Table 5.2
On-Shift Staff Actions
(Within the first seven hours)

Resources	Tasks by Time (min)															
	0-10	10-20	20-30	30-40	40-50	50-60	60-75	75-90	90-105	105-120	120-150	150-180	180-240	240-300	300-360	360-420
Shift Manager	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
STA	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Prompt Team I&C 1		3	3	3	3	3/18*	3/18	3/18	3/18	3/18	3/18	3/18	3/18	3/18	3/18	3/18
SRO Unit 1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
SRO Unit 2 (GAP #2)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
RO 1 Unit 1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
RO 2 Unit 1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
RO 3 Unit 2 (GAP #2)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
RO 4 Unit 2 (GAP #2)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
NEO 1 Safeguard 1	6	6	6	6	6	6	21	21	29				32	32	32	32
NEO 2 Turbine Building 1		8	8	8	8	8	19	19	19	19	8			36	38	
NEO 3 Safeguard 2	7	7	7	7	7	7	22	22	30				33	33	33	33
NEO 4 Turbine Building 2		9	9	9	9	9	20	20	20	20	9			37	38	
NEO 5 Auxiliary Building (GAP #2)		10	23	27	27	25	27	27	27	27	27	27	27	27	27	27
NEO 6 Perimeter (GAP #2)		12	12	12	12	12	12	12	12	12				34	34	34
NEO 7 Radwaste (GAP #2)		11	24	28	28	26	28	28	28	28	28	28	28	28	28	28
Prompt Team Mechanic 1		13	13	13	13	13	13	13	13	13	13	13	40	40	35	35
Prompt Team Electrician 1		13	13	13	13	13	13	13	13	13	13	13	41	41	35	35
Prompt Team I&C 2		13	13	13	13	13	13	13	13	13	13	13	18	31	18	18
Chemistry Technician 1		14	14	14	14	14	14	14	14	14	14		42	42	42	42
First Aid Team Member		15	15	15	15	15	15	15	15	15	15		43	43	43	43
Radiation Protection Technician 1		16	39	39	39	39	39	39	39	39	39	39	39	39	39	39
Radiation Protection Technician 2		17														

Note : Numbers in this table refer to the task numbers in Table 5.3 Task Listing

***Task 3 is intermittent communication. It was concluded that this resource could perform collateral duties (Tasks 3 and 18)**

Task #	Table 5.3 Task Listing Task Description	Start Time T + __ min	End Time T + __ min
1.	Emergency Coordinator (Control Room)	0	420
2.	Engineering Oversight (Control Room)	0	420
3.	Emergency Plan Communicator (Control Room)	10	420
4.	ECA-0.0A/FSI Implementation/Unit 1 Monitoring and Control (Control Room)	0	420
5.	ECA-0.0B/FSI Implementation/Unit 2 Monitoring and Control (Control Room)	0	420
6.	ABN-601 Restore Unit 1 Diesel Generators and Restore from Unit 1 6.9 KV Bus Fault (Field Activities)	0	60
7.	ABN-601 Restore Unit 2 Diesel Generators and Restore from Unit 2 6.9 KV Bus Fault (Field Activities)	0	60
8.	ABN-601 Unit 1 Secondary System Shutdown, Break Vacuum Unit 1 Main Condenser, Unit 1 Main Generator Hydrogen Vent and Argon Purge (Field Activities)	10 120	60 150
9.	ABN-601 Unit 2 Secondary System Shutdown, Break Vacuum Unit 2 Main Condenser, Unit 2 Main Generator Hydrogen Vent and Argon Purge (Field Activities)	10 120	60 150
10.	ECA-0.0A Isolate Unit 1 RCP Seals (Field Activities)	10	20
11.	ECA-0.0B Isolate Unit 2 RCP Seals (Field Activities)	10	20
12.	ABN-601 Restoration of XST1, Restoration of XST2 or XST2A, Restoration of 345 KV Transformer Feeder Line, SOP-614 A/B Alternate Power Generator Operation (Field Activities)	10	120
13.	Perform repair and corrective actions as assigned	10	180
14.	Assist NEO with ABN-601 Unit 1 Secondary System Shutdown, Break Vacuum Unit 1 Main Condenser, Unit 1 Main Generator Hydrogen Vent and Argon Purge Implementation (Field Activities)	10	150
15.	Assist NEO with ABN-601 Unit 2 Secondary System Shutdown, Break Vacuum Unit 2 Main Condenser, Unit 2 Main Generator Hydrogen Vent and Argon Purge Implementation (Field Activities)	10	150
16.	Radiation Protection Coverage for ECA-0.0A Isolate Unit 1 RCP Seals (Field Activities)	10	20
17.	Radiation Protection Coverage for ECA-0.0B Isolate Unit 2 RCP Seals (Field Activities)	10	20
18.	EPP-203 Emergency Notification System Communicator with NRC (Control Room)	10	Duration
19.	ECA-0.0A Unit 1 DC Load Shed (Field Activities)	60	120
20.	ECA-0.0B Unit 2 DC Load Shed (Field Activities)	60	120
21.	ABN-601 Unit 1 Non-1E DC Load Shed (Field Activities)	60	90
22.	ABN-601 Unit 2 Non-1E DC Load Shed (Field Activities)	60	90
23.	ECA-0.0A Isolate Unit 1 CST (Field Activities)	20	30
24.	ECA-0.0B Isolate Unit 2 CST (Field Activities)	20	30
25.	ECA-0.0A Isolate Instrument Air to Unit 1 Main Steam Isolation Valves (Field Activities)	50	60
26.	ECA-0.0B Isolate Instrument Air to Unit 2 Main Steam Isolation Valves (Field Activities)	50	60
27.	ECA-0.0A Establish Local Control Unit 1 Turbine Driven AFW Flow Control Valves (Field Activities)	30 60	50 Duration
28.	ECA-0.0B Establish Local Control Unit 2 Turbine Driven AFW Flow Control Valves (Field Activities)	30 60	50 Duration
29.	ECA-0.0A Isolate Ventilation Chilled Water to Unit 1 Containment (Field Activities)	90	105
30.	ECA-0.0B Isolate Ventilation Chilled Water to Unit 2 Containment (Field Activities)	90	105
31.	FSI-4.0 Defeat Source Range High Voltage for Unit 1 and Unit 2 (Control Room)	240	270
32.	ECA-0.0A Establish Local Control Unit 1 Atmospheric Relief Valves (Field Activities)	210	Duration
33.	ECA-0.0B Establish Local Control Unit 2 Atmospheric Relief Valves (Field Activities)	210	Duration
34.	FSI-5.0 Block Open Fuel Building Doors/Deploy Spent Fuel Pool Makeup Spray Nozzles (Field Activities)	300	420
35.	Assist NEO with FSI-5.0 Block Open Fuel Building Doors/Deploy Spent Fuel Pool Makeup Spray Nozzles (Field Activities)	300	420

