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Pacific Gas and Electric Company_Supplemental Nuclear Response_Appendix A

Additional submitted attachment is included below.

May 27, 2015

This document is provided as Appendix A to PG&E's August 6, 2015 Letter to the CEC

PG&E Letter DCL-15-063

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

10 CFR 50.54(f)

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
Response to March 12, 2012, NRC 10 CFR 50.54(f) Request for Information Regarding Recommendation 9.3, Phase 2 Staffing Assessment

References:

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

2. PG&E Letter DCL-12-048, "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 Dai-Ichi Accident,' dated March 12, 2012," dated May 9, 2012

3. PG&E Letter DCL-12-061, "Pacific Gas and Electric Company's Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Emergency Preparedness Aspects of Recommendation 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident," dated June 7, 2012

Dear Commissioners and Staff:

On March 12, 2012, the Nuclear Regulatory Commission staff issued Reference 1. Enclosure 5 of Reference 1 contains specific requested information and required responses associated with Near-Term Task Force Recommendation 9.3 for Emergency Preparedness Staffing.

In accordance with Reference 1, Enclosure 5, Staffing, Pacific Gas and Electric Company (PG&E) submitted its alternative course of action for providing the requested information in Reference 2. The alternative course of action included revised due dates and the basis for Staffing Requests 1, 2, and 6. In accordance with Reference 2, PG&E submitted Reference 3, which provided its response to Staffing Requests 3, 4, and 5.

Enclosure 1 of this letter provides PG&E's Phase 2 Staffing Assessment.

PG&E's response to Staffing Requests 1, 2, and 6 are provided in Enclosure 2.

PG&E is making regulatory commitments (as defined by NEI 99-04) in Enclosure 3 of this letter.

PG&E is making a revision to an existing regulatory commitment made in PG&E Letter DCL-13-040, "Response to March 12, 2012, NRC 10 CFR 50.54(f) Request for Information Regarding Recommendation 9.3, Phase 1 Staffing Assessment," dated April 24, 2013. Enclosure 3 to this letter provides PG&E's revision to the existing regulatory commitment.

If you have any questions, or require additional information, please contact Mr. Patrick Nugent at (805) 781-9786.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 27, 2015.

Sincerely,

Barry S. Allen
Vice President, Nuclear Services

ckf6/SAPN 50465913-35
Enclosures
cc: Diablo Distribution
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Diablo Canyon Power Plant
Phase 2 Staffing Assessment

1 Introduction

Enclosure 5 of the 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 (NTTF) Review of Insights from the Fukushima Dai-Ichi Accident," dated March 12, 2012, requests Pacific Gas and Electric Company (PG&E) to provide an assessment of the onsite and augmented Diablo Canyon Power Plant (DCPP) staff needed to respond to a large scale natural event meeting the conditions described in the 50.54(f) letter. PG&E Letter DCL-12-048, 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 Dai-Ichi Accident,' dated March 12, 2012," dated May 9, 2012, responded to the 50.54(f) letter and provided an NRC-accepted alternate course of action. The alternate course of action committed PG&E to conduct Phase 2 of the onsite and augmented staffing assessment four (4) months prior to the beginning of Unit 1 nineteenth refueling outage (1R19)[1] and to provide the results of the Phase 2 Staffing Assessment four (4) months prior to the beginning of 1R19: (a) an on-shift and augmented staffing assessment considering functions related to NTTF Recommendation 4.2 (Phase 2 Staffing Assessment); (b) a schedule of the time needed to implement those changes associated with the Phase 2 Staffing Assessment; and (c) changes associated with the Phase 2 Staffing Assessment that have been made or will be made to the DCPP Emergency Plan (E-Plan) regarding the on-shift or augmented staffing changes necessary to respond to a loss of all alternating current (AC) power, multi-unit event, including any new or revised agreements with the offsite resource providers (e.g., staffing, equipment, transportation, etc.). This report provides the results of the PG&E Phase 2 Staffing Assessment, which was completed on May 14, 2015.

PG&E completed the Phase 1 Staffing Assessment on March 28, 2013, and submitted the results to the NRC on April 24, 2013. The Phase 1 Staffing Assessment identified the following:

- The minimum on-shift staffing, as defined in the 2013 DCPP E-Plan, was sufficient to support the implementation of current DCPP procedures simultaneously for Units 1 and 2 with no collateral duties as required by the E-Plan.

[1] Unit 1 nineteenth refueling outage (1R19) is currently scheduled to begin Fall 2015.

- DCPP has the staffing needed to support an expanded response capability for a beyond design basis external event (BDBEE) as defined in Nuclear Energy Institute (NEI) 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities."

- Procedures will need to be enhanced to integrate the expanded response and transportation capabilities. Diverse and flexible coping strategies (FLEX) support guidelines (FSGs) include instructions for expanded response and transportation capabilities.

- Permanent alternate facilities for the Technical Support Center (TSC) and Operational Support Center (OSC) will be established to support expanded Emergency Response Organization (ERO) operations. A permanent alternate facility for the TSC and OSC was established and is fully operational for ERO operations.

- Drill and exercise programs will be evaluated and enhanced, as required, once future NRC guidance is provided regarding demonstration criteria for dual unit events or expanded ERO activities. Once future guidance is provided, PG&E will evaluate and enhance the drill and exercise program within 6 months.

For the Phase 2 Staffing Assessment, current staffing levels were assessed to determine the staff required to fill all necessary positions in order to respond to a dual-unit BDBEE, which results in an extended loss of AC power (ELAP) and impeded access to the site. The assessment includes the numbers and composition of the on-shift and augmented response personnel required to implement mitigation strategies and repair actions intended to maintain or restore functions of core cooling, containment, and spent fuel pool (SFP) cooling functions for both units.

2 Executive Summary

1. The minimum on-shift staffing, as defined in DCPP E-Plan, Section 5, "Organizational Control of Emergencies," Revision 4.15, is sufficient to support the implementation of current DCPP procedures simultaneously for Units 1 and 2 with no collateral duties as required by the E-Plan.

2. DCPP has the staffing needed to support an expanded response capability for a BDBEE as defined in NEI 12-01.

3. The Phase 2 Staffing Assessment was performed using the existing draft FSG procedures. PG&E will reevaluate the Phase 2 Staffing Assessment using the final approved versions of the FSG procedures and verify that appropriate personnel are formally trained on the FSG strategies. An update to the Phase 2 Staffing Assessment report will be submitted if any changes are identified during reevaluation.

4. The Phase 2 Staffing Assessment identified unanalyzed FLEX tasks requiring time motion studies. PG&E will conduct time motion studies, as part of the FLEX validation plan, for FLEX implementation tasks in accordance with industry guidance.

3 Assessment Methodology

3.1 On-shift Staffing Analysis Process

A multi-discipline team using current DCPP procedures, draft emergency operating procedures (EOPs) and draft FSG procedures conducted the assessment to analyze the performance of tasks assigned to the minimum on-shift staff. The DCPP E-Plan specified the minimum on-shift task. Task areas analyzed include:

- event mitigation (draft EOPs and FSGs)
- radiation protection (RP) and chemistry technician functions (RP and chemistry procedures)
- emergency preparedness functions (NUREG-0654, Table B-1/ISG-01)

FLEX strategies used to respond to an ELAP affecting both Units 1 and 2 were used in the assessment. The assessment addressed the abilities of the on-shift staff to preform required emergency response functions that may be degraded prior to the delayed arrival of the augmented ERO.

3.2 Expanded ERO Analysis Process

The expanded ERO analysis was conducted using the guidelines in NEI 12-01, which provides recommended staffing considerations to assess the performance of unit-specific accident assessment and mitigation functions. The expanded ERO is defined as the required augmented ERO for a multi-unit event. PG&E assessed the ability of the current ERO staff to perform expanded ERO functions.

4 Assumptions

The assessment assumptions were based on the guidance provided in NEI 12-01 and NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities."

4.1 NEI 12-01 Assumptions

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

   - all onsite units affected
   - extended loss of AC power
   - impeded access to the units

2. Initially, all onsite 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).

   b) Post event time: 6 to 24 hours – Limited site access. Individuals may access the site by walking, personal vehicle or via alternate transportation resources that are available to deliver equipment, supplies and large numbers of personnel.

   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. On-shift personnel are limited to the minimum complement allowed by the site E-Plan (i.e., the minimum required number for each required position). This would typically be the on-shift complement present during a backshift, weekend, or holiday.

Following the accident at Fukushima Daiichi, the Institute of Nuclear Power Operations (INPO) issued three INPO Event Reports (IERs) (L1-11-1, L1-11-2, and L1-11-4) requiring the assessment and implementation of a range of actions intended to improve the capabilities for responding to a BDBEE and an ELAP, including events that impact the cooling of spent fuel. Subsequently, INPO issued IER L1-13-10, which supersedes actions from IERs L1-11-1 and L1-11-4. The assessments performed in response to the NRC letter should include consideration of those IER improvement actions already implemented at the time of the assessment (e.g., incorporated into plant procedures).

4.2 NEI 10-05 Assumptions

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

2. The on-shift staff possesses the necessary radiation worker qualifications to obtain normal dosimetry and to enter radiologically-controlled areas (but not high, locked high or very high radiation areas) without the aid of a RP technician.

3. Personnel assigned to the major response area of plant operations and safe shutdown meet these requirements and guidance, and are able to satisfactorily perform the functions and tasks necessary to achieve and maintain safe shutdown.

4. The onsite security organization is able to satisfactorily perform all tasks related to site and protected area access controls under all event or accident conditions. 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.

5. Individuals holding the position of RP 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 is therefore an acceptable collateral duty for all positions. This assumption does not apply to notification actions specifically called out in the assessment methodology; these actions must be assessed.

7. 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.

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).

4.3 Other Assessment Assumptions

1. All equipment credited in any current design and beyond design basis coping strategies remains available for use including FLEX equipment connections and system interfaces.

