Pacific Gas and Electric Company

Diablo Canyon Power Plant

Emergency Plan Section 5, Revision 4.17

Organizational Control of Emergencies

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5. ORGANIZATIONAL CONTROL OF EMERGENCIES

In the event of an emergency, the DCPP normal plant operational organization is supplemented with an organization specifically designed to control emergency conditions. The emergency response organization (ERO) may, depending upon the severity of the incident, consist of shift operating staff or a comprehensive emergency force composed of plant, corporate, and contract personnel. This section describes the normal plant organization, the onsite emergency organization and governmental agencies responsible for directing offsite emergency response activities.

5.1 NORMAL PLANT ORGANIZATION

The Chief Nuclear Officer (CNO) has executive responsibility for Diablo Canyon Power Plant (DCPP) and the Diablo Canyon ISFSI. The Site Vice President reports to the Chief Nuclear Officer and has overall responsibility for in-plant functions, ISFSI functions, and plant-corporate interfaces. The organizational structure for DCPP is shown in the DCPP FSAR Update. The organizational structure for the ISFSI is shown in the DCPP ISFSI FSAR.

5.1.1 Emergency Planning

The Site Vice President has responsibility for overall emergency preparedness at DCPP and Diablo Canyon ISFSI. The organizational structure is described in DCPP and ISFSI FSARs.

The emergency planning manager is assigned the responsibility for preparation and maintenance of the DCPP Emergency Plan and its implementing procedures. The emergency planning manager also provides the corporate interface with offsite emergency response organizations including San Luis Obispo County, the State of California, the Nuclear Regulatory Commission (NRC), the Federal Emergency Management Agency (FEMA), the U.S. Coast Guard (USCG), the Environmental Protection Agency (EPA) and other Federal, State and local agencies involved in DCPP emergency response.

The emergency planning manager is assigned the responsibility for onsite coordination of drills and exercises, maintenance of emergency response facilities and the Early Warning System (EWS), review and revision of the DCPP Emergency Plan and implementing procedures, and maintenance of the emergency response organization. These duties may be delegated to the emergency planning staff appropriate with organizational resources.

The emergency planning group provides training to the site emergency response organization, the Company support organization and assists, as required, with training of offsite emergency response organizations.

5.1.2 Balance of Normal Station Organization

See DCPP FSAR Chapter 13 for further organization details.

5.1.3 Minimum On-Shift ERO Staffing Requirements

At DCPP, a minimum staff of 25 personnel is required to be on-shift during operation of both units and the ISFSI. This implements the criteria of NUREG-0654, Table B-1 and NUREG 0737 Supplement 1, Table 2. The normal shift complement provides staffing for the on-shift emergency response organization. Shift emergency response positions for the functional assignments are shown in Table 5-1.A.

A detailed analysis, that forms the technical basis of the on-shift emergency response organization staffing, documents the demonstration that on-shift personnel assigned Emergency Plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in Table 5-1.A is contained in Appendix F.

5.2 NORMAL CORPORATE ORGANIZATION

5.2.1 Nuclear Power Generation Business Unit

The CNO has executive responsibility for the safe operation of DCPP. An important part of this responsibility focuses on the coordination and development of both Company and DCPP Emergency Plans and preparedness as an essential element in assuring the public health and safety.

5.2.2 Other Supporting Departments

Other Company departments provide support services along normal departmental areas of responsibility. Some examples are governmental relations, news department, law and insurance.

5.3 DIABLO CANYON ON-SHIFT EMERGENCY RESPONSE ORGANIZATION

5.3.1 Control Room

The fundamental Control Room responsibilities during an emergency are to operate the plant systems, monitor unit conditions and take corrective actions to regain control, minimize accident consequences, and terminate the incident.

5.3.2 Shift Manager

The Shift Manager is responsible for activating the DCPP Emergency Plan and assumes emergency response command and control until relieved by the Site Emergency Coordinator or Emergency Director. The Shift Technical Advisor functional qualification may also reside with the Shift Manager as a dual role.