Task #	Table 5.3 Task Listing Task Description	Start Time T + __ min	End Time T + __ min
36.	FSI-4.0A Unit 1 DC Load Shed (Field Activities)	240	300
37.	FSI-4.0B Unit 2 DC Load Shed (Field Activities)	240	300
38.	FSI-4.0A/B Open Block Open Unit 1 and Unit 2 UPS and Battery Room Doors	300	330
39.	Monitor Sound Powered Headset for Unit 1 and Unit 2 Field Communications (Control Room)	20	Duration
40.	Assist NEO with ECA-0.0A Establish Local Control Unit 1 Atmospheric Relief Valves (Field Activities)	210	300
41.	Assist NEO with ECA-0.0B Establish Local Control Unit 2 Atmospheric Relief Valves (Field Activities)	210	300
42.	Assist NEO with ECA-0.0A Establish Local Control Unit 1 Atmospheric Relief Valves (Field Activities)	210	Duration
43.	Assist NEO with ECA-0.0B Establish Local Control Unit 2 Atmospheric Relief Valves (Field Activities)	210	Duration

Notes:

- Control Room tasks associated with ECA-0.0A/B and FSIs (e.g. depressurize steam generators, etc.) have not been specifically defined in this task list. These tasks have been assessed and Control Room staff is sufficient to perform the actions within required timelines without detracting from monitoring and control activities.

- Extended Loss of AC Power (ELAP) is declared within four hours of loss of all AC power to both units. Once ELAP is declared, actions and resources to recover on-site AC power sources are no longer required.

- Analysis has been truncated at seven hours based on the assumption that additional resources become available and time-sensitive activities have been completed or resources have been assigned.

Table 5.4
Augmented staff in the OSC per EPP-205, "*Activation and Operation of the Operations Support Center* (OSC),"

OSC Manager	OSC	One individual assigned from the ERO
ERDC Team Coordinator	OSC	One individual assigned from the ERO
Rad Status Board Recorder	OSC	One individual assigned from the ERO
SOE Board Recorder	OSC	One individual assigned from the ERO
Chemistry Coordinator	OSC	One individual assigned from the ERO
Team Communicator	OSC	One individual assigned from the ERO
ERDC Electrician	OSC	One individual assigned from the ERO
ERDC Mechanic	OSC	One individual assigned from the ERO
ERDC I&C Technician	OSC	One individual assigned from the ERO
First Aid Team	OSC	One individual assigned from the ERO
Chemistry Technician	OSC	One individual assigned from the ERO
On-site Monitoring Team	OSC	One individual assigned from the ERO
Rad Pro Coordinator	OSC	One individual assigned from the ERO
Clerk Manager	OSC	One individual assigned from the ERO
Operations Personnel	OSC	As assigned by Operations personnel
Radiation Protection Personnel	OSC	As assigned by Radiation Protection personnel