2. The total loss of AC power affecting both Units 1 and 2 assumes the following:
   - Emergency lighting, designed for fire response, is available during the period of power loss.
   - The security emergency diesel generator (EDG) is unavailable.
   - The plant public address system is unavailable.
   - Plant phones are available to make intra-plant calls throughout the event in the turbine and auxiliary buildings throughout the event. Additionally, 50 percent of phones in the administration building are available throughout the event.
   - Plant paging system is available throughout the event.
   - Plant radios are available throughout the event.
   - Satellite phones are available throughout the event.
   - Emergency response data system (ERDS) communications capabilities are lost as a result of the 25-mile telecommunications blackout range.
   - Power operated door locks can be overridden by key.

3. 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.

4. All offsite facilities and staging areas are available including those located within the 25-mile telecommunications blackout range.

4.4 Event Description

The event conditions, as described by the assumptions listed above, results in a Site Area Emergency (SAE) emergency classification level (ECL) based on Emergency Action Level (EAL) SS1.1. EAL SS1.1 is for a loss of all AC power to the vital 4 kV busses for greater than 15 minutes. The ECL escalates to a General Emergency based on EAL SG1.1 once it has been determined that power cannot be restored. EAL SG1.1 is for a loss of all AC power to the vital 4 kV busses and restoration of any bus is not likely within 4 hours. This scenario would impact both Units 1 and 2, resulting in an ELAP.

Initial Conditions:	Both Units 1 and 2 100 percent power at equilibrium, middle of core life.
Abnormal Conditions:	None
Scenario Events:	An offsite electrical transient occurs resulting in a loss of all offsite power. None of the EDGs can be synchronized to any Unit 1 or Unit 2 AC bus, resulting in a dual-unit ELAP. Equipment credited in any current design and beyond design basis coping strategies remains available for use including all FLEX equipment connections and system interfaces. 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.

4.5 Scope

1. Evaluate the ability of the on-shift staff to implement initial phase coping actions and, consistent with the site access assumptions, any transition phase actions that must be performed prior to the end of the "no site access" 6-hour time period for the assessment.

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

Transition Phase – Implementation of strategies that involve the use of onsite portable equipment and consumables to extend the coping period, and prevent a loss of functions needed for core cooling, containment, and SFP cooling. Setup for these strategies should be performed prior to the end of the Initial Phase as determined by procedure.

2. Evaluate the applicable actions from the EOP actions and draft FSG strategies for the ELAP event in place at the time of the Assessment.

   a) Such actions may include the shedding of nonessential battery loads, use of portable generators or batteries, opening room and cabinet doors, water/coolant conservation or makeup using portable equipment, etc.

   b) These actions do not include those associated with cross-tying AC power sources or electrical distribution busses between units since both Units 1 and 2 are experiencing an ELAP.

3. Evaluate the existing EOPs and draft FSGs for responding to an extended loss of AC power affecting both Units 1 and 2.

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. 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, which is consistent with the site access assumptions.

5 On-shift Staffing Analysis

5.1 Phase 2 Staffing Analysis Details

The Phase 2 on-shift staffing analysis was conducted in accordance with the guidance of NEI 12-01 and NEI 10-05. The assessment analyzed the ability of the on-shift staff to perform the required emergency response functions that may be degraded or lost prior to the arrival of the augmented ERO.

The task analysis was conducted on April 1, 2015, using a tabletop procedural analysis with DCPP subject matter experts and an outside

consultant. Current DCPP procedures, draft EOPs and draft FSGs were utilized to determine if tasks had been sufficiently analyzed for performance by the minimum on-shift staff. The following provides a summary of the process that was utilized.

5.1.1 On-shift Staffing Analysis Methodology

The on-shift staffing analysis was conducted in accordance with the NEI 10-05 tables.

Attachment 1, Table 1, describes the on-shift positions for DCPP. This table provides the DCPP E-Plan reference for each position and a task matrix. The task matrix identifies associated tasks using the Table Number and Line Number in the Attachment 1 tables. Time motion studies were not conducted to resolve any identified unanalyzed tasks or collateral duties because the tasks were identified using current EOP, draft EOP and draft FSG procedures. However, attention was given to the sequence and the on-shift individual performing the step to account for both the task and time motion analyses of NEI 10-05.

Attachment 1, Table 2, describes the minimum operations crew necessary to implement the EOPs and FSGs in response to an ELAP.

Attachment 1, Table 3, describes the on-shift firefighting personnel as described in the DCPP E-Plan.

Attachment 1, Table 4, provides a timeline of tasks of the on-shift RP and chemistry technicians.

Attachment 1, Table 5, provides a listing of the DCPP E-Plan tasks identified in the tabletop procedural analysis.

Attachment 2 provides the ELAP timetable that provides a listing of the actions completed in the 6-hour duration.

5.1.2 Minimum On-shift Staffing Complement

Table 5.1-1 identifies the functional areas, major tasks, and emergency positions required to be on-shift as credited in the staffing analysis. The on-shift personnel complement includes the minimum required number and composition as described in the DCPP E-Plan.

Table 5.1-1

Functional Area	Major Tasks	Emergency Positions	Analysis Shift Staffing
1. Plant operations and assessment of operational aspects[c]	Control room (CR) staff	Shift Manager Unit Shift Foreman Licensed Operator Nuclear Operator	1 2 5 5
2. Emergency direction and control	Command and control	Shift Manager	1[a]
3. Notification and communication	Licensee	Shift Foreman/RO[d]	1[a]
	Local/ State	Shift Phone Talker (SRO[e]/RO/NO[f])	1
	Federal	Shift Foreman/RO	1[a]
4. Radiological assessment	Dose assessment	Work Control Shift Foreman	1[a]
	In-plant surveys Chemistry	C&RP[h] Technician C&RP Technician	1 1
5. Plant system engineering, repair, and corrective actions	Technical support	Work Control Shift Forman	1
	Repair and corrective actions	Mechanical Maintenance (position filled by operations) Electric/I&C[i] Maintenance (position filled by SCT[g])	1[a] 2
6. In-plant protective actions	Radiation protection	C&RP[h] Technician	2[a]
7. Fire fighting	--	Fire Department	5
8. First aid and rescue operations	--	Firefighters (Industrial Fire Officers)	2[a]
9. Site access control and accountability	Security and accountability	Watch Commander Security Personnel	1 (b)
		TOTAL:	**25**

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

(b) Per DCPP Security Plan.

(c) Per Technical Specification 5.2.2.f, one of the on-shift SROs (Shift Manager, Unit Shift Foreman or Work Control Shift Foreman) is required to meet the qualification requirements specified by the Commission Policy Statement on Engineering Expertise on Shift.

(d) Reactor Operator (RO)

(e) Senior Reactor Operator (SRO)

(f) Nuclear Operator (NO)

(g) Shift Control Technician (SCT)

(h) Chemistry & Radiation Protection (C&RP)

(i) Instrument and Controls (I&C)

5.1.3 Initial Shift Staffing Locations

As described in the NEI 10-05 Assumption Number 1, on-shift personnel can report to their assigned response locations within timeframes sufficient to allow for performance of assigned locations. Table 5.1-2 provides the typical initial locations of the on-shift personnel:

Table 5.1-2

On-shift Personnel	Typical Initial Location
Shift Manager	CR
U1 Shift Foreman (U1 SFM)	CR
U1 Control Operator No. 1 – (U1 CO)	CR
U1 Control Operator No. 2 – (U1 BOPCO[(a)])	CR
U2 Shift Foreman (U2 SFM)	CR
U2 Control Operator No. 1 – (U2 CO)	CR
U2 Control Operator No. 2– (U2 BOPCO)	CR
Shift Phone Talker (SPT)	CR
Work Control Shift Foreman (WCSFM)	Work control center
Work Control Lead (WCL)	Work control center
U1 Turbine Building Operator (NO1)	Work control center
U2 Turbine Building Operator (NO2)	Work control center
U1 Auxiliary Building Operator (NO3)	Work control center
U2 Auxiliary Building Operator (NO4)	Work control center
Intake Watch Operator (NO5)	Work control center
Shift Control Technician No. 1	Instrument maintenance shop
Shift Control Technician No. 2	Instrument maintenance shop
C&RP Technician No.1 (CRP1)	85 foot radiologically controlled area access office
C&RP Technician No.2 (CRP2)	Chemistry office
Firefighter No.1 (FBM1)	Fire department building
Firefighter No.2 (FBM2)	Fire department building
Firefighter No.3 (FBM3)	Fire department building
Firefighter No.4 (FBM4)	Fire department building
Firefighter No.5 (FBM5)	Fire department building

On-shift Personnel	Typical Initial Location
Watch Commander (DCWC)	140 ft Turbine building

(a) Balance of plant control operator (BOPCO)

5.1.4 Tabletop Procedural Analysis of On-shift Staffing for Extended Loss of AC Power

A tabletop review of on-shift actions for an ELAP for both Units 1 and 2 was performed using the guidance and documentation in NEI 10-05. The review team consisted of a SRO, RO, NO, watch commander, RP technician, SCT, assistant fire chief, emergency preparedness (EP) coordinator, two Fukushima procedure writers, Fukushima project engineer, and two EP specialists. This review included the identification of needed resources and the time required to complete identified actions for the first 6 hours of the ELAP.

Prior to conducting the tabletop review, all initial conditions and event assumptions were reviewed for basic understanding of the event. The SRO reviewed EOP and other FSG procedure actions and identified them to the team. Other team members, such as the RP technician, identified functions that would be required to support in-plant mitigation activities. All E-Plan functions were reviewed and assigned to the appropriate on-shift resources. Attachment 1, Table 1 identifies the resulting on-shift resources and their applicable actions.

