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L-15-288

10 CFR 50.54(f)

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852**SUBJECT:**

Davis-Besse Nuclear Power Station  
Docket No. 50-346, License No. NPF-3  
Response 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 Dai-ichi Accident

On March 12, 2012, the Nuclear Regulatory Commission (NRC) staff issued a letter titled, "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." Enclosure 5 of the letter contained specific Requested Actions and Requested Information associated with Recommendation 9.3 for Emergency Preparedness (EP) programs. In accordance with 10 CFR 50.54, "Conditions of licenses," paragraph (f), addressees were requested to submit a written response to the information requests within 90 days or provide an alternative course of action within 60 days.

FirstEnergy Nuclear Operating Company (FENOC) submitted, by letter dated May 9, 2012, an alternative course of action for providing the requested information. As described in the alternative course of action, FENOC hereby submits the enclosed Phase 2 (all functions related to Near-Term Task Force Recommendation 4.2) Staffing Assessment (staffing requests 1, 2, and 6) for Davis-Besse Nuclear Power Station (DBNPS). The staffing assessment was performed using the guidance in Nuclear Energy Institute (NEI) 12-01, *Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities*, Revision 0, dated May 2012.

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There are no regulatory commitments contained in this letter. If there are any questions or if additional information is required, please contact Mr. Thomas A. Lentz, Manager – Fleet Licensing, at 330-315-6810.

I declare under penalty of perjury that the foregoing is true and correct. Executed on October 2, 2015.

Respectfully,



Brian D. Boles

Enclosure:

NEI 12-01 Phase 2 Extended Loss of AC Power (ELAP) ERO Staffing Analysis Report

cc: Director, Office of Nuclear Reactor Regulation (NRR)  
NRC Region III Administrator  
NRC Resident Inspector  
NRR Project Manager  
Executive Director, Ohio Emergency Management Agency,  
State of Ohio (NRC Liaison) (w/o Attachment)



**First Energy Nuclear Operating Company (FENOC)**



**Davis-Besse  
Nuclear Power  
Station (DBNPS)**

**NEI 12-01 Phase 2 Extended  
Loss of AC Power (ELAP)  
ERO Staffing Analysis Report**

Revision 0

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**1 EXECUTIVE SUMMARY**

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 Davis-Besse Nuclear Power Station (DBNPS) on-shift staff and augmented Emergency Response Organization (ERO) to respond to a beyond design basis external event (BDBEE). The assumptions for the NEI 12-01 Phase 2 scenario postulate that the BDBEE involves a large-scale external event that results in:

- A. An extended loss of AC power (ELAP)
- B. A loss of normal access to the Ultimate Heat Sink (UHS)
- C. Impact on all units (all units for multi-unit sites are in operation at the time of the event – not applicable to DBNPS)
- D. Impeded access to the unit by off-site responders as follows:
  - 0 to 6 Hours Post Event – 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.
  - 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).
  - 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.

A team of subject matter experts from Operations, Radiation Protection, Chemistry, Security, Emergency Preparedness, FLEX project and industry consultants performed a tabletop evaluation in July 2015 for the on-shift portion of the assessment. Qualified individuals from each organization were utilized for the tabletop team composition, including: Shift Manager, Senior Reactor Operator (SRO), Shift Technical Advisor (STA), Reactor Operator/Non-Licensed Operator (RO/NLO), Security Shift Supervisor (SSS), Security Staff, the Security Manager, Chemistry Tech, Radiation Protection Tech, Emergency Planning SME, FLEX Program Manager, FLEX Design Lead and 2 industry experts. The participants reviewed the assumptions and existing procedural guidance, including applicable draft Emergency Operating Procedure (EOP) and 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 time motion analyses of NEI 10-05, Assessment of On-Shift Emergency Response Organization Staffing and Capabilities.

Analysis result items are listed in Section 3.4 and have been entered into the corrective action program.

**1.1 On-shift ERO Analysis**

The on-shift ERO analysis concluded that the current DBNPS on-shift staffing present for the “no site access” 6-hour time period is sufficient to perform the EOP, FSG and emergency response tasks. However, FSG task training/qualification has not yet been developed and incorporated in the applicable departmental training programs.

**1.2 Expanded ERO Analysis**

The expanded ERO analysis concluded that the current DBNPS augmenting ERO is sufficient to fill positions for the expanded ERO functions. Thus, the ERO resources and capabilities necessary to implement Transition Phase coping strategies performed after the end of the “no site access” 6-hour time period exist in the current program.

**2 INTRODUCTION**

In March 2012, the Nuclear Regulatory Commission (NRC) issued a §50.54(f) request for information regarding recommendations from 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<sup>1</sup>. Enclosure 5 contained two requested actions; one involving performance of a staffing assessment and the other a communications assessment. 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<sup>2</sup>.*

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 a 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 beyond design basis external event. The criteria presented in the NEI 12-01 technical report provide for documenting the organizational capabilities that will facilitate simultaneous performance of accident mitigation and repair actions following a beyond design basis external event.

**Note** – Use of the term ELAP throughout this report also assumes a loss of the ultimate heat sink as part of the event.

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<sup>1</sup> NRC 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 Daiichi Accident, dated March 12, 2012 [ADAMS ML12053A340]

<sup>2</sup> For background information, refer to NRC staff report entitled, Recommendations for Enhancing Reactor Safety in the 21<sup>st</sup> Century, dated July 12, 2011 [ADAMS ML111861807 - NTTF report]

### **NTTF Recommendation 9.3: Phase 1 Staffing Assessment**

The objective of the Phase 1 staffing assessment was to evaluate the on-site and augmented staff needed to respond to a large-scale external event at a multi-unit site meeting the conditions described in the NEI 12-01 assumptions, NOT including staffing needed to implement actions that address NRC Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (EA-12-049). That is, the Phase 1 staffing assessment considered the requested functions except those related to Fukushima NTTF Recommendation 4.2.

DBNPS, being a single unit station, was not required to conduct the Phase 1 staffing assessment.

### **Phase 2 Staffing Assessment**

Sites with one or more operating units are required to perform a Phase 2 staffing assessment no later than 4 months prior to beginning of the second refueling outage (as used within the context of NRC Order EA-12-049) or December 31, 2016, whichever comes first. In contrast to the Phase 1 staffing assessment, the Phase 2 staffing assessment considers the requested functions related to Order EA-12-049.

The Phase 2 staffing assessment for response functions related to Order EA-12-049 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 new 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.

The results of the Phase 2 assessment have been verified and validated to ensure adequacy and accuracy. In accordance with the requirements of 10 CFR 50, Appendix B, corrective actions and enhancements identified during the assessment are entered into the corrective action program. With regard to this assessment, analysis result items related to ERO staffing that constitute an unsatisfactory result in accordance with the specifications of NEI 10-05 or NEI 12-01 are entered into the corrective action program.

Draft EOP and FSG documents were used during the conduct of the staffing assessments. A review of this report will be performed based on the final validated FSGs and any applicable new procedures that were not available when the shift staffing study table top was conducted. An action item for this review has been entered into the corrective action program as CR 2015-09960. This report will be updated if the staffing assessment results change.



### 3 PHASE 2 STAFFING ANALYSIS SUMMARY

The on-shift ERO analysis concluded that the current DBNPS on-shift staffing present for the “no site access” 6-hour time period is sufficient to perform the EOP and FSG tasks. However, shift personnel are not yet trained to perform all FSG tasks.

The expanded ERO analysis concluded that the current DBNPS augmenting ERO is sufficient to fill positions for the expanded ERO functions. Thus, the ERO resources and capabilities necessary to implement Transition Phase coping strategies performed after the end of the “no site access” 6-hour time period exist in the current program.

#### 3.1 Task Analysis Results

Refer to Section 6.2, On-Shift Staffing Analysis Results Tables, for documentation of the on-shift staffing task analysis results.

##### 3.1.1 Unassigned Tasks

The task analysis did not identify any unassigned tasks.

##### 3.1.2 Performance Validation

**Note** – Per NEI 10-05 a validated task is one that has a controlling method (i.e., a program or process) by which the capability to perform the task has been analyzed, such as within the Operations Training Program or the EP Drill Program.