Table 5.5
Expanded staff in the OSC, for dual unit response[3]

Unit In-Plant Team Coordination	OSC	• One additional individual per unit; individuals should not be assigned other functions.
Non-Licensed Operators (NEO's)	OSC	• Two additional individuals per unit to assist with implementation of repair and corrective actions.
Mechanical Maintenance Repair and Corrective Action	OSC	• Two additional individuals per unit to implement repair and corrective actions.
Electrical Maintenance Repair and Corrective Action	OSC	• Two additional individuals per unit to implement repair and corrective actions.
I&C Repair and Corrective Action	OSC	• Two additional individuals per unit to implement repair and corrective actions.
Implementation of SAM Strategies	OSC	• Number and composition of personnel capable of simultaneous implementation of any 2 SAM strategies at each unit. Operations and RP personnel are called out by department management.

[3] GAP #3 - The process to assign and utilize an expanded ERO, and the facilities and resources needed by them to perform their functions have not been established.

Table 5.6
Staff Actions performed via FSI's
(With the Augmented and Expanded Staff available)

Procedure #	FLEX Support Instructions (FSI's) were not finalized at the time of the tabletop. (GAP #1)			
FSI-5.0	Block Open FB Doors to Establish Ventilation (Shift Task #35)	T+6 hours-6.5 hours	NEO 6	Complete by 7 hours
FSI-5.0	Establish Control Room Ventilation (Open Rack Doors, Back Door, Missile Door, Establish ½ lighting)	T+6 hours-30 minutes	CR Staff	(Based on Temperature) (30 minutes after exceeding pre-established temperatures for both Units)
FSI-5.0	Block open Unit 1 TDAFWP Room Door (Shift Task #27)	T+4 hours 0 min	NEO 5 AFW 1	Complete by 40 hours Performed by on-shift personnel
FSI-5.0	Block open Unit 2 TDAFWP Room Door (Shift Task #28)	T+4 hours 0 min	NEO 7 AFW 2	Complete by 40 hours Performed by on-shift personnel
FSI-5.0	Clear Debris Route 1 or 2 FLEX Bldg to AAP	T+6 hours 1.5 hours	Augmented Staff (2 personnel)	Complete by 9 hours (To support Phase 2 480 VAC Generator deployment)
FSI-5.0	Clear Debris AAP to Staging Area A1 (Also includes A2)	T+7.5 hours 1.5 hour	Augmented Staff (2 personnel)	Complete by 9 hours (To support Phase 2 480 VAC Generator deployment)
FSI-5.0	Clear Debris Route from AAP to Unit 2 DG FOST Fueling Station	T+9 hours 0.5 hours	Augmented Staff (2 personnel)	Complete by 9 hours (To support FLEX equipment fueling)
FSI-5.0	Clear Debris Route from AAP to Unit 1 SG AFW FLEX Pump parking area	T+9.5 hours 1 hour	Augmented Staff (2 personnel)	One for each unit (Contingency)
FSI-5.0	Clear Debris Route from Staging Area A1 to West North-South Road	T≥11.5 hours 1 hour	Augmented Staff (2 personnel)	Complete before Staging West Side Tank Pumps (must clear 3.3 or 3.4)
FSI-5.0	Clear Debris Route from Unit 1SG AFW FLEX Pump parking around to West Side Tanks	T≥10.5 hours 1 hour	Augmented Staff (2 personnel)	Complete before Staging West Side Tank Pumps (must clear 3.3 or 3.4)
FSI-5.0	Clear Debris Route Southeast Corner of Perimeter road to SSI	T≥12.5 hours 1 hour	Augmented Staff (2 personnel)	Complete before placing Multipurpose Pump in service
FSI-5.0	Step Perform damage assessments	T≥6 hours 40 hours	Augmented Staff (2 personnel)	Complete within 72 hours
FSI-5.0	Move FLEX Equipment to Staging Areas (Diesel Fuel Transfer Equipment)	T+9.5 hours 45 minutes	Augmented Staff (2 personnel)	Complete to support all other equipment placement
FSI-5.0	Move FLEX Equipment to Staging Areas (UPS Room 12 KW Generators)	T≥12 hours 30 minutes	Augmented Staff (2 personnel)	Complete prior to establishing forced ventilation at 18 hours

Table 5.6
Staff Actions performed via FSI's
(With the Augmented and Expanded Staff available)