The following DCPP procedures were referenced during the tabletop review:

1. EOP E-0, Unit 1, Reactor Trip or Safety Injection, Revision 44

2. EOP E-0, Unit 2, Reactor Trip or Safety Injection, Revision 35

3. EOP ECA-0.0, Unit 1, Loss of All Vital AC Power, (Revision 31 Draft)

4. EOP ECA-0.0, Unit 2, Loss of All Vital AC Power, (Revision 25 Draft)

5. EOP ECA-0.3, Unit 1, Restore 4 kV Buses, Revision 17

6. EOP ECA-0.3, Unit 2, Restore 4 kV Buses, Revision 14

7. OP AP-8A, Unit 1, Control Room Inaccessibility - Establishing Hot Standby, Revision 38

8. OP AP-8A, Unit 2, Control Room Inaccessibility - Establishing Hot Standby, Revision 30

9. OP J-4C:III, Unit 1, Generator Hydrogen – Remove from Service, Revision 29

10. OP J-4C:III, Unit 2, Generator Hydrogen – Remove from Service, Revision 20

11. EP G-1, Units 1 & 2, Emergency Classification and Emergency Plan Activation, Revision 43

12. EP G-2, Units 1 & 2, Interim Emergency Response Organization, Revision 45

13. EP G-3, Units 1 & 2, Emergency Notification of Off-Site Agencies, Revision 57

14. EP G-4, Units 1 & 2, Assembly and Accountability, Revision 26

15. EP G-5, Units 1 & 2, Evacuation of Non-Essential Site Personnel, Revision 14

16. RCP D-310, Units 1 & 2, RCA Access Control, Revision 24

17. RCP D-500, Units 1 & 2, Routine and Job Coverage Surveys, Revision 39

18. CAP E-1, Units 1 & 2, Primary Systems Sampling, Revision 49

19. CAP E-6, Units 1 & 2, Secondary System Sampling, Revision 12

20. SP 602, Units 1 & 2, Compensatory Measures (SGI), Revision 24

21. SP 603, Units 1 & 2, Security During Operational Emergencies, Revision 18

22. SP 608, Units 1 & 2, Security During Loss of Alarm Annunciation System (SGI), Revision 11

23. SP 614, Units 1 & 2, Emergency Key Use, Revision 9

24. FSG 04, Unit 1, ELAP DC Bus Load Shed and Management, (Revision 0 Draft)

25. FSG 04, Unit 2, ELAP DC Bus Load Shed and Management, (Revision 0 Draft)

26. FSG 05, Unit 1, Initial Assessment and FLEX Equipment Staging, (Revision 0 Draft)

27. FSG 05, Unit 2, Initial Assessment and FLEX Equipment Staging, (Revision 0 Draft)

28. FSG 08, Unit 1, Alternate RCS Boration, (Revision 0 Draft)

29. FSG 08, Unit 2, Alternate RCS Boration, (Revision 0 Draft)

30. FSG 43, Unit 1, Staging FLEX Equipment, (Revision 0 Draft)

31. FSG 43, Unit 2, Staging FLEX Equipment, (Revision 0 Draft)

32. FSG 49, Unit 1, Align RCS Injection for Inventory/Boration, (Revision 0 Draft)

33. FSG 49, Unit 2, Align RCS Injection for Inventory/Boration, (Revision 0 Draft)

34. FSG 60, Unit 1, Local Manual Operation of 10 Percent Steam Dumps, (Revision 0 Draft)

35. FSG 60, Unit 2, Local Manual Operation of 10 Percent Steam Dumps, (Revision 0 Draft)

5.2 On-shift Staffing Analysis Summary

Based upon the results of the Phase 2 staffing analyses, the minimum on-shift staffing, as defined in the current revision of the DCPP E-Plan, is sufficient to support the implementation of current DCPP procedures simultaneously for Units 1 and 2 with no collateral duties as required by the E-Plan.

5.2.1 On-shift Staffing Task Analysis Results

Refer to Attachment 1 of Enclosure 1, NEI 10-05, Appendix B, "On-shift Staffing Analysis Results Tables," for additional documentation of the on-shift staffing task analysis.

Refer to Attachment 2 of Enclosure 1, "ELAP On-shift Staffing Task Timetable," for documentation of the timetable of on-shift staffing actions.

5.2.1.1 Unassigned Tasks

The task analysis did not identify any unassigned tasks.

5.2.1.2 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 EOP or emergency plan implementing procedure (EPIP) tasks performed by the on-shift positions that were not validated.

The task analysis did identify that the performance of FSG tasks is currently not incorporated into the operator or other appropriate training program.

5.2.1.3 Potential Overlap

The task analysis did not identify any potential task overlaps that were performed by the on-shift positions in response to the ELAP event.

The Security Watch Commander and/or other on-shift security personnel perform the Physical Security Plan and EP tasks (personnel accountability) during the ELAP event. A representative of the DCPP Security Department analyzed the EP tasks assigned to on-shift security individuals. It was concluded that performance of the EP task did not cause an overlap with their tasks related to the Security Plan. Tasks related to the Physical Security Plan and Safeguards Contingency 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 non-routine security activities for implementation of mitigating strategies during the ELAP event.

6 Expanded ERO Response Analysis

6.1 Expanded ERO Response Analysis Process Details

For purposes of assessing augmented and expanded ERO staffing, it was assumed that the on-shift staff successfully performs all Initial Phase, and any required Transition Phase coping actions in accordance with NEI 12-01.

This section of the assessment documents the ability of the augmenting ERO to implement Transition Phase coping strategies performed after the end of the 6-hour "no site access" time period.

6.1.1 Expanded ERO Response Analysis Methodology

The expanded ERO assessment was conducted in accordance with NEI 12-01, which provides recommended staffing considerations to verify the performance of unit-specific accident assessment and mitigation functions. PG&E utilized the NEI 12-01 recommended considerations and did not use an alternative approach. No additional ERO functions were identified beyond those detailed in NEI 12-01 Table 3.1 and Table 3.2 that would be required following a BDBEE at DCPP.

The capability of the current ERO staffing at DCPP to perform these expanded ERO functions was assessed as described below:

1. Number and composition of personnel required to perform the expanded ERO response functions of Table 6.2-1 and Table 6.2-2 was determined by performing the following:

    a) Current ERO rosters and qualification information were obtained and entered into Table 6.1-1.

    b) FSG assessment performed to identify the two strategies for each unit that require the greatest number of staff to implement within time periods compatible with successful performance and the corresponding number and composition of staff to implement them.

2. Work areas for the expanded ERO were identified and analyzed for habitability.

3. Transportation and access to the site, was assessed to reasonably ensure that the expanded ERO arrive onsite starting at the sixth hour of the event.

4. Position specific guidance was assessed in accordance with NEI 12-01.

6.1.2 Current Augmented ERO Staffing Complement and Response Capability

The DCPP ERO consisted of four fully staffed teams. Staffing resources for assessment of the expanded ERO were provided by the depth of personnel filling the existing augmenting ERO positions. Table 6.1-1 documents the augmenting ERO staffing requirements (minimum and full staffing) from E-Plan Table 5.1B. The qualified personnel were taken from the DCPP ERO rosters emergency planning information consolidation report dated May 8, 2015 for the Emergency Operations Facility (EOF), May 14, 2015, for the TSC, May 1, 2015, for the OSC and May 4, 2015, for the Joint Information Center (JIC).

Table 6.1-1

Assigned Major Function/Task	ERO Title	# per Team	# Qualified
Minimum Augmented ERO Staffing			
Emergency direction and control (command and control)	Site Emergency Coordinator	1	5
	Emergency Director	1	4
Emergency direction & control	EOF Director	1	4
Notification / communication (emergency communications)	Communications Coordinator	1	3
	Agency/Emergency Notification System (ENS) Communicator	1	6
Notification / communication (governmental)	Offsite Communicator	1	3
Radiological assessment (dose assessment)	Radiological Manager	1	4
	Dose Assessor	1	5
Radiological assessment (offsite surveys)	Field Monitoring Team	4	43[(a)]
Radiological assessment (onsite surveys)	Field Monitoring Team	2	
Radiological assessment (in-plant surveys)	C&RP Technician	2	
In-plant protective actions	C&RP Technician	4	
Radiological assessment (RP supervisory)	Site RP Coordinator	1	5
Plant system engineering	Reactor Engineer	1	5
	Mechanical Engineer	1	7
	Electrical Engineer	1	4
	Operations Advisor	1	5
Repair and corrective actions	Maintenance Advisor	1	7
	OSC Director	1	6
	Mechanical Coordinator	1	4
	Electrical Coordinator	1	9
	I&C Coordinator	1	8
Public information	Public Information Officer	1	7
Public information	JIC Director	1	5
Full Augmented ERO Staffing			
Emergency direction and control	TSC Director	1	6
Notification / communication (emergency communications)	Health Physics Network (HPN) Communicator	1	4

Assigned Major Function/Task	ERO Title	# per Team	# Qualified
Notification / communication (plant status)	Communications Advisor	1	4
	Operations Communicator	1	4
	Engineering Liaison	2	10
Notification / communication (in-plant team control)	Team Coordinator	1	4
Notification / communication (governmental)	Advisor to the County	1	4
	Government Relations Coordinator	1	8
Radiological assessment (dose assessment)	Dose Assessment Coordinator	1	5
	Unified Dose Assessment Center (UDAC) Meteorologist	1	4
Radiological assessment (offsite survey)	Field Monitoring Team (FMT) Coordinator	1	4
	FMT Communicator	1	3
	Offsite Emergency Lab Analyst	1	4
Radiological assessment (chemistry)	Chemistry Coordinator	1	5
Radiological assessment (RP supervisory)	Radiological Advisor	1	5
Plant system engineering	Engineering Advisor	1	4
	Radiological Data Processor	1	5
	Plant Process Computer (PPC) Operator	1	30[(b)]
Repair and corrective actions	Operations Coordinator	1	4
Site access and accountability	Security Advisor	1	4
Resource allocation and administration (logistics)	Administrative Advisor	1	4
	Security (EOF)	1	9
	Security Liaison	1	4
Resource allocation and administration (administration)	ED Admin Assistant	1	5
	SEC Admin Assistant	1	6
	Clerical Staff (EOF, UDAC, JIC)	5	40
Public information (media interface)	Company Spokesperson	1	6
	News Media Liaison – Corp	1	7
	News Media Liaison – Site	1	5
Public information (information development)	Tech Advisor – OPS	1	7
	Tech Advisor – HP	1	7
	News Writer	1	5
	Assistant PIO	1	9
Public information (facility control)	JIC Security	1	7

Notes:

(a) As of March 20, 2015, DCPP had 45 qualified C&RP Technicians. Two C&RP Technicians were credited for as being on shift.

(b) As of March 19, 2015, DCPP had 36 active qualified Reactor Operators. Six ROs were credited for as being on shift.