The task analysis did not identify any previously existing EOP or Emergency Plan tasks performed by the on-shift positions that were not validated.

FSG tasks are not fully developed at this time, therefore, task analysis identified that the performance of FSG tasks is not fully incorporated into the operator or other training programs (Refer to Section 3.4). Training is in progress with an expected completion date prior to implementation and CR 2015-09960 was entered into the Corrective Action Program to document the need to complete both procedures and training prior to implementation. The CR provides tracking for this activity.

##### 3.1.3 Potential Overlap

The task analysis identified three potential task overlaps that were performed by the on-shift personnel in response to the ELAP event.

- The STA performed the task of ERO notification using the satellite phone while simultaneously performing STA oversight tasks. Per NEI 10-05 Table 3-1, operations personnel that perform the task of ERO notification and other operations related tasks must be evaluated by time motion analysis. Further review of these overlap tasks were completed by time motion studies documented in section 3.2.
- The STA performed the task of NRC notifications using the satellite phone (via headset) while simultaneously performing STA oversight tasks. Per NEI 10-05 Table 3-1, operations personnel that perform the task of NRC notification and other operations related tasks must be evaluated by time motion analysis.



- SBEO4 and SBEO6 performed the task of State/local notifications using the satellite phone. Per NEI 10-05 Table 3-1, operations personnel that perform the task of State/local notifications and other operations related tasks must be evaluated by time motion analysis.

The Security Shift Supervisor and/or other on-shift security personnel perform security contingency plan and EP tasks (ERO notification and personnel accountability) during the ELAP event. A representative of the DBNPS Security Department analyzed the EP tasks assigned to the SSS and Central Alarm Station (CAS). It was concluded that performance of the EP tasks did not cause an overlap with their tasks related to the Security Plan. All security activities associated with opening doors or providing shift personnel area access are performed per the Security Plan. Other tasks related to the security plan are not specifically documented in this analysis due to their security-sensitive nature. No security personnel credited in the Security Plan were assigned tasks associated with the implementation of mitigating strategies during the ELAP event.

### **3.2 Time Motion Study (TMS) Results**

**Note** – Time motion analysis data was developed during the task analysis using draft FSGs and the informed judgment of the FLEX subject matter experts. In accordance with the methodology provided in NEI 10-05 informed judgment can be used for tasks where directly applicable operating experience is not available and actual timed performance is not practical.

Refer to Section 6.3, ELAP On-Shift Staffing Task Timetable, for documentation of the on-shift staffing task timing and sequence analysis results.

#### **3.2.1 Unassigned Tasks**

The time motion analysis did not identify any unassigned tasks.

#### **3.2.2 Overlap Resulting in Overburden**

The time motion analysis did not identify any task overlap that resulted in overburden of the position.

- The STA performed the task of ERO notification using the satellite phone (CAS was unable to perform) while simultaneously performing STA oversight tasks. Since the task to activate the Computerized Automated Notification System (CANS) occurred before continuous communications with the NRC and took less than five minutes this was not determined to be an overburden to the position. A general activity tracking notification [600982947] was initiated to determine if an alternate approach can be put in place to eliminate the overlap.
- The STA performed the task of NRC notifications using the satellite phone (via headset) while simultaneously performing STA oversight tasks. Since the task of continuous NRC communication is compatible with the STA oversight tasks, based on the ability to have full movement throughout the control room this was not determined to be an overburden to the position.
- SBEO4 and SBEO6 performed the tasks of State and local notifications and plant operations. These tasks were found to be sequential.

**3.3 Augmented and Expanded ERO Assessment Results**

Refer to Section 7 for details of the expanded ERO functional staffing resources.

The expanded ERO analysis did not identify a shortage of qualified augmenting ERO personnel to fill the expanded ERO positions assigned to perform the ELAP functions.

Additionally, the expanded ERO analysis determined that agreements and company resources, and their logistics, have been implemented to allow the transportation of the expanded ERO and equipment to the station.

**3.4 List of Analysis Results**

The following analysis result items that potentially hinder station personnel from performing response tasks in a timely manner have been entered into the corrective action program to document the actions associated with this assessment report:

Analysis Result Item Description
#1: FSG task training/qualification has not yet been developed and incorporated in the applicable departmental training programs.

CR 2015-09960 was entered into the Corrective Action Program to document the need to complete both procedures and training prior to the implementation of Mitigating Strategies (FLEX), specifically in relation to the assumptions made in the Davis-Besse Nuclear Power Station (DBNPS) NEI 12-01 Phase 2 Extended Loss of AC Power (ELAP) ERO Staffing Analysis Report, also known as the Phase 2 Staffing Study.

**4**     **SCOPE OF THE ELAP ERO STAFFING ASSESSMENT**

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 that must be performed prior to the end of the “no site access” 6-hour 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 cooling. Setup for these strategies may be performed prior to the end of the Initial Phase as determined by procedure.
2. Evaluate the applicable EOP actions and FSG strategies in place at the time of the assessment for the ELAP event.
  - Such actions include the shedding of non-essential battery loads, use of portable generators or batteries, opening room and cabinet doors, water/coolant conservation or makeup using portable equipment, etc.
  - These actions do not include those associated with cross-tying AC power sources or electrical distribution busses between units for multi-unit sites (since all units are assumed affected – not applicable to DBNPS).
3. 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.
4. Consistent with the site access assumption, evaluate the ability of the augmented staff to implement Transition Phase coping strategies performed after the end of the “no site access” 6-hour time period.

**5 ASSUMPTIONS OF THE ELAP ERO STAFFING ASSESSMENT**

1. The ELAP 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). This analysis uses 6 hours as the time period to conduct the on-shift ERO response actions. See assumption 13.A below.
2. Only personnel required to be on-shift are credited in the staffing analysis. Interim minimum on-shift staffing reductions allowed by Technical Specifications and/or Technical Requirements Manual are not invoked for the study.

The on-shift personnel complement for this event includes the minimum required number and composition as described in the DBNPS Emergency Plan.

Functional Area	Major Tasks	Emergency Positions	Analysis Shift Staffing
1. Plant Operations and Assessment of Operational Aspects	Control Room Staff	Shift Manager (SRO)	1
		Unit Supervisor (SRO)	1
		Shift Engineer (STA)	1
		Reactor Operator	2
		Non-Licensed Operator (EO3)	1
2. Emergency Direction and Control	Command and Control	Shift Manager	1 <sup>(a)</sup>
3. Notification & Communication	Licensee	CAS Operator	1 <sup>(a)</sup>
	Local/ State	NLO or above	1 <sup>(a)</sup>
	Federal	NLO or above	1 <sup>(a)</sup>
4. Radiological Assessment	Dose Assessment	Shift Engineer (STA)	1 <sup>(a)</sup>
	In-plant Surveys	RP Technician	1
	Onsite Surveys	RP Technician	1 <sup>(a)</sup>
	Chemistry	Chemistry Technician	1
5. Plant System Engineering, Repair, and Corrective Actions	Technical Support	Shift Engineer (STA)	1 <sup>(a)</sup>
	Repair and Corrective Actions	Mechanical Maintenance	1 <sup>(a)</sup>
		Electrical Maintenance	1 <sup>(a)</sup>
	I&C Maintenance	1 <sup>(a)</sup>	
6. In-Plant PAs	Radiation Protection	RP Technician	2 <sup>(a)</sup>
7. Fire Fighting	--	Fire Brigade Captain (RO/EO3)	1
		Fire Brigade Member	4
8. 1 <sup>st</sup> Aid and Rescue	--	NLO	1 <sup>(a)</sup>
9. Site Access Control and Accountability	Security & Accountability	Security Shift Supervisor	1
		CAS Operator	1
		Security Personnel	(b)
<b>TOTAL:</b>			<b>15</b>

(a) May be filled by someone filling another position having functional qualifications.

(b) Per DBNPS Physical Security Plan.