FSI-5.0	Move FLEX Equipment to Staging Areas (SG AFW Pumps)	T > 10 hours 30 minutes	Augmented Staff (2 personnel)	Contingency for TDAFWP Failure
FSI-5.0	Move FLEX Equipment to Staging Areas (West Side Tanks Multipurpose Pumps)	T>10 hours 1 hour	Augmented Staff (2 personnel)	Contingency if West Side Tanks Available Complete prior to CST empty at 24 hours
FSI-5.0	Move FLEX Equipment to Staging Areas (SSI Multipurpose Pump)	T>12 hours 1 hour	Augmented Staff (2 personnel)	Complete prior to CST empty at 24 hours
FSI-5.0	Move FLEX Equipment to Staging Areas (Control Room 12 KW Generators)	T>12 hours 1.5 hours	Augmented Staff (2 personnel)	Complete prior to 24 hours to support Control Room Ventilation Requires Pettibone to place on TB 830 Deck
FSI-5.0	Move FLEX Equipment to Staging Areas (FLEX Pump to Fill SFPs)	T>10 hours 1 hour	Augmented Staff (2 personnel)	Complete prior to makeup to SFP prior to 15 hours
FSI-5.0	Align RCS HP Boration FLEX Pumps (Unit 1)	T≤ 12 hours 2 hours	Augmented Staff (2 personnel)NEO Mechanic	Complete prior to 14 hours
FSI-5.0	Align RCS HP Boration FLEX Pumps (Unit 2)	T≤ 12 hours 2 hours	Augmented Staff (2 personnel)NEO Mechanic	Complete prior to 14 hours
FSI-5.0	Establish UPS Room Forced Ventilation	T>12 hours 2 hours	Augmented Staff (3 personnel)	Complete prior to 18 hours
FSI-5.0	Engineering Assistance in Evaluating Available Water Supplies/Structures/Components	T > 6 hours 40 hours	Augmented Staff (2 personnel)	Complete within 72 hours
FSI-4.0A	First DC Load Shed (Shift Task #36)	30 min	NEO 2	Must be completed at 5 hours Performed by on-shift personnel
FSI-4.0B	First DC Load Shed (Shift Task #37)	30 min	NEO 4	Must be completed at 5 hours Performed by on-shift personnel
FSI-4.0A	Open UPS/Battery Room Doors Attachment (Unit 1 and Unit 2) (Shift Task #38)	30 min	NEO 4	Must be complete at 5.5 hours – 1 person for both Units Performed by on-shift personnel
FSI-4.0A	Defeat SR HV Cutout (Shift Task #31)	10 min	Prompt Team I&C	Performed by on-shift personnel
FSI-4.0B	Defeat SR HV Cutout (Shift Task #31)	10 min	Prompt Team I&C	Performed by on-shift personnel
FSI-4.0A	Disable Both Trains of SSPS (After SI Reset) (Shift Task #4 & 5)	10 min	RO 3	Performed by on-shift personnel

Table 5.6
Staff Actions performed via FSI's
(With the Augmented and Expanded Staff available)

FSI-4.0B	Disable Both Trains of SSPS (After SI Reset) (Shift Task #4 & 5)	10 min	RO 4	Performed by on-shift personnel
FSI-4.0A	Remove Two Batteries From Service (Shift Task #36)	15 min	NEO 2	Performed by on-shift personnel
FSI-4.0B	Remove Two Batteries From Service (Shift Task #37)	15 min	NEO 4	Performed by on-shift personnel
FSI-4.0A	*Transport/Connect Phase 2 480 VAC FLEX generator*	T+9 hours 2 hours	Augmented Staff (5 personnel)	*Must be complete prior to placing battery chargers in service 12 hours*
FSI-4.0A	Align 25 KV Loop for 480 VAC FLEX generator	2 hours	Augmented Staff (1 personnel)	Must be complete prior to placing battery chargers in service 12 hours
FSI-4.0A	*Place Battery Chargers/Battery Exhaust Fans in Service*	T+9 hours 30 min	*Augmented Staff* (1 personnel)	*Must have 480 VAC FLEX Generator in service* Must be complete at 12 hours
FSI-4.0B	Place Battery Chargers/Battery Exhaust Fans in Service	T+9 hours 30 min	Augmented Staff (1 personnel)	Must have 480 VAC FLEX Generator in service *Must be complete at 12 hours*
FSI General	Support miscellaneous activities for FSI implementation (e.g., diesel fueling activities, Phase 3 equipment inspections/connections, flooding inspections)	T+6	Augmented Staff (10 personnel)	Activities required to be performed for duration of limited site access (-24 hours)

6. FLEX Response Analysis

- FLEX Details

The focus of this "expanded response capability" at CPNPP is to enable the performance of unit-specific accident assessment and mitigation functions across multiple units.

The methods to notify and augment the ERO were described in the Phase 1 Staffing Analysis Report submitted to the NRC on April 30, 2013. The report was submitted as an Enclosure to CPNPP letter TXX-13081 entitled "*Revised Phase 1 Staffing Assessment Submitted in Response to Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 9.3 of the Near-Term Task Force Review of Insights*" (ADAMS Accession No. ML13128A077). The report also addressed site access for the augmented ERO.[5]

Expanded ERO

The positions for the Expanded Response were identified in the Phase 1 staffing assessment referenced above. Emergency Plan Procedures and associated training has not been completed.[6] There were no new skills identified through the assessment that had to be developed.