6.2 Expanded ERO Assessment Summary

Sufficient augmenting ERO resources existed to fill the expanded ERO functions. Thus, the ability of the responding ERO members to implement Transition Phase coping strategies performed after the end of the "no site access" 6-hour time period had been assessed and determined to be adequate. Refer to Tables 6.2-1 and Table 6.2-2 for additional documentation of the expanded ERO functional staffing resources.

6.2.1. Mobilization of Expanded Response Capability Staffing

6.2.1.1 Implementing Strategy for the Expanded ERO

The DCPP ERO augmentation process consists of an "all respond" expectation. When the ERO notification system is operable, all qualified ERO members are contacted and expected to report if fit for duty. In the absence of the call out system, ERO members are trained to respond automatically per OM10.DC2, "Emergency Response Organization On-Call" as follows:

> *If the ERO becomes aware (e.g., direct observation, media posts, word of mouth) of an area-wide disaster (e.g., loss-of-grid, natural or man-made disaster, etc.) that may impact the safe operation of Diablo Canyon and ERO pagers, cell phones, and home phones are being challenged or are not working, the ERO should report to assigned emergency response facilities.*

This instruction is contained in Training Lesson EPD 500, "Basic Radiological Emergency Plan Training," as part of continuing ERO training.
Review of the DCPP ERO roster confirmed that sufficient numbers of qualified individuals are not available to fill the positions in Tables 6.2-1 and 6.2-2 with adequate depth to staff at least two twelve-hour shifts.

6.2.1.2 Response Timeliness for the Expanded ERO

The DCPP ERO augmentation process consists of an all call/all come 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 OM10.DC2 and EPD 500. This system is described in the implementing strategy above.

6.2.1.3 Site Access/Alternate Transportation Capability

PG&E Letter DCL-12-061, "Pacific Gas and Electric Company's Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Emergency Preparedness Aspects of Recommendation 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident," dated June 7, 2012, states that the following methods of access to the site are available:

- Roadway – The preferred route to access the site is south along the paved site access road. If the southern route is impassable or unsafe, access to the site is available via a dirt road through Montana de Oro State Park.

- Air – DCPP has access to helicopter companies for emergency transport of personnel to the site. Military helicopters may be available for emergency use. The closest military helicopter is at Vandenberg Air Force Base.

- Sea – PG&E owns and maintains two marine craft and a dock located at the site. These vessels may be used if available following a beyond design basis natural event to supplement air transport in the event road access is unavailable.

PG&E Letter DCL-12-061 stated that military helicopters were available at Vandenberg Air Force Base. PG&E Letter DCL-13-040, "Response to March 12, 2012, NRC 10 CFR 50.54(f) Request for Information Regarding Recommendation 9.3, Phase 1 Staffing Assessment," dated April 24, 2013, identified that military helicopters are no longer located at Vandenberg Air Force Base. PG&E has contracts with helicopter companies in order to transport personnel to the site.

The San Luis Obispo County Emergency Operations Plan, Nuclear Power Plant Administrative Plan, Earthquake Plan, and Tsunami Plan document the elements and responsibilities for debris removal through the Public Works Department, which is a key member of the operational phase in each of these plans. The Public Works Department has resources and standard operating procedures in place to assist in performing debris removal to allow restoration of access to DCPP.

PG&E Letter DCL-13-007, "Pacific Gas and Electric Company's Overall Integrated Plan in Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events (Order Number EA-12-049)," dated February 27, 2013, specifies that debris removal will be initiated using onsite equipment to facilitate onsite plant access at the sixth hour.

Draft FSG 48, "FLEX Coordination of Offsite Resources" provides guidance for onsite transportation of support and ERO personnel and requests offsite resources to support road debris removal.

6.2.1.4 Work Areas for Personnel Performing Expanded Response Functions

If the primary onsite emergency response facilities are inaccessible, ERO members are trained to report to the Alternate TSC and OSC Facility. The Alternate TSC and OSC Facility is located near the San Luis Obispo County Airport. This alternate facility has full TSC and OSC functional capabilities and has an additional 3,500 square feet of space for overflow.

6.2.2 Expanded ERO Response Analysis

6.2.2.1 Expanded Response Functions

For a BDBEE, PG&E would need to expand the augmented ERO in order to facilitate timely and effective performance of critical response functions.

The expanded ERO analysis was performed using the guidance of NEI 12-01, which provides recommended staffing considerations to be assessed. No additional ERO functions or resources were identified beyond those detailed in NEI 12-01, Table 3.1 and Table 3.2.

Table 6.2-1 below describes the DCPP expanded response functions based upon the criteria listed in NEI 12-01, Table 3.1. Table 6.2-1 provides a comparison of the DCPP expanded augmented ERO to NEI 12-01, Table 3.1. In addition, Table 6.2-1 identifies the ERO resources required to implement the expanded response versus those available from current ERO site staffing.

Table 6.2-2 below describes the DCPP expanded response functions based upon criteria listed in NEI 12-01, Table 3-2. Table 6.2-2 provides a comparison of the DCPP expanded augmented ERO to NEI 12-01 Table 3.2. In addition, Table 6.2-2 identifies the ERO and Operations resources required to evaluate and implement the transition phase coping strategies.

It should be noted that these tables consider expanded ERO staffing support for both units based on two 12-hour shifts.

Table 6.2-1

Function	Location	Key Roles and Staffing Considerations	DCPP ERO Position	Number Required U1 and U2	Number Available U1 and U2
Unit response coordination	TSC	• Overall cognizance of the activities related to implementation of repair and corrective actions and implementation of Transition Phase coping and Severe Accident Management (SAM) strategies for an assigned unit. • One individual per unit; individuals should not be assigned other functions.	Site Emergency Coordinator	4	5
Operations coordination	TSC	• Provides coordination of Operations staff and support for an assigned unit. • One individual per unit; individuals should not be assigned other functions.	Operations Advisor SRO	4 4	4 39[(a)]
Maintenance coordination	TSC / OSC	• Provides coordination of Maintenance staff and support for an assigned unit. • One individual per unit; individuals should not be assigned other functions.	Maintenance Advisor	4	7
Engineering coordination	TSC	• Provides coordination of Engineering staff and support for an assigned unit. • One individual per unit; individuals should not be assigned other functions.	Engineering Advisor	4	4
Engineering assessments	TSC	• One team for each unit to perform engineering assessments in support of repair and corrective actions. • Team composition (i.e., number and represented disciplines) as described in the Emergency Plan. • Team may include personnel responsible for performing other functions for the same assigned unit.	Reactor Engineer Mechanical Engineer Electrical Engineer	4 4 4	5 7 4
Unit in-plant team coordination	OSC	• Overall cognizance of on-site and in-plant teams performing or supporting repair and corrective actions for an assigned unit. • One individual per unit; individuals should not be assigned other functions.	OSC Director	4	6
Non-licensed operators	OSC	• Two individuals per unit to assist with implementation of repair and corrective actions. • Should not include members of the on-shift staff.	NO	8	43[(b)]

Function	Location	Key Roles and Staffing Considerations	DCPP ERO Position	Number Required U1 and U2	Number Available U1 and U2
Mechanical maintenance repair and corrective action	OSC	• Two individuals per unit to implement repair and corrective actions. • Staffing may include an on-shift individual (i.e., 2 individuals for a unit composed of 1 on-shift and 1 augmented).	Mechanical Coordinator Mechanical Maintenance	4 4	4 64(c)
Electrical maintenance repair and corrective action	OSC	• Two individuals per unit to implement repair and corrective actions. • Staffing may include an on-shift individual (i.e., 2 individuals for a unit composed of 1 on-shift and 1 augmented).	Electrical Coordinator Electrical Maintenance	4 4	9 36(d)
I&C repair and corrective action	OSC	• Two individuals per unit to implement repair and corrective actions. • Staffing may include an on-shift individual (i.e., 2 individuals for a unit composed of 1 on-shift and 1 augmented).	I&C Coordinator I&C Maintenance	4 4	9 44(e)

Notes:

(a) As of March 19, 2015, DCPP had 43 active qualified SROs. Four SROs are credited for as being on shift.

(b) As of March 19, 2015, DCPP had 48 qualified NOs. Five NOs are credited for as being on shift.

(c) As of February 10, 2015, DCPP had 64 qualified mechanical maintenance technicians.

(d) As of February 10, 2015, DCPP had 36 qualified electrical maintenance technicians.

(e) As of March 19, 2015, DCPP had 46 qualified I&C technicians. Two SCTs are credited for as being on shift.

Table 6.2-2

Function	Location	Key Roles and Staffing Considerations	BVPS ERO Position	Number Required U1 and U2	Number Available U1 and U2
Evaluation of Transition Phase Coping Strategies	TSC or EOF	• One team for each unit to evaluate selection of Transition Coping strategies; team performs evaluations not done by Control Room personnel. • Team composition (i.e., number and represented disciplines) as described in governing site programs, procedures and guidelines. • Team may include personnel responsible for performing other functions for the same assigned unit.	Operations Advisor Engineering Advisor	4 4	5 4
Implementation of Transition Phase Coping Strategies	OSC	• Number and composition of personnel capable of simultaneous implementation of any two Transition Phase coping strategies at each unit (see Section 7.1.2.3). • Should not include personnel assigned to other functions (e.g., emergency repair and corrective actions); however, may include members of the on-shift staff and personnel responsible for implementation of SAM strategies.	NO Electrical Maintenance Mechanical Maintenance C&RP Technician	9 3 3 4	43[(a)] 36[(b)] 64[(c)] 45[(d)]

Notes:

(a) As of March 19, 2015, DCPP had 48 qualified NOs. Five NOs are accounted for as being on shift.

(b) As of February 10, 2015, DCPP had 36 qualified electrical maintenance technicians.

(c) As of February 10, 2015, DCPP had 64 qualified mechanical maintenance technicians.

(d) As of March 20, 2015, DCPP had 45 active qualified C&RP technicians. Two C&RP technicians are accounted for as being on shift.

6.2.2.2 Position Specific ERO Response

1. Radiation Protection Technicians (RPTs)

The equation below was used to determine the required number of onsite RPTs (on-shift plus augmented ERO RPTs that perform onsite response functions) for DCPP:

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

Where:

RPT_T = Total required number of onsite RP Technicians.