3. On-shift personnel can report to their assigned response locations within timeframes sufficient to allow for performance of assigned actions. The following are the assumed locations of the on shift personnel who perform tasks reviewed as part of this assessment at the time the event is initiated:
  - Shift Manager (SM) ..... Control Room
  - Shift Engineer (STA) ..... Work Control Center
  - Unit Supervisor (US) ..... Control Room
  - Reactor Operator – At the Controls (ATC) ..... Control Room
  - Reactor Operator – Balance of Plant (BOP)..... Control Room
  - AO – Zone 1 / Fire Brigade (SBEO1) ..... EO Study Room (PSF 2nd Floor)
  - EO1 – Zone 2 / Fire Brigade (SBEO2) ..... EO Study Room (PSF 2nd Floor)
  - EO3 – Zone 3 (SBEO3)..... EO Study Room (PSF 2nd Floor)
  - EO3 / Fire Brigade Captain (SBEO4)..... Work Control Center
  - EO3 / Fire Brigade (SBEO5) ..... EO Study Room (PSF 2nd Floor)
  - EO / NQ / Fire Brigade (EBEO6)..... EO Study Room (PSF 2nd Floor)
  - RP Technician (RPT) ..... RP Offices (PSF 2nd Floor)
  - Chemistry Technician (CT)..... Chemistry Offices (PSF 3rd Floor)
  - CAS Operator (CAS) ..... Central Alarm Station
  - Security Shift Supervisor (SSS).....SSS Station
  
4. Equipment credited in current coping strategies remains available for use including FLEX equipment connections and system interfaces (such as installed low leakage RCS seals).
  
5. The extended loss of AC power assumes the following:
  - Appendix “R” emergency lighting is available during the period of power loss.
  - Sound powered phones are available during the period of power loss.
  - The PA System (Gaitronics) is not credited during the period of power loss.
  - Plant operations and Security radios are available for line of sight communications during the period of power loss using installed batteries.
  - Satellite phones are available during the period of power loss using installed batteries and inverter for 8 hours [Reference C-EE-050.05-001]
  - Emergency Response Data System (ERDS) is lost as a result of the 25 mile telecommunications blackout range.
  - Power operated door locks can be overridden by key. Keys are immediately available either on the operator key rings, or located at the work support center or Control Room. No interface with security is required.

6. A hostile action directed at the affected site does not occur during the period that the site is responding to the event.
7. 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 an RP Technician.
8. The on-site security organization is able to satisfactorily perform tasks related to Site and Protected Area Access Controls. Performance of this function is regularly analyzed through other station programs and will not be evaluated here, unless a role or function from another major response area is assigned as a collateral duty.

The use of Security personnel for any mitigation actions must be in accordance with NEI guidance. (Refer to Attachment 1 Reference #4)

9. Individuals holding the position of RP or Chemistry Technician are qualified to perform the range of tasks expected of their position.
10. 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 off-site resource such as local law enforcement. This assumption does not apply to emergency notification to an Offsite Response Organization or the NRC.
11. 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 off-site authorities.
12. For purposes of assessing augmented staffing, it is assumed that the on-shift staff successfully performs all Initial Phase and any required Transition Phase coping actions. Thus, adequate core cooling is maintained throughout the 6 hour duration. No core damage occurs and no entry into Severe Accident Management Guidelines (SAMGs) is required.
13. The event impedes site access as follows:
  - A. Post event time: 6 hours – No site access. It is assumed that those Emergency Plan functions performed by the augmented ERO will be delayed for the 6-hour period (e.g., offsite field monitoring).
  - B. Post event time: 6 to 24 hours – Limited site access. Individuals may access the site by walking, personal vehicle, boat 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.
14. Off-site emergency response facilities and staging areas are available, including those located within the 25 mile telecommunications blackout range.

## 6 ON-SHIFT ERO RESPONSE CAPABILITY

This section of the assessment documents the ability of the on-shift ERO to implement emergency procedures and coping strategies performed prior to the end of the “no site access” 6 hour time period.

### 6.1 ELAP Event Description and Initial Conditions

A large-scale external event occurs that results in a loss of off-site power combined with a failure of the emergency diesel generators. The scope of the event includes the following:

- an extended loss of AC power (ELAP) event occurs
- an extended loss of UHS occurs
- station access is impeded

Initially, the reactor is operating at full power. Upon the loss of AC power all on-shift personnel either report to the Control Room or have a radio and the reactor is successfully shut down.

This event results in a Site Area Emergency (SAE) classification level based on EAL SS1, which escalates to a General Emergency (GE) classification level based on EAL SG1. Davis Besse is an alternate AC Plant and has no “coping” time. An upgrade to a General Emergency is declared when the duration of the loss of AC power is expected to exceed 4 hours. The scenario is designed such that restoration of any AC power source is not possible before the arrival of ERO personnel (6 hours).

#### **Initial Conditions**

100% power at equilibrium, end of core life.

#### **Scenario Events**

An extended loss of AC power (ELAP) occurs.

None of the standby generators (including the SBO Diesel) can be synchronized to any AC bus, resulting in a total loss of all AC power.

Equipment and systems credited in current coping strategies remain available for use.

Adequate core cooling is maintained throughout the 6-hour duration. No core damage occurs and no entry into SAMG is required.

No abnormal radiological conditions exist during this event.

**Note** – refer to Attachment 1 for a list of procedures used to assess the tasks performed during the ELAP scenario and additional procedures referenced during the tabletop.



6.2 On-Shift Staffing Analysis Results Tables

TABLE 1 – On-Shift Positions

Extended Loss of All AC Power (ELAP)

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line#	Unanalyzed Task?	TMS Required?
1.	Shift Manager (SM)	DBNPS E-Plan, Table 5-1	N/A	2 / 1 5 / 1 5 / 2 5 / 3 5 / 5 5 / 8 5 / 10	Yes	Yes
2.	Shift Engineer (STA)	DBNPS E-Plan, Table 5-1	N/A	2 / 2 5 / 6 5 / 13	Yes	Yes
3.	Unit Supervisor (US)	DBNPS E-Plan, Table 5-1	N/A	2 / 3	Yes	Yes
4.	RO-ATC (ATC)	DBNPS E-Plan, Table 5-1	N/A	2 / 4	Yes	Yes
5.	RO-BOP (BOP)	DBNPS E-Plan, Table 5-1	N/A	2 / 5	Yes	Yes
6.	AO – Zone 1 / FB (SBEO1)	DBNPS E-Plan, Table 5-1	N/A	2 / 6	Yes	Yes
7.	EO1 – Zone 2 / FB (SBEO2)	DBNPS E-Plan, Table 5-1	N/A	2 / 7	Yes	Yes
8.	EO3 - Zone 3 (SBEO3)	DBNPS E-Plan, Table 5-1	N/A	2 / 8	Yes	Yes
9.	EO3 / FBC (SBEO4)	DBNPS E-Plan, Table 5-1	N/A	2 / 9 5 / 9	Yes	Yes
10.	EO3 / FB (SBEO5)	DBNPS E-Plan, Table 5-1	N/A	2 / 10	Yes	Yes
11.	EO / NQ / FB (SBEO6)	DBNPS E-Plan, Table 5-1	N/A	2 / 11 5 / 9	Yes	Yes
12.	Chemistry Technician (CT)	DBNPS E-Plan, Table 5-1	N/A	2 / 12	Yes	Yes
13.	RP Technician (RPT)	DBNPS E-Plan, Table 5-1	N/A	4 / 1	No	No
14.	CAS Operator (CAS)	DBNPS E-Plan, Table 5-1	N/A	5 / 6 5 / 13	No	No
15.	Security Shift Supervisor (SSS)	DBNPS E-Plan, Table 5-1	N/A	5 / 15	No	No

**Note:** NEI 10-05 requirements for Time Motion Study analysis following the identification of potential task overlap are satisfied by evaluating the timing and duration of the activities by subject matter experts during the task analysis table top. See Section 3.2.