Work Location for the Expanded ERO

If access to designated emergency response facilities is not possible, ERO members are trained to report to the alternate location. In the event the Expanded ERO is utilized, current facilities would be crowded.[7]

[5] GAP #5 - Identify and Integrate into the ERO notification/activation protocol those non-ERO response personnel (e.g., Operations and Maintenance) necessary to support expanded response capability functions.

[6] GAP #6 - Training for the expanded ERO has not been completed.

[7] GAP #7 - Facility plans to house the Expanded ERO have not been completed.

- On-Site Ability to Move Back-up Equipment

  US Nuclear Regulatory Commission (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, states in part:

  > 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 NTIF Recommendation 4.2.

  Following the guidance in the draft FSI's, FSI-5, Step 11, personnel were directed to move FLEX equipment to designated spaces. When discussed in the tabletop, it was identified that the skills and proficiency to move and set up equipment were within the skill levels of personnel assigned to the ERO rosters. To strengthen the response, an individual to assess the specific skill sets necessary will evaluate and assign as needed.[8]

- FLEX Analysis Summary

  The assessment considered the number and qualifications of personnel required for simultaneous implementation of the two FSG strategies for each unit that require the greatest number of staff to implement. Due to unit similarities, the most labor intensive FSG strategies are the same for Unit 1 and Unit 2.

  The FLEX Support Instructions (FSI's), in their present state of completion, were used to support the tabletop analysis of actions taken in response to the BDBEE; these results are provided in Table 5.6.

  FSI-4.0A/B, DC BUS LOAD MANAGEMENT AND PHASE 2 480 VAC GENERATOR ALIGNMENT is the most time critical activity and is also task intensive. As noted in Tables 5.2 and 5.3, FSI-4.0A/B activities start after declaration of ELAP and adequate staffing exists to perform these activities. As noted in Table 5.6, FSI-4.0A/B activities starting at T+9 hours were determined to require 5 augmented staff. The FSI-4.0A/B activities were performed during strategy validation using a staff of 4; 2 NEOs, 1 Electrician, and 1 Mechanic with a completion of time of 1.1 hours. Even though the FSI-4.0A/B activities were conservatively performed with 4 augmented staff, the analysis of 5 augmented staff in Table 5.6 remains unchanged. Declaration of ELAP prior to 4 hours could allow the FSI-4.0A/B activities to start earlier than T+9 hours. With the actions that will stop based on declaration of ELAP, adequate staffing is available to start the FSI-4.0A/B activities prior to the arrival of augmented staff. However, it will be necessary to coordinate use of the on shift crew members to ensure that other critical actions are completed as required. In order for the FSI-4.0A/B activities to start prior to T+9 hours, debris clearing activities would have to be complete for movement of the generator and support equipment to its staging area. As discussed in Section 8.0, Security will be able to start debris clearing prior to T+6 hours if requested by the Shift Manager.

[8] GAP #8 - A position needs to be identified that can assess the knowledge and skills necessary for the on-shift, augmented and expanded staff to implement the procedures and tasks necessary to respond to a BDBEE.

Other activities requiring augmented staff have start times beyond T+9 hours and completion times beyond T+12 hours. The Diesel Fuel Transfer Equipment completion time in Table 5.6 has moved to T+24 hours based on storing all FLEX equipment fully fueled.

SAMG Implementations

The assessment considered the number and qualifications of SAMG implementers required for simultaneous implementation of the two most intensive SAMG strategies on both units.

The assessment considered the number and qualifications of SAMG implementation personnel required for simultaneous implementation of the two most task intensive SAMG strategies on both units. Two strategies were evaluated:

- Control Containment Conditions SAG-6
- Flood Containment SAG-8

Implementation of the Control Containment Conditions SAG-6 strategy requires the following resources.

Table 6.1

Resource	Number per Unit	Function
Augmented Staff	2	Implement EDMG A.4-1 for RWST Makeup as needed
Augmented Staff	2 + 1 common for Fire protection water source	Implement EDMG A.4.7 for Portable Spray if Containment is breached.
RP Technician	1	Monitor Dose rates.

Implementation of the Flood Containment SAG-8 Strategy requires the following resources.

Table 6.2

Resource	Number per Unit	Function
Augmented Staff	2	Implement EDMG A.4-1 for RWST Makeup as needed
Augmented Staff	2	Implement EDMG A.4-6 Containment Flooding with Portable Pump.
Augmented Staff	2	Removing blank flange from Containment spray line for EDMG A.4-6 Containment flooding with Portable Pump.
RP Technician	1	Monitor Dose rates.