1) Prior to being relieved, the Shift Manager is responsible for implementing the following non-delegable activities and authorizations:

   a) Perform the initial evaluation and classification of the event.

   b) Assign plant personnel to positions in the Site Emergency Organization.

   c) Provide Protective Action Recommendations (PARs) regarding evacuation, sheltering, or other emergency measures to offsite government agencies.

   d) Authorize the sounding of the site emergency signal.

   e) Authorize the evacuation of the plant site and specify the appropriate evacuation route.

   f) Authorize overtime and other expenses associated with establishing and maintaining an appropriate site emergency organization.

g) Provide direction for all emergency response operations performed by Company personnel in the San Luis Obispo County area.

h) Authorize any extraordinary emergency measures, such as the use of Company emergency personnel exposure limits.

i) Approve information for inclusion in media releases.

2) The Shift Manager is responsible for ensuring the performance of the following delegable activities:

a) Notification of:

(1) Plant personnel

(2) Company offsite emergency organizations

(3) Local non-Company emergency support groups

(4) San Luis Obispo County, California Office of Emergency Services (CA OES) and the Nuclear Regulatory Commission

b) Maintain liaison with offsite emergency support groups.

5.3.3 Shift Foreman

Two Shift Foremen are on-shift in the normal operating organization. One Shift Foreman is assigned to each unit. A third Shift Foreman is normally staffed on-shift for work control.

During an emergency, the Shift Manager assigns each Shift Foreman to an emergency position. One Shift Foreman is responsible for emergency communications.

The other Shift Foreman provides plant management representation in the Control Room and:

1) Manages operational activities.

2) Supervises the Control Room management in the operational control of the plant.

3) Advise the Site Emergency Coordinator on operational matters.

4) This position may be assigned other operational duties such as radwaste management as required by the situation.

The third Shift Foreman position is normally staffed by the Work Control Shift Foreman (WCSFM). The Work Control Shift Foreman will have either a Shift Technical Advisor or Incident Assessor qualification consistent with the guidance of INPO ACAD 90-003, "Guidelines for the Training and Qualification of Shift Technical Advisors." This qualification is to ensure technical support for plant system engineering, repair, and corrective actions. The Work Control Shift Foreman provides assessment of the incident including initial classification and development of a Protective Action Recommendation. If the emergency involves loss of heat sink (core cooling source), or some other occurrence for which reactor core damage is a possibility, the WCSFM is primarily responsible for evaluation of this aspect of the emergency. The Shift Manager may assign these duties to another on-shift individual with appropriate functional qualifications that is not already filling a minimum on-shift staff position.

5.3.4 Operators

These are positions in the normal plant organization that continue to perform plant operational manipulations in the emergency organization when not otherwise assigned.

5.3.5 Shift Technical Advisor

The Shift Technical Advisor (STA) is a functional requirement (not a position) for the on-shift organization. The function of the STA is to provide engineering expertise on-shift, which may be fulfilled by an STA qualified licensed Senior Reactor Operator (SRO) acting in a dual functional role (preferably the Work Control Shift Foreman (WCSFM) with functional qualifications, but may be an on-shift individual with functional qualifications).

5.3.6 Shift Phone Talker

The Shift Phone Talker is a position in the on-shift organization. The primary tasks of the Shift Phone Talker are to verbally communicate the Emergency Notification Forms to the County, State, and U.S. Coast Guard (if necessary) and activate the Voice Automated Notification System (VANS). This position is staffed by an on-shift individual with the necessary functional qualifications. The Shift Manager may assign these tasks to another on-shift individual with appropriate functional qualifications.

5.3.7 Security Watch Commander

This is a normal plant organization position located in the Security Building and which is responsible for onsite emergency assembly and accountability, the results of which are reported to the Site Emergency Coordinator.

5.3.8 Evacuation Coordinator

This is a temporary position that coordinates evacuation of nonessential personnel from the site if warranted by the situation. It would normally be assigned to a member of the security staff, such as the TSC Security Advisor, as per EP G-5.

5.3.9 Evacuation Team

These are temporary positions consisting of a C&RP Technician and an assigned individual who will accompany the evacuees in the event a site evacuation is necessary. The basic functions of this team are:

1) Assure evacuees stay together and take the correct route.