TABLE 2 – Plant Operations & Safe Shutdown

Extended Loss of All AC Power (ELAP)

Minimum Crew (One Unit – Single Control Room) [\*\* N/V indicates Not Validated]

Line #	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Manager (SM)	Standard Post-trip actions (OP-2000)	Ops Training
			Contact NSRC (OP-2700, Step 3.6)	N/V (None In Place)
2.	STA	Shift Engineer (STA)	Perform STA tasks (NOP-OP-1002, DB-0551-1)	Ops Training
			Initiate actions for instrument readings (OP-2704, Att 6)	N/V (None In Place)
3.	Unit Supervisor	Unit Supervisor (US)	Standard Post-trip actions (OP-2000)	Ops Training
			Determine ELAP conditions exist (OP-2000, Att 28, Step 4)	
			Initiate SBO procedure actions (OP-2700)	N/V (None In Place)
			Direct CT to deploy satellite antennae (OP-2700)	
			Initiate ELAP load shed (OP-2704)	
			Direct STA to monitor ELAP (OP-2704)	
			Direct BOP to implement ELAP load mgt (OP-2704, Step 3.2)	
			Attempt call to system dispatch (OP-2704, Step 3.3)	
			Direct SM to evaluate E-Plan, contact NSRC, notify SSS of ELAP (OP-2700, Step 3.6)	
			Initiate initial ELAP assessment and FLEX equipment staging (OP-2700, Step 3.8)	
			Direct BOP to assess plant conditions (OP-2705, Step 3.1)	
			Direct SBEO3 to perform in plant assessment (OP-2705, Step 3.2)	
			Direct SBEO4 to perform outside assessment (OP-2705, Step 3.3)	
Direct SBEO5 to perform EFW cross-tie (OP-2700, Step 3.9)				
Direct SBEO6 to line up long-term RCS inventory control electrical equipment (OP-2701, Step 3.3)				
Initiate long-term RCS inventory control (OP-2700, Step 3.11)				
Direct SBEO1 to line up long-term RCS inventory control mechanical equipment (OP-2701, Step 3.2)				
Direct SBEO3 to take local control of AVV (OP-2700, Step 3.16)				
Direct SBEO2 to load shed E1 and F1 (OP-2700, 3.24)				
Direct SBEO1 to operate and monitor FLEX charging pump (OP-2700, Step 3.21)				
Direct SBEO2 to restore bus F-1 (OP-2700, Step 3.24)				
Direct SBEO2 to restore PZR heaters (OP-2700, Step 3.24)				
Direct SBEO2 to restore battery charger(s) (OP-2721, Step 3.10)				
4.	Reactor Operator #1	RO-ATC (ATC)	Standard Post-trip actions (OP-2000)	Ops Training
			Attempt to start SBO DG (OP-2000, Att 28)	
			Minimize RCS inventory loss (OP-2700, Step 3.2)	N/V (None In Place)
			Perform plant operations actions (OP-2700 and US direction)	

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Line #	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
5.	Reactor Operator #2	RO-BOP (BOP)	Standard Post-trip actions (OP-2000) Attempt to restore vital AC power (OP-2000, Att 28) Assess plant conditions (SR-4)	Ops Training
			Verify secondary system operation (OP-2700, Step 3.3 & 3.4) Verify EFW in operation (OP-2700, Step 3.4) Initiate ELAP load shed (OP-2704, Att 1) Direct SBEO1 perform severe load shed (OP-2704, Att 1, Step 2) Direct SBEO2 to perform H2 purge (OP-2704, Att 1, Step 2) Perform initial assessment from CR (OP-2705, Att 1) Perform plant operations actions (OP-2700 and US direction)	N/V (None In Place)
6.	Auxiliary Operator #1	AO – Zone 1 / FB (SBEO1)	Perform severe load shed (OP-2704, Att 2) Line up long-term RCS inventory control mechanical equipment (OP-2701, Att 2) Operate FLEX charging pump (OP-2701, Step 3.4)	N/V (None In Place)
7.	Auxiliary Operator #2	EO1 – Zone 2 / FB (SBEO2)	Deploy to EDGs to assess conditions (auto post trip actions)	Ops Training
			Perform H2 purge / break MC vacuum (OP-2704, Att 1, Step 4) Perform load shed of E1 and F1 (OP-2721, Att 1) Restore power to F-1 (OP-2721, Step 3.5 and Att 7) Restore power to PZR heaters (OP-2724, Att 2) Restore battery chargers (OP-6321)	N/V (None In Place)
8.	Other	EO3 – Zone 3 (SBEO3)	Deploy to AFW room to assess conditions (auto post trip actions)	Ops Training
			Perform in plant conditions assessment (OP-2705, Att 2) Take local control of AVVs (OP-2000, Att 3)	N/V (None In Place)
9.	Other	EO3 / FBC (SBEO4)	Deploy to CCW room to assess conditions (auto post trip actions)	Ops Training
			Perform outside assessment (OP-2705, Att 3)	N/V (None In Place)
10.	Other	EO3 / FB (SBEO5)	Perform EFW cross-tie (OP-2700, Att 4) Monitor and throttle EFW flow to SGs (OP-2700, Att 4)	N/V (None In Place)
11.	Other	EO / NQ / FB (EBEO6)	Line up long-term RCS inventory control electrical equipment (OP-2701, Att 4) Perform electrical lineup for EFW FLEX generator (OP-2701, Att 9) Monitor EFW FLEX generator (OP-2750)	N/V (None In Place)

**Other (non-Operations) Personnel**

Line #	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
N/A	Mechanic	N/A	N/A	N/A
N/A	Electrician	N/A	N/A	N/A
N/A	I&C Technician	N/A	N/A	N/A
12.	Chem Technician	Chemistry Technician (CT)	Deploy satellite antennae (OP-2705, Att 14) Line up sound powered phones to CR (OP-2705, Att 14)	N/V (None In Place)

**TABLE 3 – Firefighting**

**Extended Loss of All AC Power (ELAP)**

Line #	Performed By	Task Description	Controlling Method
1.	AO – Zone 1 / FB (SBEO1)	N/A	N/A
2.	EO1 – Zone 2 / FB (SBEO2)	N/A	N/A
3.	EO3 / FBC (SBEO4)	N/A	N/A
4.	EO3 / FB (SBEO5)	N/A	N/A
5.	EO / NQ / FB (SBEO6)	N/A	N/A

**Analysis Result Item #1:** FSG task training/qualification has not been fully developed and incorporated into the applicable departmental training program(s).

**TABLE 4 – Radiation Protection and Chemistry**

**Extended Loss of All AC Power (ELAP)**

#	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)										
		0-30	30-60	60-90	90-120	120-150	150-180	180-210	210-240	240-300	300-330	330-360
1.	In-Plant Survey On-Shift Position: <b>RPT</b>	X	X									
2.	On-Site Radiological Survey On-Shift Position:											
3.	Personnel Monitoring On-Shift Position:											
4.	Job Coverage On-Shift Position:											
5.	Off-site Radiological Assessment On-Shift Position:											
6.	Other HP – Describe: On-Shift Position:											
7.	Sampling On-Shift Position:											
8.	Other Chem – Describe: On-Shift Position:											

**Note:**

Line 1 RPT task to survey for failed fuel and SG leakage started at T=7 until T=9. Task to perform in-plant dose rate surveys started at T=10 until T=60.