Implementation of strategies SAG-6 and SAG-8 simultaneously would require the following personnel resources:

- 21 Augmented Staff
- 4 RP Technicians

Based on evaluations performed, implementation of SAMG strategies, SAG-6 and SAG-8, are not anticipated within the first twenty four hours following the event under any circumstances. All emergency response facilities are expected to be staffed and activated by that time, therefore no staffing limitations will be encountered.

7. Program Controls

- Emergency Response Drills & Exercise Program

  NEI 12-01, 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.[9]

- Training

  The FSI's at CPNPP were in draft at the time of the tabletop assessment. Once the training has been established, the requisite knowledge necessary to perform the tasks required by the FSI's by on-shift, augmented and expanded staff can be determined.[10]

8. Security Considerations

Security is not specifically credited as a staffing resource in Section 5 "Event Staff Analysis." However, as an enhancement to increase margins for time critical activities, Security Coping strategies were reviewed and determined to be able to support the tasks of debris removal and Flex equipment staging during the initial phase of the response. The task of communication to the plant site for the response to the emergency is incorporated into the appropriate security procedure[11]. The security support (auxiliary responder) does not impact the resources required for the Security Plan.

[9] GAP #9 - Current CPNPP drill and exercise procedures do not include evaluation objectives or demonstration criteria for dual unit events or expanded ERO activities.

[10] GAP #10 - Training was not performed with the final approved versions of FLEX Support Instructions (FSI's).

[11] GAP #11 – Update the applicable security procedure for communication to the plant site.

9. Identified Issues

The assessment team noted the following issues during the course of the staffing analysis.

Table 9.1

GAP #	Description	Condition Report #
1.	The staffing assessment was not performed with the final approved versions of FLEX Support Instructions (FSI's).	AI-CR-2013-003355-5
2.	Site Administrative Procedures and the site Emergency Plan are not aligned as to the minimum shift staffing levels.	CR-2015-004563 CR-2015-004566 CR-2015-004567
3.	The process to assign and utilize an expanded ERO, and the facilities and resources needed by them to perform their functions have not been established.	AI-CR-2013-003355-30
4.	There is insufficient procedural guidance available to support RP response to a BDBEE.	AI-CR-2013-003355-10
5.	Identify and Integrate into the ERO notification/activation protocol those non-ERO response personnel (e.g., Operations and Maintenance) necessary to support expanded response capability functions.	AI-CR-2013-003355-14
6.	Training for the expanded ERO has not been completed.	AI-CR-002013-003355-16
7.	Facility plans to house the Expanded ERO have not been completed.	AI-CR-2013-003355-17
8.	A position needs to be identified that can assess the knowledge and skills necessary for the on-shift, augmented and expanded staff to implement the procedures and tasks necessary to respond to a BDBEE.	AI-CR-2013-003355-18
9.	Current CPNPP drill and exercise procedures do not include evaluation objectives or demonstration criteria for dual unit events or expanded ERO activities.	AI-CR-2013-003355-19
10.	Training was not performed with the final approved versions of FLEX Support Instructions (FSI's).	AI-CR-2013-003106-32 AI-CR-2013-012473-1 EV-CR-2015-003357-1 EV-CR-2015-003357-2
11.	Update the applicable security procedure for communication to the plant site.	AI-CR-2013-003355-31
12.	Identify new or revised agreements with offsite providers (e.g. City of Granbury, City of Cleburne, Oncor Distribution, Department of Public Safety) (This issue is not specifically discussed in the sections above but addresses Commitment 4392956 in letter TXX-14067 dated May 15, 2014)	AI-CR-2013-003355-32

REFERENCES

1. Letter from E. J. Leeds (NRC) and M. R. Johnson, (NRC) to All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred Status, dated March 12, 2012, 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

2. Letter from D. L. Skeen (NRR) to Susan Perkins-Grew (NEI) dated May 15, 2012, U.S. Nuclear Regulatory Commission Review of NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0, May 2012

3. ODA-102, "Conduct of Operations, Attachment 8A Minimum Shift Crew Composition", Revision 27

4. EOP-0.0A/B, "*Reactor Trip Or Safety Injection*", Revision 8

5. ABN-601, "*Response To A 138/345KV System Malfunction*", Revision 12

6. ABN-602 "*Response To A 6900/480 Volt System Malfunction*", Revision 8

7. ECA-0.0A/B, "*Loss Of All AC Power*", Revision 8

8. ECA-TP-11-001A/B, "*Loss Of All AC Power Recovery Without SI Required and APG Supplying Power*", Revision 1

9. SOP-614A/B, "*Alternate Power Generator Operation*" , Revision 13/12

10. FSI-4.0A/B, "*DC Bus Load Management and Phase 2 480 VAC Generator Alignment*", Revision Draft

11. FSI-5.0, "*Initial Assessment and FLEX Equipment Staging*", Revision Draft

12. SAG-6, "Severe Accident Management Guidance – Control Containment Conditions", Revision 2

13. SAG-8, "Severe Accident Management Guidance – Flood Containment", Revision 2

14. EPP-201, "*Assessment Of Emergency Action Levels Emergency Classification And Plan Activation*", Revision 12

15. EPP-303, "*Operation of Computer Based, Emergency Dose Assessment System*", Revision 13

16. EPP-304, "*Protective Action Recommendations*", Revision 21

17. EPP-314, "*Evacuation and Accountability*", Revision 9

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

19. Letter from Luminant to Nuclear Regulatory Commission, "*Comanche Peak Nuclear Power Plant, Docket Nos. 50-445 and 50-446, 90-Day Response to March 12, 2012 Information Request Regarding Recommendation 9.3 of the Near-Term Task Force*" Letter dated June 7, 2012.