RPT_{COP} = Number needed to support implementation of the two 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 protection action Table 6.1-1 function (2 x the number of Units).

RPT_{NC} = Number of onsite RPTs performing other emergency plan functions that would preclude them from performing job coverage for ELAP coping, repair or corrective action teams – equivalent to the radiological assessment and support NUREG-0654 Table B-1 function.

The resulting number of RPTs is:

RPT Category	Number Required	Comments
RPT_{COP}	4	Four C&RPTs are required to support implementation of the two most limiting FSG strategies for RP support (2 RPTs for Reactor Coolant System (RCS) Injection and 2 RPTs for SPF Make-up and Cooling).
RPT_{SHIFT}	2	Minimum No. of on-shift C&RPTs.
RPT_{RCA}	8	Minimum No. of C&RPTs required for ERO augmentation response for the in-plant radiation protection and rad waste functions.
RPT_{NC}	8	Minimum No. of C&RPTs required for ERO augmentation response for the radiological assessment function.
RPT_T	22	

Thus, the total number of on-site RPTs required for the expanded ERO is 40, 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 (4 RPT_{COP})
2) Support operating on 12-hour shifts for other RP tasks (2 shifts of RPT_{RCA}, RPT_{SHIFT} and RPT_{NC} = 36 total RPTs).

Forty-Five RPTs are available to support performance of assigned emergency plan functions and the expanded response capability (refer to Table 6.1-2).

Provisions exist for obtaining additional RPTs through industry agreement with INPO as part of the INPO Emergency Resources Manual documented by letter of agreement dated September 2009. No other arrangements have been made for additional RPTs.

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 Assistant and Clerical Support positions that assist the augmented ERO members are not assigned critical response tasks. Responsibilities for these positions are listed in Section 5 of the DCPP Emergency Plan. Augmented ERO personnel, in their roles as an expanded ERO, are capable of performing their assigned tasks and responsibilities without requiring expanded administrative support. 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.

The EOF Administrative Advisor is responsible for establishing 24-hour shift schedules for all emergency response facilities, which is considered a critical response task under the Planning Standard §50.47.b(1) function of Continuous Staffing and Shift Relief. It is more appropriate for a single ERO position to be responsible for this task as it applies to the entire expanded ERO (not divided by unit) to ensure no overlap in personnel resources occurs in shift scheduling. Current augmented staffing of the EOF Administrative Advisor position is sufficient to support the expanded ERO.

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 as specified in NEI 12-06:

1) Maintain Instrumentation
2) Decay Heat Removal
3) RCS Injection
4) Containment Integrity
5) SFP Makeup & Cooling

Based on the FSG task analysis, the following two FLEX strategies have been selected:

Strategy No. 1 – Maintain Instrumentation
Implementation of Strategy No.1 involves the following FSGs and personnel resources:

- FSG-04, ELAP DC Bus Load Shed and Management

Personnel (department)	Total No.	Task Performed
NO Electrical Maintenance	1 (for both units) 1 (for both units)	Stage FLEX generator (FSG 04)
NO Electrical Maintenance	1 (per unit) 1 (per unit)	Deploy FLEX generator cables and load centers (FSG 04)
NO	1 (for both units)	Operate FLEX generator (FSG 04)
Total	**7**	

Note: The task to conduct load shedding is not listed because on-shift personnel are credited with completion of this task.

Strategy No.2 – Decay Heat Removal

Implementation of Strategy No. 2 involves the following FSGs and personnel resources:

- FSG 03- Alternate Low Pressure Feedwater
- FSG 42- Establishing the FLEX Suction Header Water Supply

Personnel (department)	Total No. (1 Unit)	Task Performed
NO Mechanical Maintenance	1 (for both units) 1 (for both units)	Stage raw water reservoir (RWR) and Emergency Auxiliary Feedwater (EAFW)

		pumps (FSG 03 and FSG 42)
NO Mechanical Maintenance	1 (per unit) 1 (per unit)	Deploy RWR and EAFW pump hoses and connections (FSG 03 and FSG 42)
NO	1 (for both units)	Operate EAFW pumps (FSG 03)
NO	1 (for both units)	Operate RWR pumps (FSG 42)
Total	**8**	

A total of 15 personnel are required to simultaneously implement these two FLEX strategies for both units.

6.2.3 Activating the Expanded Response Capability

DCPP's E-Plan implementing procedures instruct the emergency response facility directors to determine the ERO resources.

7 Programmatic Controls

7.1 Emergency Response Drill and 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 drill or exercise that involved a design basis accident affecting only one unit.

Current DCPP drill and exercise procedures do not include evaluation objectives or demonstration criteria for dual unit events or expanded ERO activities. As future guidance is expected from the NRC in this area, no changes to the drill and exercise procedures are required at this time.

PG&E will evaluate its drill and exercise program and make any necessary changes within six months once future NRC guidance is received regarding demonstration criteria for dual unit events or expanded ERO activities.

8 References

1. EA-12-049, NRC Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events, March 3, 2012

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

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

4. NEI document to industry peers, Generic Basis for Responses to Staffing Assessment Questions Related to Use of Security Personnel During a BDB Event Response, December 23, 2013

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

6. 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 March 12, 2012 (ML12053A340)

7. 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, dated May 15, 2012

8. PG&E Letter DCL-12-061, "Pacific Gas and Electric Company's Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Emergency Preparedness Aspects of Recommendation 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident," dated June 7, 2012

9. PG&E Letter DCL-13-007, "Pacific Gas and Electric Company's Overall Integrated Plan in Response to March 12, 2012, Commission Order Modifying Licenses with regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated February 27, 2013

10. PG&E Letter DCL-13-040, "Response to March 12. 2012, NRC 10 CFR 50.54(f) Request for Information Regarding Recommendation 9.3, Phase 2 Staffing Assessment," dated April 24, 2013

11. Diablo Canyon Emergency Plan Section 5, Organizational Control of Emergencies, Revision 4.15

12. OM10.DC2, Units 1 & 2, Emergency Response Organization On-Call, Revision 6

13. EPD-450, Communications and Notifications, Revision 12
14. EPD-500, Basic Radiological Emergency Plan Training, Revision 17
15. EOP E-0, Unit 1, Reactor Trip or Safety Injection, Revision 44
16. EOP E-0, Unit 2, Reactor Trip or Safety Injection, Revision 35
17. EOP ECA-0.0, Unit 1, Loss of All Vital AC Power, (Revision 31 Draft)
18. EOP ECA-0.0, Unit 2, Loss of All Vital AC Power, (Revision 25 Draft)
19. EOP ECA-0.3, Unit 1, Restore 4 kV Buses, Revision 17
20. EOP ECA-0.3, Unit 2, Restore 4 kV Buses, Revision 14
21. OP AP-8A, Unit 1, Control Room Inaccessibility - Establishing Hot Standby, Revision 38
22. OP AP-8A, Unit 2, Control Room Inaccessibility - Establishing Hot Standby, Revision 30
23. OP J-4C:III, Unit 1, Generator Hydrogen – Remove from Service, Revision 29
24. OP J-4C:III, Unit 2, Generator Hydrogen – Remove from Service, Revision 20
25. EP G-1, Emergency Classification and Emergency Plan Activation, Revision 43
26. EP G-2, Units 1 & 2, Interim Emergency Response Organization, Revision 45
27. EP G-3, Units 1 & 2, Emergency Notification of Off-Site Agencies, Revision 57
28. EP G-4, Units 1 & 2, Assembly and Accountability, Revision 26
29. EP G-5, Units 1 & 2, Evacuation of Non-Essential Site Personnel, Revision 14
30. RCP D-310, Units 1 & 2, RCA Access Control, Revision 24
31. RCP D-500, Units 1 & 2, Routine and Job Coverage Surveys, Revision 39
32. CAP E-1, Units 1 & 2, Primary Systems Sampling, Revision 49