**TABLE 5 – Emergency Plan Implementation**

**Extended Loss of All AC Power (ELAP)**

Line	Function/Task	On-Shift Position	Controlling Method
1.	Declare the Emergency Classification Level (ECL)	SM	A.1: Demonstrate ability to assess postulated plant indications, alarms and reports, and correctly classify an emergency event in a timely manner.
2.	Approve Offsite Protective Action Recommendations	SM	C.7: Demonstrate mechanism for recommending protective actions to State and local county authorities.
3.	Approve content of State/local notifications	SM	C.1: Demonstrate ability to notify the State and local counties within 15 minutes of initially declaring and reclassifying an emergency event.
4.	Approve extension to allowable dose limits	N/A	N/A FLEX
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	SM	E.1: Demonstrate ability of SM to promptly assume and carry out duties of the ED upon the initial classification of an emergency event.
6.	ERO notification	STA	B.1: Demonstrate ability to notify on-call ERO in a timely manner by initiating the ERO notification system within ten (10) minutes of (re)classification of an emergency event.
7.	Abbreviated NRC notification for design basis threat (DBT) event	N/A	N/A FLEX
8.	Complete State/local notification form	SM	C.1: Demonstrate ability to notify the State and local counties within 15 minutes of initially declaring and reclassifying an emergency event.
9.	Perform State/local notifications	SBEO6 SBEO4	C.1: Demonstrate ability to notify the State and local counties within 15 minutes of initially declaring and reclassifying an emergency event.
10.	Complete NRC event notification form	SM	C.2: Demonstrate ability to notify the NRC within one hour of initially declaring or reclassifying an emergency event.
11.	Activate Emergency Response Data System (ERDS)	N/A	Continuously on at Davis-Besse
12.	Offsite radiological assessment	N/A	F.2: Demonstrate the ability to identify the source of an actual or potential radiological release and postulated magnitude based on plant system parameters and effluent monitors.
13.	Perform NRC notifications	STA	C.2: Demonstrate ability to notify the NRC within one hour of initially declaring or reclassifying an emergency event.
14.	Perform other site-specific event notifications (e. g., INPO, ANI, etc.)	N/A	N/A Davis-Besse
15.	Personnel accountability	SSS	H.1: Demonstrate ability to account for all individuals onsite upon initiation of personnel accountability by ascertaining the names of missing individuals within 30 minutes and accounting for onsite personnel continuously thereafter.

**Note:** Line #3, #8 and #9 include initial and follow-up State/local notifications. Additional Controlling Methods are included in Attachment 1: NEI 10-05 Appendix B, DBNPS On-Shift Staffing Analysis Results Tables [2012]. Controlling Method designators refer to drill objectives from Fleet Drill and Objective Procedure, NOP-LP-5011.

**6.3 ELAP On-Shift Staffing Task Timetable**

Time (T+mins)	Position	Action	Duration (min)
0	<b>Complete loss of station AC power event occurs</b>		
0	SM US ATC BOP	Standard Post-trip actions (OP-2000)	4
1	SBE02	Deploy to EDGs to assess conditions (auto post trip actions)	10
1	SBE03	Deploy to AFW room to assess conditions (auto post trip actions)	5
1	SBE04	Deploy to CCW room to assess conditions (auto post trip actions)	3
2	BOP	Attempt to restore vital AC power (OP-2000, Att 28)	1
3	CT	Report to Control Room (CR)	
3	SEC1	Deployed to CR to act as comms interface between SM and SSS	
3	BOP	Assess plant conditions (SR-4)	1
3	SBE01	Report to Control Room (CR)	
3	SBE05	Report to Control Room (CR)	
3	SBE06	Report to Control Room (CR)	
4	ATC	Attempt to start SBO DG (OP-2000, Att 28)	2
5	SBE04	Report to Control Room (CR)	
6	RPT	Report to Control Room (CR)	
6	US	Determine ELAP conditions exist (OP-2000, Att 28, Step 4)	1
6	SBE03	Report to Control Room (CR)	
7	RPT	Survey for failed fuel and SG leakage (DBBP-RP-1004)	2
7	US	Initiate SBO procedure actions (OP-2700)	3
8	US	Direct CT to deploy satellite antennae, sound powered phones (OP-2700) (OP-2705 Att 14)	1
8	ATC	Minimize RCS inventory loss (OP-2700, Step 3.2)	1
8	BOP	Verify secondary system operation (OP-2700, Step 3.3 & 3.4)	1
9	BOP	Verify EFW in operation (OP-2700, Step 3.4)	1
9	CT	Deploy satellite antennae (OP-2705, Att 14)	15
9	ATC	Perform plant operations actions (OP-2700 and US direction)	duration
10	RPT	Perform in-plant dose rate surveys (DBBP-RP-1004)	50
10	US	Initiate ELAP load shed (OP-2704)	1
11	US	Direct STA to monitor ELAP (OP-2704)	1
11	SBE02	Report to Control Room (CR)	
12	STA	Initiate actions for instrument readings (OP-2704, Att 6)	3
12	US	Direct BOP to implement ELAP load mgmt (OP-2704, Step 3.2)	1
13	BOP	Initiate ELAP load shed (OP-2704, Att 1)	1
13	BOP	Direct SBE01 perform severe load shed (OP-2704, Att 1, Step 2)	1
13	US	Attempt call to system dispatch (OP-2704, Step 3.3)	1
14	BOP	Direct SBE02 to perform H2 purge (OP-2704, Att 1, Step 2)	1
14	SBE01	Perform severe load shed (OP-2704, Att 2)	30
14	US	Direct SM to evaluate E-Plan, contact NSRC, notify SSS of ELAP (OP-2700, Step 3.6)	1
15	SBE02	Perform H2 purge / break MC vacuum (OP-2704, Att 1, Step 4)	45
15	SM	Declare the SAE based on EAL SS1 (RA-EP-1800)	1
13	SM	Provide notification and direction to on-shift staff (RA-EP-1500)	duration
15	US	Initiate initial ELAP assessment and FLEX equipment staging (OP-2700, Step 3.8)	1
16	SM	Attempt to sound station alarm (RA-EP-1800)	1



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<b>Time (T+mins)</b>	<b>Position</b>	<b>Action</b>	<b>Duration (min)</b>
16	US	Direct BOP to assess plant conditions (OP-2705, Step 3.1)	1
17	SM	Attempt protected area PA of declaration / entry into E-Plan (RA-EP-1800)	1
17	BOP	Perform initial assessment from CR (OP-2705, Att 1)	5
17	US	Direct SBEO3 to perform in plant assessment (OP-2705, Step 3.2)	1
18	SM	Direct SSS (via SEC1 in CR) to make OCA PA announcement and activate CANS (RA-EP-1800)	1
18	SBEO3	Perform in plant conditions assessment (OP-2705, Att 2)	30
18	US	Direct SBEO4 to perform outside assessment (OP-2705, Step 3.3)	1
19	SSS	Attempt to make OCA PA announcement (RA-EP-1800)	1
19	SM	Complete / approve State/local notification form - initial SAE (RA-EP-2110)	2
19	SBEO4	Perform outside assessment (OP-2705, Att 3)	41
20	CAS	Attempt to activate CANS (RA-EP-1800)	5
20	US	Direct SBEO5 to perform EFW cross-tie (OP-2700, Step 3.9)	1
21	SBEO5	Perform EFW cross-tie (OP-2700, Att 4)	25
23	BOP	Perform plant operations actions (OP-2700 and US direction)	337
24	<b>Satellite Phone Systems Activated</b>		
25	CT	Line up sound powered phones to CR (OP-2705, Att 14, pg 2)	30
25	SM	Direct SBEO6 to perform State/local notifications - initial SAE (RA-EP-1800)	1
26	SBEO6	Perform State/local notifications from CR - initial SAE (RA-EP-1800)	5
27	SM	Initiate PA Evacuation and Accountability (RA-EP-2520)	2
29	SM	Complete NRC event notification form (RA-EP-2110)	5
31	SM	Direct STA to activate CANS (RA-EP-1800)	1
32	STA	Activate CANS via sat phone (RA-EP-1800)	5
32	US	Direct SBEO6 to line up long-term RCS inventory control electrical equipment (OP-2701, Step 3.3)	1
33	SBEO6	Line up long-term RCS inventory control electrical equipment (OP-2701, Att 4)	120
38	SM	Direct STA to perform NRC ENS notifications (RA-EP-2110)	1
39	STA	Perform NRC notifications (RA-EP-2110)	321
39	SM	Contact NSRC (OP-2700, Step 3.6)	1
44	SBEO1	Report to Control Room (CR)	
45	US	Initiate long-term RCS inventory control (OP-2700, Step 3.11)	1
46	US	Direct SBEO1 to line up long-term RCS inventory control mechanical equipment (OP-2701, Step 3.2)	1
46	SBEO5	Monitor and throttle EFW flow to SGs (OP-2700, Att 4)	314
47	SBEO1	Line up long-term RCS inventory control mechanical equipment (OP-2701, Att 2)	60
48	SBEO3	Report to Control Room (CR)	
49	US	Direct SBEO3 to take local control of AVV (OP-2700, Step 3.16)	1
50	SBEO3	Take local control of AVVs (OP-2000, Att 3)	310
55	CT	Report to Control Room (CR)	
60	RPT	Report to Control Room (CR)	
60	SBEO4	Report to Control Room (CR)	
60	SBEO2	Report to Control Room (CR)	
61	US	Direct SBEO2 to load shed E1 or F1 (OP-2700, 3.24)	1
62	SBEO2	Perform load shed of E1 or F1 (OP-2721, Att 1)	15
70	SM	Declare the GE based on EAL SG1 (RA-EP-1900)	1