20. NSIR/DPR ISG-01, Interim Staff Guidance Emergency Planning for Nuclear Power Plants, Revision 0, November 2011

21. NEI 10-05, Revision 0, June 2011, Assessment of On-Shift Emergency Response Organization Staffing and Capabilities

22. NEI 12-01, Revision 0, May 2012, Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities

23. Luminant Generation Company, LLC's 60-Day Response, dated May 10, 2012, to 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 Dia-ichi Accident, dated March 12, 2012

NEI 10-05 TABLE 1 ON-SHIFT POSITIONS						
Line	**On-shift Position**	**Source Reference**	**Augmentation Elapsed Time (min)**	**Role in Table#/Line#**	**Unanalyzed Task?**	**TMS Required ?**
1	Shift Manager	CPNPP E-Plan TABLE 1.1	N/A	T2/ L1 T5/ L1 T5/ L2 T5/L3 T5/L5 T5/L7 T5/L8 T5/L10	No	No
2	Unit Supervisor #1	CPNPP E-Plan TABLE 1.1	N/A	T2/L2	No	No
3	Unit Supervisor #2	ODA-102, Att. 8A Minimum Shift Crew Composition	N/A	T2/L3	No	No
4	Shift Technical Advisor	CPNPP E-Plan TABLE 1.1	N/A	T2/L4	No	No
5	Reactor Operator #1	CPNPP E-Plan TABLE 1.1	N/A	T2/L5	No	No
6	Reactor Operator #2	CPNPP E-Plan TABLE 1.1	N/A	T2/L6	No	No
7	Reactor Operator #3	ODA-102, Att. 8A Minimum Shift Crew Composition	N/A	T2/L7	No	No
8	Reactor Operator #4	ODA-102, Att. 8A Minimum Shift Crew Composition	N/A	T2/L8	No	No
9	Nuclear Equipment Operator #1	CPNPP E-Plan TABLE 1.1	N/A	T2/L9	No	No
10	Nuclear Equipment Operator #2	CPNPP E-Plan TABLE 1.1	N/A	T2/L10	No	No
11	Nuclear Equipment Operator #3	CPNPP E-Plan TABLE 1.1	N/A	T2/L11	No	No
12	Nuclear Equipment Operator #4	CPNPP E-Plan TABLE 1.1	N/A	T2/L12	No	No

NEI 10-05 TABLE 1 ON-SHIFT POSITIONS						
Line	**On-shift Position**	**Source Reference**	**Augmentation Elapsed Time (min)**	**Role in Table#/Line#**	**Unanalyzed Task?**	**TMS Required ?**
13	Nuclear Equipment Operator #5	ODA-102, Att. 8A Minimum Shift Crew Composition	N/A	T2/L13	No	No
14	Nuclear Equipment Operator #6	ODA-102, Att. 8A Minimum Shift Crew Composition	N/A	T2/L14	No	No
15	Nuclear Equipment Operator #7	ODA-102, Att. 8A Minimum Shift Crew Composition	N/A	T2/L15	No	No
16	Chemistry Technician	CPNPP E-Plan TABLE 1.1	N/A	T2/L20 T4/L5	No	No
17	RP Technician 1	CPNPP E-Plan TABLE 1.1	N/A	T2/L21 T4/L2	No	No
18	RP Technician 2	CPNPP E-Plan TABLE 1.1	N/A	T2/L22 T4/L3	No	No
19	Security Supervisor	CPNPP E-Plan TABLE 1.1	N/A	T2/ L25 T5/L15	No	No
20	Security Officers	CPNPP E-Plan TABLE 1.1	N/A	T2/L24	No	No
21	Communicator	CPNPP E-Plan TABLE 1.1	N/A	T2/L16 T5/L6 T5/L13 T5/L14	No	No
22	Mechanic	CPNPP E-Plan TABLE 1.1	N/A	T2/L18	No	No
23	Electrician	CPNPP E-Plan TABLE 1.1	N/A	T2/L17	No	No
24	I&C Technician	CPNPP E-Plan TABLE 1.1	N/A	T2/L19	No	No
25	First Aid team Member	CPNPP E-Plan TABLE 1.1	N/A	T2/L23 T4/L6	No	No