33. CAP E-6, Units 1 & 2, Secondary System Sampling, Revision 12

34. SP 602, Units 1 & 2, Compensatory Measures (SGI), Revision 24

35. SP 603, Units 1 & 2, Security During Operational Emergencies, Revision 18

36. SP 608, Units 1 & 2, Security During Loss of Alarm Annunciation System (SGI), Revision 11

37. SP 614, Units 1 & 2, Emergency Key Use, Revision 9

38. FSG 04, Unit 1, ELAP DC Bus Load Shed and Management, (Revision 0 Draft)

39. FSG 04, Unit 2, ELAP DC Bus Load Shed and Management, (Revision 0 Draft)

40. FSG 05, Unit 1, Initial Assessment and FLEX Equipment Staging, (Revision 0 Draft)

41. FSG 05, Unit 2, Initial Assessment and FLEX Equipment Staging, (Revision 0 Draft)

42. FSG 08, Unit 1, Alternate RCS Boration, (Revision 0 Draft)

43. FSG 08, Unit 2, Alternate RCS Boration, (Revision 0 Draft)

44. FSG 43, Unit 1, Staging FLEX Equipment, (Revision 0 Draft)

45. FSG 43, Unit 2, Staging FLEX Equipment, (Revision 0 Draft)

46. FSG 49, Unit 1, Align RCS Injection for Inventory/Boration, (Revision 0 Draft)

47. FSG 49, Unit 2, Align RCS Injection for Inventory/Boration, (Revision 0 Draft)

48. FSG 60, Unit 1, Local Manual Operation of 10 Percent Steam Dumps, (Revision 0 Draft)

49. FSG 60, Unit 2, Local Manual Operation of 10 Percent Steam Dumps, (Revision 0 Draft)

Attachment 1
NEI 10-05, Appendix B, "On-shift Staffing Analysis Results"
Table 1

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table No. / Line No.	Unanalyzed Task?	Time Motion Study Required?
1.	Shift Manager	Section 5 Table 5-1	N/A	2/1 5/1 5/2 5/3 5/5	Yes	Yes
2.	U1 Shift Foreman (U1 SFM)	E-Plan Table 5-1A	N/A	2/2	Yes	Yes
3.	U1 Control Operator (U1 CO)	E-Plan Table 5-1A	N/A	2/3	No	No
4.	U1 BOPCO (U1 BOPCO)	E-Plan Table 5-1A	N/A	2/4	Yes	Yes
5.	U2 Shift Foreman (U2 SFM)	E-Plan Table 5-1A	N/A	2/5	Yes	Yes
6.	U2 Control Operator (U2 CO)	E-Plan Table 5-1A	N/A	2/6	No	No
7.	U2 BOPCO (U2 BOPCO)	E-Plan Table 5-1A	N/A	2/7	Yes	Yes
8.	Shift Phone Talker (SPT)	E-Plan Table 5-1A	N/A	5/6 5/9 5/13	No	No
9.	Work Control Shift Foreman (WCSFM)	E-Plan Table 5-1A	N/A	2/9 5/8 5/10 5/11	Yes	Yes
10	Work Control Lead (WCL)	E-Plan Table 5-1A	N/A	2/10 5/9	No	No
11.	U1 Turbine Building Operator (NO1)	E-Plan Table 5-1A	N/A	2/11	Yes	Yes
12.	U2 Turbine Building Operator (NO2)	E-Plan Table 5-1A	N/A	2/12	Yes	Yes
13.	U1 Aux Building Operator (NO3)	E-Plan Table 5-1A	N/A	2/13	Yes	Yes
14.	U2 Aux Building Operator (NO4)	E-Plan Table 5-1A	N/A	2/14	Yes	Yes
15.	Intake Watch Operator (NO5)	E-Plan Table 5-1A	N/A	2/15	Yes	Yes
16.	Shift Control Tech No. 1 (SCT1)	E-Plan Table 5-1A	N/A	N/A	N/A	NA
17.	Shift Control Tech No.2 (SCT2)	E-Plan Table 5-1A	N/A	N/A	N/A	N/A

Attachment 1
NEI 10-05, Appendix B, "On-shift Staffing Analysis Results"
Table 1

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table No. / Line No.	Unanalyzed Task?	Time Motion Study Required?
18.	C&RP Technician No.1 (CRP1)	E-Plan Table 5-1A	N/A	4/4	No	No
19.	C&RP Technician No.2 (CRP2)	E-Plan Table 5-1A	N/A	4/8	No	No
20.	Firefighter No.1 (FBM1)	E-Plan Table 5-1A	N/A	N/A	N/A	N/A
21.	Firefighter No.2 (FBM2)	E-Plan Table 5-1A	N/A	3/2	Yes	Yes
22.	Firefighter No.3 (FBM3)	E-Plan Table 5-1A	N/A	3/3	Yes	Yes
23.	Firefighter No.4 (FBM4)	E-Plan Table 5-1A	N/A	N/A	N/A	N/A
24.	Firefighter No.5 (FBM5)	E-Plan Table 5-1A	N/A	N/A	N/A	N/A
25.	Watch Commander	E-Plan Table 5-1A	N/A	5/15	No	No

Notes:

1) 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. Refer to Enclosure 1, Section 5.2.

2) Items in red indicate FLEX implementation tasks which have not been validated. A time motion study will be conducted for FLEX tasks under the FLEX validation plan.

Attachment 1
NEI 10-05, Appendix B, "On-shift Staffing Analysis Results"
Table 2: Plant Operations and Safe Shutdown

Minimum Operations Crew (Two Units- One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Manager	Determination of ELAP conditions (ECA 0.0)	Ops Training Program
			Direct site assessment (FSG 05) Evaluate site assessment for FLEX (FSG 05) Direct debris removal (FSG 43) Direct equipment staging (FSG 43)	N/V (None In Place)
			Issue security keys for vital area doors (SP-614)	Ops Training Program
2.	Unit Supervisor	U1 Shift Foreman	Implement ECA 0.0 Actions (ECA-0.0) Direct alignment for backfeed operations (ECA-0.0) Direct local start of EDGs (ECA-0.0) Direct RCP seal isolation (ECA-0.0) Direct 4 kV bus restoration (ECA-0.3) Direct H2 purge of Main Generator (ECA-0.0) Direct isolation of hotwell makeup (ECA-0.0) Direct isolation of SGs (ECA-0.0) Direct non-essential DC bus load shed (ECA-0.0) Direct local control of Aux Feed Water (ECA-0.0) Direct RCS cooldown (ECA-0.0) Direct SFP condition monitoring (ECA-0.0)	Ops Training Program
			Direct DC bus load shed (FSG 04) Direct boration using ERCS equipment (FSG 08)	N/V (None In Place)
3.	Reactor Operator No.1	U1 Control Operator (U1 CO)	Perform ECA-0.0 actions in Control Room (ECA-0.0)	Ops Training Program
4.	Reactor Operator No.2	U1 BOPCO (U1 BOPCO)	Perform ECA-0.0 actions in Control Room (ECA-0.0) Line up for Backfeed operations (ECA-0.0, App DD) Restore 4 kV power (ECA-0.3)	Ops Training Program
			Direct local control of 10% steam dumps (FSG 04) Perform U1 and U2 Containment Phase A isolation/verification (FSG 04) Perform DC bus load shed (FSG 04) Perform boration using ERCS equipment (FSG 08)	N/V (None In Place)

Attachment 1
NEI 10-05, Appendix B, "On-shift Staffing Analysis Results"
Table 2: Plant Operations and Safe Shutdown

Minimum Operations Crew (Two Units- One Control Room)				
			Direct ERCS lineup for boration (FSG 08)	
5.	Unit Supervisor	U2 Shift Foreman (U2 SFM)	Implement ECA 0.0 Actions (ECA-0.0) Direct alignment for Backfeed Ops (ECA-0.0) Direct local start of EDGs (ECA-0.0) Direct RCP seal isolation (ECA-0.0) Direct 4 kV bus restoration (ECA-0.3) Direct sampling of U1 and U2 SGs (ECA-0.0) Direct isolation of Hotwell Makeup (ECA-0.0) Direct isolation of SGs (ECA-0.0) Direct local control of Aux Feed Water (ECA-0.0) Direct RCS cooldown (ECA-0.0) Direct SFP condition monitoring (ECA-0.0)	Ops Training Program
			Direct DC bus load shed (FSG 04)	N/V (None In Place)
			Direct boration using ERCS equipment (FSG 08)	
6.	Reactor Operator No.3	U2 Control Operator (U2 CO)	Perform ECA-0.0 actions in Control Room (ECA-0.0)	Ops Training Program
7.	Reactor Operator No.4	U2 BOPCO (U2 BOPCO)	Perform ECA-0.0 actions in Control Room (ECA-0.0) Line up for Backfeed operations (ECA-0.0, App DD) Restore 4 kV power (ECA-0.3)	Ops Training Program
			Direct local control of 10% steam dumps (FSG 04) Isolate Cardox (FSG 04) Perform DC bus load shed (FSG 04) Perform boration using ERCS equipment (FSG 08) Direct ERCS lineup for boration (FSG 08)	N/V (None In Place)
8.	Other	Shift Phone Talker (SPT)	NA	NA
9.	STA	Work Control Shift Foreman (WCSFM)	Notify National SAFER response center (FSG 05)	N/V (None In Place)
10.	Other	Work Control Lead (WCL)	Perform ECA-0.0 actions in Control Room (ECA-0.0) Open CFCU breakers (ECA-0.0) Perform non-essential DC bus load shed (ECA-0.0)	Ops Training Program

Attachment 1
NEI 10-05, Appendix B, "On-shift Staffing Analysis Results"
Table 2: Plant Operations and Safe Shutdown

Minimum Operations Crew (Two Units- One Control Room)				
11.	Auxiliary Operator No.1	U1 Turbine Building Operator (NO1)	Perform local start of EDGs (OP AP-8A) Check status of SFP level and temp (ECA-0.0)	Ops Training Program
			Perform inside site assessment (FSG 05) Line up ERCS pump and generator (FSG 49)	N/V (None In Place)
12.	Auxiliary Operator No.2	U2 Turbine Building Operator (NO2)	Perform local start of EDGs (OP AP-8A)	Ops Training Program
			Perform inside site assessment (FSG 05) Line up ERCS pump and generator (FSG 49)	N/V (None In Place)
13.	Auxiliary Operator No.3	U1 Aux Building Operator (NO3)	Isolate RCP seals (ECA-0.0) Locally throttle Aux Feed Water (ECA-0.0)	Ops Training Program
			Take local control of 10% steam dumps (FSG 60)	N/V (None In Place)
14.	Other	U2 Aux Building Operator (NO4)	Isolate RCP seals (ECA-0.0) Locally throttle Aux Feed Water (ECA-0.0)	Ops Training Program
			Take local control of 10% steam dumps (FSG 60)	N/V (None In Place)
15.	Other	Intake Watch Operator (NO5)	Perform emergency purge of U1 and U2 Main Generators (OP J-4C:III) Isolate Hotwell makeup (ECA-0.0)	Ops Training Program
			Perform outside site assessment (FSG 05)	N/V (None In Place)
Other (non-operations) Personnel				
Line	**Generic Title/Role**	**On-Shift Position**	**Task Description**	**Controlling Method**
16.	I&C Technician	Shift Control Tech #1 (SCT1)	N/A	N/A
17.	I&C Technician	Shift Control Tech #2 (SCT2)	N/A	N/A

Notes:

1) Non-validated (N/V)

2) Items in red indicated FLEX implementation tasks which have not been validated. A time motion study will be conducted for FLEX tasks under the FLEX validation plan.

Attachment 1
NEI 10-05, Appendix B, "On-shift Staffing Analysis Results"
Table 3: Firefighting

Line	Performed By	Task Description	Controlling Method
1.	Firefighter No.1 (FBM1)	N/A	N/A
2.	Firefighter No.2 (FBM2)	Conduct Debris Removal (FSG 43)	N/V (None In Place)
3.	Firefighter No.3 (FBM3)	Conduct Debris Removal (FSG 43)	N/V (None In Place)
4.	Firefighter No.4 (FBM4)	N/A	N/A
5.	Firefighter No.5 (FBM5)	N/A	N/A

Notes:

1) Non-validated (N/V)

2) Items in red indicated FLEX implementation tasks which have not been validated. A time motion study will be conducted for FLEX tasks under the FLEX validation plan.