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<b>Time (T+mins)</b>	<b>Position</b>	<b>Action</b>	<b>Duration (min)</b>
71	SM	Determine / approve offsite PARs (RA-EP-2245)	3
74	SM	Complete / approve State/local notification form - initial GE (RA-EP-2110)	2
76	SM	Direct SBEO4 to perform State/local notifications - initial GE (RA-EP-1900)	1
77	SBEO4	Perform State/local notifications from CR - initial GE (RA-EP-1900)	5
77	SM	Direct STA to perform ERO pager update (RA-EP-1900)	1
77	SBEO2	Report to Control Room (CR)	
78	STA	Perform ERO pager update (RA-EP-1900)	5
107	SBEO1	Report to Control Room (CR)	
134	SM	Complete / approve State/local notification form - follow up GE (RA-EP-2110)	2
136	SM	Direct SBEO4 to perform State/local notifications - follow up GE (RA-EP-1900)	1
137	SBEO4	Perform State/local notifications from CR - follow up GE (RA-EP-1900)	5
153	SBEO6	Perform electrical lineup for EFW FLEX 480V generator (OP-2701, Att 9) with concurrence from US	30
182	US	Direct SBEO1 to operate and monitor FLEX charging pump (OP-2700, Step 3.21)	1
183	SBEO1	Operate FLEX charging pump (OP-2701, Step 3.4)	177
183	SBEO6	Monitor EFW FLEX 480V generator (OP-2750)	177
184	US	Direct SBEO2 to restore bus F-1 (OP-2700, Step 3.24)	1
185	SBEO2	Restore power to F-1 (OP-2721, Step 3.5 and Att 7)	30
194	SM	Complete / approve State/local notification form - follow up GE (RA-EP-2110)	2
196	SM	Direct SBEO4 to perform State/local notifications - follow up GE (RA-EP-1900)	1
197	SBEO4	Perform State/local notifications from CR - follow up GE (RA-EP-1900)	5
215	SBEO2	Report to Control Room (CR)	
216	US	Direct SBEO4 to restore PZR heaters (OP-2700, Step 3.24)	1
216	US	Direct SBEO2 to restore battery charger(s) (OP-2721, Step 3.10)	1
217	SBEO4	Restore power to PZR heaters (OP-2724, Att 2)	15
217	SBEO2	Restore battery chargers (OP-6321)	15
232	SBEO2	Report to Control Room (CR)	
232	SBEO4	Report to Control Room (CR)	
254	SM	Complete / approve State/local notification form - follow up GE (RA-EP-2110)	2
256	SM	Direct SBEO4 to perform State/local notifications - follow up GE (RA-EP-1900)	1
257	SBEO4	Perform State/local notifications from CR - follow up GE (RA-EP-1900)	5
314	SM	Complete / approve State/local notification form - follow up GE (RA-EP-2110)	2
316	SM	Direct SBEO4 to perform State/local notifications - follow up GE (RA-EP-1900)	1
317	SBEO4	Perform State/local notifications - follow up GE (RA-EP-1900)	5
360	<b>End of Shift Staffing Task Sequence Analysis</b>		

**7 AUGMENTED AND EXPANDED ERO RESPONSE CAPABILITY**

This section of the assessment documents the ability of the augmented and expanded ERO to implement Transition Phase coping strategies performed after the end of the “no site access” 6 hour time period. The expanded ERO for a single unit station is defined as the ERO complement needed to support EP response and FLEX implementation activities.

**7.1 ERO Notification and Response during an ELAP**

Assessment of staffing resources for the expanded ERO is provided by the depth of personnel filling the existing augmented ERO positions. Table 7-1 below documents the augmented ERO minimum and full staffing requirements from the DBNPS Emergency Plan. The number required for minimum staffing is based on emergency plan Table 5-1 responders. The number required for full staffing is based on emergency plan Figure 5-2 responders. The number qualified is from the ERO Staffing Numbers report dated 07/16/15.

**Table 7-1 Augmented ERO Response Resources - Minimum & Full Staffing**

	ERO Title	# Minimum	# Full	# Qualified
CR	Emergency Assistant Plant Manager	1		4
	Control Room Communicator		1	4
TSC	Emergency Plant Manager		1	5
	Recovery Advisor		1	4
	TSC Administrative Assistant		1	4
	TSC Engineering Manager	1		7
	TSC Engineering Lead (optional)		1	N/A
	Core Thermal Engineer	1		4
	Mechanical Engineer	1		4
	Electrical Engineer	1		4
	I&C Engineer	1		6
	TSC Operations Lead (optional)		1	N/A
	TSC Operations Engineer		4	10
	TSC Computer Technician		1	5
	SAM Engineer		1	4
	Emergency RP Manager		1	3
	Emergency Security Manager		1	6
	OCA Security Supervisor		1	6
Log and Status Board Keeper		1	4	
OSC	OSC Manager	1		6
	OSC System Engineers		3	17
	Assistant OSC Manager		1	5
	OSC Team Briefer/Debriefer		1	8
	Operations Personnel (SRO – SM / US)		N/A	16 <sup>(a)</sup>
	Operations Personnel (STA)		N/A	5 <sup>(a)</sup>
	Operations Personnel (RO)		N/A	10 <sup>(a)</sup>
	Operations Personnel (NLO)		N/A	27 <sup>(a)</sup>
	Mechanical Maintenance	2		32
	Electrical Maintenance	2		22
	I&C Maintenance	2		28
	OSC RP Coordinator	1		4
	RP Technician (onsite rad monitoring)	1		13 <sup>(a)</sup>
RP Technician (in-plant rad surveys)	1			
RP Technician (rad protection)	2			

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ERO Title		# Minimum	# Full	# Qualified
EOE	Chemistry Technician	1		10 <sup>(a)</sup>
	OSC Materials Manager		1	6
	Warehouse Personnel (Material Handlers)		1	7
	OSC Communicator		1	4
	OSC Document Control Clerk		1	4
	OSC Log Keeper		1	3
	OSC Operations Advisor		1	4
EOF	Emergency Director	1		5
	Emergency Director Advisor		1	4
	Emergency Offsite Manager	1		5
	EOF Operations Advisor		1	4
	EOF Administrative Assistant		1	4
	Technical Liaison – EOF Communicator		1	3
	Technical Liaison – Ohio		1	2
	Technical Liaison – Ottawa County		1	5
	Technical Liaison – Lucas County		1	4
	Dose Assessment Coordinator	1		4
	Dose Assessor (I and II)		2	8
	RTL Coordinator		1	4
	RMT	3		27
	RMT Coordinator		1	4
	Emergency Facilities Services Manager		1	4
	Assembly Area Coordinator			10
	Maintenance Services Personnel			11
	Emergency Planning Advisor	1		4
	Log & Status Board Keepers		1	5
	State/County Communicator	1		4
Communication Equipment Operator		1	4	
Policy Management Loop Communicator		1	4	
NRC Liaison	1		4	
NRC Liaison Communicator		1	4	
JIC	Company Spokesperson		1	4
	Public Affairs Duty Officer		1	3
	JIC Manager		1	4
	JIC Writer		1	4
	News Statement Coordinator		1	4
	JIC Communicator		1	4
	JIC Administrative Assistant		2	7
	PR Communicator		1	3
	Audio/Visual Coordinator		1	6
	Technical Briefer		1	2
	Public Inquiry Hotline Operator		1	4
	Media Assistant		2	6
	JIC Security		1	(N/A)

(a) May be filled by an individual filling another minimum on-shift Emergency Position having functional quals.  
(N/A) Emergency Response qualification not applicable for this position

7.1.1 General ERO Response

1. Implementing Strategy for the Augmenting ERO

The ERO augmentation process consists of an “all respond” expectation. When the ERO notification system is operable, qualified ERO members are contacted and expected to report if fit for duty (a rotating duty team insures all ERO positions will be filled by personnel meeting FFD requirements). In the absence of the call out system, ERO members are trained to respond automatically per NOPL-LP-5001, Emergency Preparedness.