NEI 10-05 TABLE 2 PLANT OPERATIONS & SAFE SHUTDOWN			
Line	**Generic Title/Role**	**On-Shift Position**	**Task Analysis Controlling Method**
1	Shift Manager	Shift Manager	Operations & EP Training
2	Unit Supervisor #1	Unit Supervisor	Operations & EP Training
3	Unit Supervisor #2	Unit Supervisor	Operations & EP Training
4	Shift Technical Advisor	STA	Operations & EP Training
5	Reactor Operator #1	Reactor Operator	Operations & EP Training
6	Reactor Operator #2	Reactor Operator	Operations & EP Training
7	Reactor Operator #3	Reactor Operator	Operations & EP Training
8	Reactor Operator #4	Reactor Operator	Operations & EP Training
9	Station Operator #1	NEO	Operations & EP Training
10	Station Operator #2	NEO	Operations & EP Training
11	Station Operator #3	NEO	Operations & EP Training
12	Station Operator #4	NEO	Operations & EP Training
13	Station Operator #5	NEO	Operations & EP Training
14	Station Operator #6	NEO	Operations & EP Training
15	Station Operator #7	NEO	Operations & EP Training
Other Personnel Necessary to Implement AOPs, EOPs, SAMGs, or FSIs			
Line	**Generic Title/Role**	**On-Shift Position**	**Task Analysis Controlling Method**
16	Emergency Communicator	I&C Tech	Maintenance & EP Training
17	Electrician	Electrician	Maintenance & EP Training
18	Mechanic	Mechanic	Maintenance & EP Training
19	I&C Technician	I&C Tech	Maintenance & EP Training
20	Chemistry Technician	Chemistry Tech	Chemistry & EP Training
21	RP Technician	RP Tech	RP & EP Training
22	RP Technician	RP Tech	RP & EP Training
23	First Aid	First Aid Team Member	Safety Training
24	Security Officer	Security Officer	Security Training
25	Security Supervisor	Security Supervisor	Security Training

NEI 10-05 TABLE 3 FIREFIGHTING		
Line	**Performed By**	**Task Analysis Controlling Method**
1	**N/A**	**N/A**

NEI 10-05 TABLE 4 RADIATION PROTECTION & CHEMISTRY																
		Performance Time Period After Emergency Declaration (minutes)														
Line	Position performing Function/ Task	0-10	10-20	20-30	30-40	40-50	50-60	60-75	75-90	90-105	105-120	120-150	150-180	180-240	240-300	300-360	360-420
1.	In-Plant Survey On-Shift Position:																
2.	On-Site Survey On-Shift Position: RP Technician 1		16	39	39	39	39	39	39	39	39	39	39	39	39	39	39
3.	Personnel Monitoring On-Shift Position: RP Technician 2		17														
4.	Job Coverage On-Shift Position:																
5.	Chemistry function/task #1 – Describe: On-Shift Position: Chemistry Technician		14	14	14	14	14	14	14	14	14	14		/42	42	42	42
6.	Chemistry function/task #2 – Describe: On-Shift Position: First Aid Team Member		15	15	15	15	15	15	15	15	15	15		/43	43	43	43

NEI 10-05 TABLE 5 EMERGENCY PLAN IMPLEMENTATION			
Line	**Function/Task**	**On-Shift Position**	**Task Analysis Controlling Method**
1	Declare the Emergency Classification Level (ECL)	Shift Manager	Operations Training and EP Training/Drill Program
2	Approve Offsite Protective Action Recommendations	Shift Manager	Operations Training and EP Training/Drill Program
3	Approve content of State/local notifications	Shift Manager	Operations Training and EP Training/Drill Program
4	Approve extension to allowable dose limits	N/ A - no radiological release	
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Operations Training and EP Training/Drill Program
6	ERO notification	Communicator	Maintenance Training and EP Training/Drill Program
7	Abbreviated NRC notification for DBT event	Shift Manager	Operations Training and EP Training/Drill Program
8	Complete State/local notification Form	Shift Manager	Operations Training and EP Training/Drill Program
9	Perform State/local notifications	Communicator	Maintenance Training and EP Training/Drill Program
10	Complete NRC event notification form	Shift Manager	Operations Training and EP Training/Drill Program
11	Activate ERDS	TSC ERF Computer Operator	EP Training/ Drill Program
12	Offsite radiological assessment	Shift Technical Advisor	Operations Training and EP Training/Drill Program
13	Perform NRC notifications	Communicator	Maintenance Training and EP Training/Drill Program
14	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	Communicator	Maintenance Training and EP Training/Drill Program
15	Personnel accountability	Security	Security Training and EP Training/Drill Program

Record of Revisions	
Revision 0	Initial issuance by TXX-15084
Revision 1	Added Record of Revisions Page. Updated Sections 6 and 8 to address NRC request for additional information. (Issued by TXX-16002)