Attachment 1
NEI 10-05, Appendix B, "On-shift Staffing Analysis Results"
Table 4: Radiation Protection and Chemistry

No.	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:											
2.	On-Site Radiological Survey On-Shift Position:											
3.	Personnel Monitoring On-Shift Position:											
4.	Job Coverage On-Shift Position: **C&RP Technician No. 1**	X										
5.	Offsite Radiological Assessment On-Shift Position:											
6.	Other RP – Describe: On-Shift Position:											
7.	Sampling On-Shift Position: **C&RP Technician No. 2 (CRP2)**		X									
8.	Post Rx-Trip Checklist On-Shift Position:											

Notes: The basis for the selected performance time period was established by the subject matter experts during the task analysis review. Specific performance time periods for concurrent tasks are analyzed as part of the time motion study.

- Line 4: C&RP Technician No. 1 task from T=16 to T=29 is to provide dosimetry and job coverage for NO3 and NO4 to access 100 foot Filter Gallery (RCP-D-310)

- Line 7: At time 33, C&RP Technician No. 2 was directed (by U1 SFM per ECA-0.0) to perform sampling of U1 and U2 SG (using CAP AP-1), however, plant conditions preclude actual sampling activities.

Attachment 1: NEI 10-05, Appendix B, "On-shift Staffing Analysis Results"
Table 5: Emergency Plan Implementation

Line	Function/Task	On-Shift Position	Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Manager	LJE-001 thru LJE-042 D.1.a.1 The correct EAL associated with a parameter or symptom was recognized. D.1.a.2 The correct event classification level was formally declared within 15 minutes.
2.	Approve Offsite Protective Action Recommendations	Shift Manager	J.4.a.1 Dose based PARs were developed using plant, radiological, and meteorological inputs. J.4.a.2 Plant/event based PARs were approved within 15 minutes of a general emergency declaration.
3.	Approve content of State/local notifications	Shift Manager	LJE-001 thru LJE-042 E.2.a.2 The ENF was approved prior to transmittal.
4.	Approve extension to allowable dose limits	N/A	Not performed during ELAP event.
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	B.2.b.1 Focus was maintained on emergency response risk significant activities, health and safety, and event management priorities. B.2.b.2 The SM/SEC/ED directed actions for event declaration, notification, PAR determination, emergency exposure and KI authorization. B.2.b.3 Onsite and offsite priorities were established, communicated, executed, and revised as warranted. B.2.b.4 Announcements were made in the facility when significant events occurred. B.2.b.6 The SM/SEC/ED established maintained and controlled external communications, resource allocation and support of onsite and offsite activities.

6.	ERO notification	Shift Phone Talker	EPD 452J: Activate VANS E.1.a.2 The voice automated notification system (VANS) was activated within 10 minutes of the event declaration to notify the ERO.
7.	Abbreviated NRC notification for design basis threat (DBT) event	N/A	Not performed during ELAP event.
8.	Complete State/local notification form	Work Control Shift Foreman	LJE-001 thru LJE-042 E.2.a.1 Key ENF information (DEP required) was completed accurately.
9.	Perform State/local notifications	Shift Phone Talker (SAE Conditions) Work Control Lead (GE Conditions)	EPD 450: Communications and Notifications. E.2.a.3 State/local notifications were performed within 15 minutes of an event or PAR declaration. E.2.a.6 The ENF was verbally communicated to offsite agencies accurately.
10.	Complete NRC event notification form	Work Control Shift Foreman	EPD 450: Communications and Notifications.
11.	Activate Emergency Response Data System (ERDS)	Work Control Shift Foreman	F.2.a.1 ERDS was initiated within one hour of an Alert or higher declaration.
12.	Offsite radiological assessment	N/A	Not performed during ELAP event.
13.	Perform NRC notifications	Shift Phone Talker	E.3.b.1 Communications were established and maintained over the ENS circuit when requested by the NRC.
14.	Perform other site-specific event notifications (e. g., INPO, ANI, etc.)	N/A	Not performed during ELAP event by on-shift staff.
15.	Personnel accountability	Watch Commander	J.1.a.1 Personnel assembly and accountability was initiated at a SAE or higher ECL and the site emergency signal was sounded as soon as possible. J.1.a.4 All unaccounted for individuals were identified by name and a list provided to the SM/SEC within 30 minutes of the sounding of the site emergency signal. Note: The site emergency signal would not be available during an ELAP event. Onsite personnel would be notified via the plant paging system.

Notes: Line No. 3, No. 8, and No. 9 includes initial and follow-up State/local notifications.

Attachment 2 ELAP On-shift Staffing Task Timetable			
Time (T+mins)	**Position(s)**	**Action**	**Duration (min)**
0	**Complete loss of station AC power event occurs**		
1	U1 SFM U2 SFM U1 CO U2 CO U1 BOPCO U2 BOPCO	ECA-0.0 Initial Actions (ECA-0.0, Step 1 - 5)	2
3	U2 CO	Contact DCWC and request Officer to provide CR Access (Per SM)	1
3	U1 CO	Direct NO1, NO2, NO3, and NO4 to report to CR (Per SM)	1
4	U1 SFM U2 SFM U1 CO U2 CO	Continue with ECA-0.0 actions (ECA-0.0, Step 5)	1
5	U1 SFM U2 SFM	Direct U1 BOPCO and U2 BOPCO to implement ECA-0.0, App DD (ECA-0.0 Step 5.c. RNO)	1
5	SM	Enter E-Plan, including STA functions (EP G-2)	1
5	WCSFM	Perform STA functions	355
6	U1 BOPCO U2 BOPCO	Configure U1 and U2 for 500 kV Backfeed - includes Sat Phone comm to GCC (ECA-0.0, App DD)	10
6	WCL	Direct NO5 to CR (ECA-0.0 Step 8)	1
7	U1 SFM U2 SFM U1 CO U2 CO	Continue with ECA-0.0 actions (ECA-0.0 Step 9)	1
7	WCL	Open U1 and U2 CFCU breakers (ECA-0.0 Step 9)	15
9	NO1 NO2 NO3 NO4	Arrive at CR	
7	SM	Issue keys to NO1, NO2, NO3 and NO4 (SP-614)	2
10	SM	Declare Classification - SS1.1 (EP G-1)	1

Time (T+mins)	Position(s)	Action	Duration (min)
11	SM	Notification and direction to on-shift staff (EP G-2)	349
11	WCSFM	Complete SAE State/County notification form (EP G-3)	3
12	U1 SFM U2 SFM	Direct NO1 and NO2 to perform local start of U1 and U2 EDGs (ECA-0.0, Step 5.a. RNO)	1
12	SPT	Perform ERO callout (EP G-2)	5
13	U1 SFM U2 SFM	Direct NO3 and NO4 to isolate RCP seals (ECA-0.0, Step 7)	1
13	NO1 NO2	Attempt local start of U1 and U2 EDGs (OP AP-8A)	30
14	NO3 NO4	Isolate RCP seals (ECA-0.0, Step 7)	15
14	SM	Approve content of SAE State/County notification form (EP G-3)	2
16	SM	Direct DCWC to initiate site personnel accountability (EP G-4)	1
16	U1 BOPCO U2 BOPCO	Return to CR	
16	CRP1	Coordinate with NO3 and NO4 to access 100 ft Filter Gallery (RCP-D-310)	13
16	U1 SFM U2 SFM	Direct U1 BOPCO and U2 BOPCO to implement ECA-0.3 (ECA-0.0, Step 10)	1
17	SPT	Perform SAE State/County notification (EP G-3)	7
17	DCWC	Perform Accountability for site personnel (EP G-4)	30
17	U1 BOPCO U2 BOPCO	Attempt to restore 4 kV buses (ECA-0.3)	10
17	WCSFM	Complete NRC Notification Form (EP G-3)	5
22	WCL	Perform Accountability for OPS personnel (EP G-4)	2
22	WCL	Return to CR	
23	WCSFM	Activate ERDS (EP G-2, Att 4)	2
25	SPT	Initiate Smart Message Paging system (EP G-2)	10
27	NO5	Arrive at CR	
27	U1 BOPCO U2 BOPCO	Report to CR that 4 kV buses cannot be restored.	1
27	U1 SFM U2 SFM	Direct NO5 to initiate emergency vent H2 from U1 & U2 Main Generators (ECA-0.0 Step 11)	1
28	NO5	Initiate emergency H2 venting of U1 & U2 Main Generators (OP J-4C:III)	5
29	U1 SFM U2 SFM	Direct NO5 to isolate Hotwell makeup (ECA-0.0 Step 12.a)	1

Time (T+mins)	Position(s)	Action	Duration (min)
30	FBM1	Report to Control Room	
30	U1 SFM U2 SFM	Direct isolation of U1 and U2 SGs (ECA-0.0, Step 13)	1
31	U1 CO U2 CO	Isolate U1 and U2 SGs (ECA-0.0, Step 13)	2
33	U1 SFM U2 SFM	Direct CRP2 to sample U1 and U2 SGs (ECA-0.0, Step 14)	4
34	NO5	Isolate Hotwell makeup (ECA-0.0 Step 12.a)	15
35	SPT[(a)]	Perform SAE NRC Notification (EP G-3)	19
37	CRP2	Determine U1 and U2 SG sampling cannot be performed due to loss of air and analysis equipment power (CAP AP-1)	10
37	U1 SFM U2 SFM	Direct NO3 and NO4 to locally throttle U1 and U2 Aux Feed (ECA-0.0 Step 15)	1
38	NO3 NO4	Locally throttle Aux Feed (ECA-0.0 Step 15.b)	322
38	U1 SFM U2 SFM	Direct WCL to perform non-essential DC Load Shed (ECA-0.0, Step 16.a)	1
39	WCL	Perform non-essential DC Load Shed (ECA-0.0, App DC)	10
40	U1 SFM U2 SFM	Complete additional ECA-0.0 actions (ECA-0.0, Steps 16 - 18)	4
43	NO1 NO2	Report to CR that EDGs cannot be restored.	1
43	SM	Determine ELAP conditions exist (ECA-0.0, Step 10.b RNO - V.07 criteria)	1
44	SM	Declare GE Classification - SG1.1 (EP G-1)	2
44	U1 SFM U2 SFM	Direct U1 BOPCO and U2 BOPCO to perform DC Bus Load Shed & Management (FSG 04, Step 2)	1
45	U1 SFM U2 SFM	Direct U1 CO and U2 CO to begin first RCS cooldown (ECA-0.0, Step 19)	1
46	U1 CO U2 CO	Coordinate with NO3 and NO4 and perform U1 and U2 cooldown. (ECA-0.0, Step 19)	120
46	WCSFM	Complete PAR (EP G-3/EP RB-10)	2
47	U1 BOPCO U2 BOPCO	Direct NO3 and NO4 to take local control of 10% steam dumps (FSG 04, Section 6, Step 6.1)	1
48	U1 BOPCO	U1 and U2 Phase A Containment Isolation & verification (FSG 04, Section 6, Step 6.3)	5
48	U2 BOPCO	Isolate Cardox (FSG 04, Section 6, Step 6.2)	5