It is assumed that ERO members will become aware of significant local events through local radio, television and emergency alert system (EAS) communications. Should the situation appear to be a major disturbance, then ERO members are trained to report to their designated ERO facility as soon as safely possible. If access to the primary emergency response facilities is not possible, ERO members are trained to report to their alternate location.

NOPL-LP-5001, Emergency Preparedness, requirements and expectations are included in Emergency Response Training. The policy states that Emergency Responders will report to their alternate facilities following an event that causes impeded access to the site.

RA-EP-00520, Emergency Response Organization, includes: During events that would impact the safe operation of Davis-Besse or large scale disasters, when the ERO has not been activated and area communications (paggers, cell towers, internet, land line phone systems) are being challenged or are not working, Davis-Besse ERO personnel are expected to report to their Emergency Response Facility if they cannot contact the plant for additional guidance. Required reading on RA-EP-00520 is part of initial training for the ERO (JFGs), and RA-EP-00520 is covered during annual walkthroughs (Ref Lesson Plans: EPT-WTE R4 EOF, EPT-WTJ R4 JIC, EPT-WTO R4 OSC, WPT-WTR R4 WTL, WPT-WTT R4 TSC).

Review of the DBNPS ERO roster confirmed that sufficient numbers of qualified individuals are available to fill the positions in Table 7.2 with adequate depth to staff at least two 12-hour shifts.

2. Response Timeliness for the Augmenting ERO

The DBNPS ERO augmentation process consists of an all call/all respond expectation. Callout of an expanded ERO is assumed within the callout of the augmented ERO.

In the absence of the call out system, ERO members are trained to respond automatically per NOPL-LP-5001 and RA-EP-00520 as described in the implementing strategy above.

3. Work Location for the Augmenting ERO

If access to the primary on site emergency response facilities is not possible, TSC and OSC ERO members are trained to report to the Lindsey Emergency Response Facility (LERF) (Lesson Plans: EPT-WTT R4 TSC, EPT-WTO R4 OSC).

The LERF includes rooms and equipment for the remote TSC / OSC. Work areas for each ERO position have been designated that include the appropriate computer terminals and communications systems for the positions. Station hard copy documents are maintained locally and electronically on an updated server and can be printed (plant drawings can be printed on an engineering plotter). Power to the facility is provided by the grid or a dedicated diesel generator. The remote TSC / OSC has adequate space and resources to accommodate the expanded ERO.

4. Transportation for the Augmenting ERO

In a letter dated 06/11/12, (L-12-193), FENOC stated that the following methods of access to the site are available:

- DBNPS is accessible by a state road and a paved county road. RA-EP-02830, Flooding, discusses Duff Washa as a road that would remain available during a flood warning; attachment 2 also states that Duff-Washa is the highest roadway.
- DBNPS is accessible by Lake Erie. Private docks are available to the south and north of the property for small boats.
- The site has several open areas that can be used to land a helicopter.

The letter also provides additional transportation capabilities information for DBNPS as follows:

- FENOC currently has letters of agreement with the Ohio Emergency Management Agency (EMA), Ottawa EMA, and Lucas County EMA regarding emergencies at the plant. The state EMA is the central coordinating agency for mutual aid for state, local, and federal resources. This would include clearing of access roads as conditions warrant, as well as water and air transportation support, as needed.
- Locations from which personnel could be transported could vary based on the conditions after the external event. Airlift of critical personnel could be accomplished from nearby communities via helicopter. Likewise, with the plant located on navigable waterways, boats could be used to transport personnel.

The collective processes DBNPS has in place as described above (e.g., roadway clearing, alternate site access should roadways be impassable, ERO transport, etc.) provide the ability of the augmented ERO to access the site and be available at six hours post event time.

5. ERO Drill & 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 could not be demonstrated during a design basis event drill scenario.

Current FENOC drill and exercise procedures do not include evaluation objectives and demonstration criteria for beyond design basis external or natural events and expanded ERO activities. As future rulemaking and guidance is expected from the NRC in this area, no further changes are necessary to the drill and exercise procedures at this time.

7.1.2 Position Specific ERO Response

1. Radiation Protection Technicians (RPTs)

The equation below was used to determine the required number of on-site RP Technicians (on-shift plus augmented ERO RP Technicians that perform on-site response functions) for DBNPS:

$$RPT_{TOTAL} = RPT_{COP} + RPT_{SHIFT} + RPT_{RCA} + RPT_{NC}$$

Where:

$RPT_T$  = Total required number of on-site RP Technicians.

$RPT_{COP}$  = Number needed to support implementation of the 2 most limiting ELAP coping strategies, including FLEX strategies.

$RPT_{SHIFT}$  = Number needed to fill on shift complement.

$RPT_{RCA}$  = Number needed for repair and corrective action – equivalent to the in-plant protective action Table B-1 function.

$RPT_{NC}$  = Number of on-site RP Technicians performing other emergency plan functions that would preclude them from performing job coverage for extended loss of AC power coping, repair or corrective action teams – equivalent to the radiological accident assessment and support Table B-1 function.

For DBNPS, the resulting number of RPTs is:

<u>RPT Category</u>	<u>Number Required</u>	<u>Comments</u>
$RPT_{COP}$	0	Staffing assessment results indicate that no RPTs are required to support implementation of the FSG strategies.
$RPT_{SHIFT}$	1	Minimum # of DBNPS on-shift RPs.
$RPT_{RCA}$	2	Minimum # of DBNPS RPTs required for ERO augmentation response for the in-plant radiation protection function.
$RPT_{NC}$	5	Minimum # of DBNPS RPTs required for ERO augmentation response for the radiological assessment function.
$RPT_T$	8	

Thus, the total number of on-site RPTs required for the expanded ERO is 16, which is based on the staffing needed to:

- 1) Support the two most limiting RP resource intense FSG strategies, which do not require rotating shifts (0  $RPT_{COP}$ )
- 2) Support operating on 12-hour shifts for other RP tasks (2 shifts of  $RPT_{RCA}$ ,  $RPT_{SHIFT}$  and  $RPT_{NC}$  = 16 total RPTs).

40 RPTs are available to support performance of assigned emergency plan functions and the expanded response capability (refer to Table 7-1, OSC RPT 13, EOF RMT 27).



Provisions exist for obtaining additional RP Technicians from other stations within the FENOC fleet and through industry agreement with INPO as part of the INPO Emergency Resources Manual documented by letter of agreement dated September 2009.

2. Administrative Support Personnel

NEI 12-01 states that a licensee should determine if current assignments and locations of administrative support personnel are adequate for implementation of the expanded response capability, and identify necessary changes.

The administrative support personnel who assist the augmented ERO members are not assigned critical response tasks. Augmented ERO personnel are capable of performing their assigned tasks and responsibilities without requiring administrative support. However, since DBNPS is a single unit site the administrative support personnel utilized for full ERO staffing as documented above are sufficient to support any expanded response resulting from implementation of FLEX strategies.

3. FSG Implementers

The assessment considered the number of personnel required for simultaneous implementation of the two FSG strategies that require the greatest number of staff to implement. There are five (5) FSG strategies for DBNPS:

- 1) Maintain Instrumentation
- 2) Core Cooling/Decay Heat Removal
- 3) RCS Injection
- 4) Containment Integrity
- 5) Spent Fuel Pool (SFP) Makeup & Cooling

Based on the FSG task analysis, the following FLEX strategies are limiting:

Strategy #2 – Core Cooling/Decay Heat Removal

Implementation involves the following FSGs and personnel resources:

- OP-02700, Station Blackout
- OP-02701, Long Term RCS Inventory Control
- OP-02704, Extended Loss of AC Power DC Load Management
- OP-02705, Initial Assessment And FLEX Equipment Staging
- OP-02721, Restore 480v power to E1 and F1
- OP-02724, Restore Pressurizer Heaters to Service

<b>Personnel (department)</b>	<b>Total #</b>	<b>Task Performed</b>
RO (Ops)	2	Control Room Panel actions, direction of in-plant personnel
Non-Licensed Operators (Ops)	6	On-site assessment actions. In-plant assessment actions In-plant equipment actions.
<b>Total</b>	<b>8</b>	

Strategy #3 – RCS Injection

Implementation involves the following FSGs and personnel resources:

- DB-OP-02700, Station Blackout
- DB-OP-02701, Long Term RCS Inventory Control
- DB-OP-02704, Extended Loss of AC Power DC Load Management
- DB-OP-02705, Initial Assessment And FLEX Equipment Staging
- DB-OP-02708, Alternate RCS Boration
- DB-OP-02721, Restore 480v power to E1 and F1
- DB-OP-02724, Restore Pressurizer Heaters to Service

<b>Personnel (department)</b>	<b>Total #</b>	<b>Task Performed</b>
RO (Ops)	2	Control Room Panel actions, direction of in-plant personnel
Non-Licensed Operators (Ops)	6	On-site assessment actions. In-plant assessment actions In-plant equipment actions.

**Total** **8**

A total of 16 personnel are required to simultaneously implement the two most labor intensive FLEX strategies. The tabletop exercise determined that these strategies are able to be sequenced and completed with site minimum staffing for the first 6 hours when the ERO resources are expected to become available. Refer to Table 7.2 (Expanded ERO FLEX Resources) where sufficient resources are illustrated.

**7.2 Expanded Response Functions for Phase 2 Staffing Assessment**

Table 7-2 addresses NEI 12-01 Table 3.2, Expanded Response Functions for Phase 2 Staffing Assessment, (FSG implementation). The number required column is the personnel resources for the implementation of the two most limiting FSG strategies. The number available column is the number of personnel qualified to the position.

**Table 7-2 Expanded ERO FLEX Resources**

Function	Location	Key Roles & Staffing Considerations	DBNPS ERO Position	# Required	# Available
Evaluation of Transition Phase Coping Strategies	TSC or EOF	<ul style="list-style-type: none"> <li>One team for each unit to evaluate selection of Transition Coping strategies; team performs evaluations not done by Control Room personnel.</li> <li>Team composition (i.e., number and represented disciplines) as described in governing site programs, procedures and guidelines.</li> <li>Team may include personnel responsible for performing other functions for the same assigned unit.</li> </ul>	Emergency Director Emergency Director Advisor Emergency Plant Manager Emergency Assistant Plant Manager TSC Engineering Manager Emergency RP Manager OSC Manager Assistant OSC Manager OSC Materials Manager OSC RP Coordinator Emergency Security Manager Emergency Offsite Manager Dose Assessment Coordinator Company Spokesperson JIC Manager	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	5 4 5 4 7 3 6 5 6 4 6 5 4 4 4
Implementation of Transition Phase Coping Strategies	OSC	<ul style="list-style-type: none"> <li>Number and composition of personnel capable of simultaneous implementation of any 2 Transition Phase coping strategies at each unit.</li> <li>Should not include personnel assigned to other functions (e.g., emergency repair and corrective actions); however, may include members of the on-shift staff and personnel responsible for implementation of FSG strategies.</li> </ul>	Licensed Operators (RO) Non-Licensed Operators	4 12	10 27

List of FLEX evaluators taken from the ERO positions assigned to GEN-ADFLEX\_FEN training

**Attachment 1: References**

1. NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide
2. EA-12-049, NRC Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, 03/03/12
3. NEI 12-01, Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities, Revision 0
4. NEI 10-05, Assessment of On-Shift Emergency Response Organization Staffing and Capabilities, Revision 0
5. NEI document to industry peers, Generic Basis for Responses to Staffing Assessment Questions Related to Use of Security Personnel During a BDB Event Response, 12/23/13
6. NRC Letter, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident, dated 03/12/12
7. 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, 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, dated 03/12/12 (ML12053A340)
8. D. L. Skeen (NRR) letter to S. Perkins-Grew (NEI), U.S. Nuclear Regulatory Commission Review of NEI 12-01, 'Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities,' Revision 0, May 2012, dated 05/15/12
9. L-12-128, FENOC 60-Day Response 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 Daiichi Accident, dated March 12 2012," dated 05/09/12
10. L-12-193, Response 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 Daiichi Accident, dated March 12 2012," dated 06/11/12
11. Revision 4 of the Davis-Besse Emergency Plan [Latest approved NRC SER shift staffing document]
12. Revision 30 of the Davis-Besse Emergency Plan [current document]
13. NOPL-LP-5001, Emergency Preparedness, Rev 4
14. DB-OP-02000, RPS, SFAC, SFRCS Trip, or SG Tube Rupture, Rev 29
15. DB-OP-02000, RPS, SFAC, SFRCS Trip, or SG Tube Rupture, Rev 30 (ELAP Draft)
16. DB-OP-02700, Station Blackout, Rev 0 (Draft)

**Attachment 1: References**

17. DB-OP-25251, Loss of AC Buses, Rev 23
18. DB-OP-02527, Loss of Decay Heat Removal, Rev 15
19. DB-OP-02528, Loss of Instrument Air, Rev 22
20. DB-OP-02701, Long Term RCS Inventory Control, Rev 0 (Draft)
21. DB-OP-02547, Spent Fuel Pool Malfunctions, Rev 4
22. DB-OP-02703, Alternate Low Pressure Emergency Feedwater, Rev 0 (Draft)
23. DB-OP-02704, Extended Loss of AC Power DC Load Management, Rev 0 (Draft)
24. DB-OP-02705, Initial Assessment And FLEX Equipment Staging, Rev 0 (Draft)
25. DB-OP-02706, EFW Storage Tank Makeup, Rev 0 (Draft)
26. DB-OP-02707, Loss of DC Power, Rev 0 (Draft)
27. DB-OP-02708, Alternate RCS Boration, Rev 0 (Draft)
28. DB-OP-02709, Low Decay Heat RCS Temperature Control, Rev 0 (Draft)
29. DB-OP-02710, CFT Isolation - Venting, Rev 0 (Draft)
30. DB-OP-02711, Alternate Spent Fuel Pool Makeup, Rev 0 (Draft)
31. DB-OP-02712, Alternate Containment Cooling, Rev 0 (Draft)
32. DB-OP-02713, Transition from FLEX Equipment, Rev 0 (Draft)
33. DB-OP-02715, Containment Isolation and Integrity, Rev 0 (Draft)
34. DB-OP-02721, Restore 480v power to E1 and F1, Rev 0 (Draft)
35. DB-OP-02722, Restore Service Water during ELAP, Rev 0 (Draft)
36. DB-OP-02723, Restore 4160v power to C1 or D1, Rev 0 (Draft)
37. DB-OP-02724, Restore Pressurizer Heaters to Service, Rev 0 (Draft)
38. DB-OP-02725, Control Room and Miscellaneous Habitability Actions, Rev 0 (Draft)
39. RA-EP-01500, Emergency Classification, Rev 15
40. RA-EP-01800, Site Area Emergency, Rev 7
41. RA-EP-01900, General Emergency, Rev 9
42. RA-EP-02110, Emergency Notifications, Rev 12

**Attachment 1: References**

43. RA-EP-02245, Protective Action Guidelines, Rev 6
44. RA-EP-2520, Assembly and Accountability, Rev 6
45. DBBP-OPS-0041, Temporary Diesel Air Compressor Operation and Periodic Checks, Rev 11
46. DBBP-OPS-0042, Temporary Electric Air Compressor Operation and Periodic Checks, Rev 1
47. DBBP-RP-1004, Post-Reactor Trip Activities, Rev 0
48. RA-EP-00520, Emergency Response Organization, Rev 10