Time (T+mins)	Position(s)	Action	Duration (min)
48	WCSFM	Complete GE State/County notification form (EP G-3)	2
48	NO3 NO4	Take local control of SG 10% dumps (FSG 60)	312
49	WCL	Return to CR	
49	NO5	Continue Main Generator purge (OP J-4C:III)	4
50	U1 SFM U2 SFM U1 CO U2 CO	Continue with ECA-0.0 actions (ECA-0.0, Steps 20 - 24)	4
50	SM	Approve content of GE State/County notification form and PARs (EP G-3)	2
52	WCL	Perform GE State/County notification (EP G-3)	15
52	SM	Perform Initial Assessment and FLEX equipment staging (FSG 05)	308
53	U1 BOPCO	Perform U1 DC bus load shed (FSG 04, Section 6, Step 6.4 - 6.14)	25
53	U2 BOPCO	Perform U2 DC bus load shed (FSG 04, Section 6, Step 6.4 - 6.14)	25
53	SM	Recall NO5 to CR	1
54	WCSFM	Notify National SAFER Response Center (NSRC) (FSG 05)	10
54	SPT[(a)]	Perform GE NRC notification (EP G-3)	306
54	SM	Direct NO1 and NO2 to perform inside site assessment per FSG 05 Section 6 & 7 (FSG 05, Step 3)	1
55	NO1 NO2	Perform inside site assessment (FSG 05, Section 6 & 7)	90
56	U1 SFM	Direct NO1 to determine status of SFP level and temperature (ECA-0.0, Step 29.a RNO)	1
57	NO1	Check status of SFP level and temperature. (ECA-0.0, Step 29.a RNO)	3
58	NO5	Return to CR	
59	SM	Direct NO5 to perform outside site assessment per FSG 05 Section 8 (FSG 05, Step 3)	1
60	NO5	Perform outside site assessment (FSG 05, Section 8)	90
67	WCL	Return to CR	
78	U1 BOPCO U2 BOPCO	Return to CR	
110	WCSFM	Complete follow-up GE State/County notification form (EP G-3)	2
115	SM	Approve content of follow-up GE State/County notification form (EP G-3)	2
120	WCL	Perform follow-up GE State/County notification (EP G-3)	15
145	NO1 NO2	Return to CR, report results to SFM / SM	
150	NO5	Return to CR, report results to SFM / SM	

Time (T+mins)	Position(s)	Action	Duration (min)
150	U1 SFM U2 SFM	Direct U1 BOPCO and U2 BOPCO to line up U1 and U2 for boration using FSG 08 (ECA-0.0, Step 29.a.4 RNO)	1
151	U1 BOPCO U2 BOPCO	Line up U1 and U2 for boration (FSG 08)	209
151	U1 BOPCO U2 BOPCO	Direct NO1 and NO2 to line up ERCS pump and generator per FSG-49 (FSG 08)	1
152	SM	Brief DCWC on site conditions (FSG 05, Step 4)	2
152	NO1 NO2	Line up ERCS pump and generator for boration of U1 and U2 (FSG-49)	208
155	SM	Determine equipment staging per FSG 43 (FSG 05, Step 5)	2
157	SM	Direct FBM1 to begin clearing debris for priority routes (FSG 43, Step 3.2.3)	2
160	FBM1	Direct FBM2 and FBM3 to begin clearing debris (Per SM)	5
155	WCSFM	Complete follow-up GE State/County notification form (EP G-3)	2
165	FBM2 FBM3	Conduct debris clearing operations (FSG 43, Step 3.2.3)	195
160	SM	Approve content of follow-up GE State/County notification form (EP G-3)	2
166	**First RCS Cooldown Complete**		
165	WCL	Perform follow-up GE State/County notification (EP G-3)	15
200	WCSFM	Complete follow-up GE State/County notification form (EP G-3)	2
205	SM	Approve content of follow-up GE State/County notification form (EP G-3)	2
210	WCL	Perform follow-up GE State/County notification (EP G-3)	15
245	WCSFM	Complete follow-up GE State/County notification form (EP G-3)	2
250	SM	Approve content of follow-up GE State/County notification form (EP G-3)	2
255	WCL	Perform follow-up GE State/County notification (EP G-3)	15
290	WCSFM	Complete follow-up GE State/County notification form (EP G-3)	2
295	SM	Approve content of follow-up GE State/County notification form (EP G-3)	2
300	WCL	Perform follow-up GE State/County notification (EP G-3)	15
335	WCSFM	Complete follow-up GE State/County notification form (EP G-3)	2
340	SM	Approve content of follow-up GE State/County notification form (EP G-3)	2
345	WCL	Perform follow-up GE State/County notification (EP G-3)	15
360	**End of Shift Staffing Task Sequence Analysis**		

Notes:

(a) At the time of the Phase 2 Staffing Assessment, the shift phone talker was a licensed operator.

Pacific Gas and Electric Company (PG&E) Response to Nuclear Regulatory Commission (NRC) Requested Information

NRC Staffing Requested Information No. 1

Provide an assessment of the onsite and augmented staff needed to respond to a large scale natural event meeting the conditions described. This assessment should include a discussion of the onsite and augmented staff available to implement the strategies as discussed in the emergency plan and/or described in plant operating procedures. The following functions are requested to be assessed:

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

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

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

Provide onsite and augmented staffing assessment considering functions related to NTTF Recommendation 4.2. [Phase 2 staffing assessment]

PG&E Response to NRC Staffing Requested Information No. 1

PG&E's Phase 2 Staffing Assessment (Assessment) was completed on May 14, 2015, and is provided in Enclosure 1.

The Assessment did not include actions of how staff will move back-up equipment from alternate onsite storage facilities to repair locations at each reactor as described in the order regarding the NRC NTTF Recommendation 4.2 because draft Diverse and Flexible Coping Strategies (FLEX) Support Guideline (FGS) procedures were used and personnel were not trained. PG&E will conduct time motion studies, as part of the FLEX validation plan, for FLEX implementation tasks in accordance with industry guidance. This action will be completed by October 31, 2015.

No new staff or functions were identified as a result of this assessment. Refer to Enclosure 1, Sections 5.2 and 6.2.

No collateral duties were identified during the Assessment. Refer to Enclosure 1, Section 5.2.

NRC Staffing Requested Information No. 2

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

1. *Conduct the onsite and augmented staffing assessment:*

    a. *The onsite and augmented staffing assessment considering functions related to NTTF Recommendation 4.2. [Phase 2 staffing assessment]*

2. *A schedule of the time needed to implement changes will be provided as follows:*

    a. *Those associated with the Phase 2 staffing assessment.*

PG&E Response to NRC Staffing Requested Information No. 2

1. The PG&E Phase 2 Staffing Assessment was completed on May 14, 2015.

2. The time needed to implement changes are as follows:

    a. PG&E will reevaluate the Phase 2 staffing assessment using the final approved versions of the FSG procedures and verify that appropriate personnel are formally trained on the FSG strategies.. An update to the Phase 2 staffing assessment report will be submitted if any changes are identified during reevaluation. This action will be completed by October 31, 2015.

    b. PG&E will conduct time motion studies, as part of the FLEX validation plan, for FLEX implementation tasks in accordance with industry guidance. This action will be completed by September 30, 2015.

    c. The evaluation of the drill and exercise program will be conducted within six months once NRC guidance regarding demonstration criteria for dual unit events or expanded ERO activities is received. This action will be completed 6 months after issuance of NRC guidance.

NRC Staffing Requested Information No. 6

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

Changes will be identified as follows:

Those associated with the Phase 2 staffing assessment.

PG&E Response to NRC Staffing Requested Information No. 6

No changes will be made to the emergency plan as a result of the Phase 2 Staffing Assessment.

Regulatory Commitments

Pacific Gas and Electric Company (PG&E) is making the following regulatory commitments (as defined by Nuclear Energy Institute (NEI) 99-04) in this submittal:

Commitment	Due Date
PG&E will reevaluate the Phase 2 staffing assessment using the final approved versions of the Diverse and Flexible Coping Strategies (FLEX) Support Guideline (FSG) procedures and verify that appropriate personnel are formally trained on the FSG strategies. An update to the Phase 2 Staffing Assessment report will be submitted if any changes are identified during reevaluation.	October 31, 2015
PG&E will conduct time motion studies, as part of the FLEX validation plan, for FLEX implementation tasks in accordance with industry guidance.	September 30, 2015

PG&E is revising the following commitment (as defined by NEI 99-04) that was made in PG&E Letter DCL-13-040, "Response to March 12, 2012, NRC 10 CFR 50.54(f) Request for Information Regarding Recommendation 9.3, Phase 1 Staffing Assessment," dated April 24, 2013, in this submittal:

Commitment	Due Date
PG&E will evaluate its drill and exercise program and make any necessary changes within 6 months once future NRC guidance is received regarding demonstration criteria for dual unit events or expanded Emergency Response Organization (ERO) activities.	6 months after issuance of NRC guidance

Current Diablo Canyon Power Plant drill and exercise procedures do not include evaluation objectives or demonstration criteria for dual unit events or expanded ERO activities. As future guidance is expected from the Nuclear Regulatory Commission (NRC) in this area, no changes are necessary to the drill and exercise procedures at this time.

PG&E will evaluate its drill and exercise program and make any necessary changes within six months once future NRC guidance is received regarding demonstration criteria for dual unit events or expanded ERO activities