2) Assist in personnel accountability at the evacuation offsite assembly area.

3) Secure radiation survey equipment and survey personnel and vehicles at the collection area and arrange for decontamination as required.

5.3.10 First-Aid and Medical

The importance of providing prompt first-aid is well recognized. First aid training is provided for plant personnel and includes voluntary certification for Cardio-pulmonary resuscitation. An onsite medical facility and EMT qualified Firefighters are available to provide basic life support capabilities at all times. During off hours, staffing is limited to an EMT qualified Firefighter.

5.3.11 Fire Department

This department is responsible for onsite firefighting, rescue operations, and first-aid.

5.4 DIABLO CANYON EMERGENCY RESPONSE ORGANIZATION

5.4.1 Emergency Response Staffing

1) The Emergency Response Organization (ERO) is grouped into assigned teams for rotating on call duties and to ensure that continuous 24-hour operation can be sustained. The ERO is fully activated and staffed for emergencies classified as Alert, Site Area Emergency, or General Emergency.

2) The Emergency Response Organization minimum staffing requirements and functional responsibilities are provided in Section 5.18 Table 5-1B.

5.5 EMERGENCY RESPONSE FACILITIES AND ORGANIZATIONS

The Diablo Canyon Power Plant emergency organization operates from onsite emergency centers; the Control Room (CR), the Technical Support Center (TSC), and the Operational Support Center (OSC). The organization onsite is supported by offsite emergency response facilities; the Emergency Operations Facility (EOF) and the Joint Information Center (JIC).

Section 5.19 Figure 5-1, Overall Command and Control Structure illustrates these organizations

5.6 TECHNICAL SUPPORT CENTER (TSC)

The primary function of the TSC is to provide an onsite location, independent of the Control Room, where the overall coordination of the onsite emergency response effort takes place. The TSC staff augments the Control Room in the diagnosis of plant conditions, recommends corrective actions, and coordinates plant and unit emergency activities. The TSC may communicate the notifications and PARs to the County, State agencies and NRC.

More specifically, functional assignments at the TSC include (primary Emergency Response Organization assignments are indicated in parenthesis):

1) Engineering and Technical Analysis (Engineering Advisor)

   Perform systems analysis, resolve core/thermal hydraulics, electrical, instrumentation, and mechanical engineering problems, and diagnose plant conditions. Maintain liaison with offsite technical support. Provide coordination and supervision of all Company support teams operating at or in the vicinity of the site.

2) Radiological Protection (Radiological Advisor)

   Assess onsite radiological conditions, recommend radiation protection measures, direct radiological surveys and decontamination actions, assist in assessment of offsite consequences as requested by the response organization at the EOF.

   Coordinate and supervise all onsite radiological surveys and investigations and provide management of the onsite radiation protection program.

3) Communicator

   Notify affected individuals and agencies of the emergency, establish initial contact and maintain communications with offsite groups, transmit instructions and information to and from the Site Emergency Coordinator.

Section 5.20 Figure 5-2, TSC Organization, illustrates the TSC organization chart. Specific TSC position functions are:

5.6.1 Site Emergency Coordinator

The Site Emergency Coordinator (SEC) is responsible, under the general direction of the Emergency Director, for directing onsite emergency actions from his position at the Technical Support Center.

The Site Emergency Coordinator has the authority to make ERO assignments according to availability and qualification as appropriate to carry out response activities.

1) The Site Emergency Coordinator will establish the emergency response organization in the TSC.

2) After the TSC is activated, the Site Emergency Coordinator will relieve the Shift Manager.

3) Prior to the Emergency Director assuming his position at the Emergency Operation Facility, the Site Emergency Coordinator is responsible for implementing the following non-delegable activities and authorizations:

   a) Providing direction for all emergency response operations performed by Company personnel in the San Luis Obispo County area.

   b) Requesting assistance as necessary for onsite or offsite radiation monitoring from Federal agencies, either through the County/State emergency response organization once established, or directly.

   c) Authorizing any Protective Action Recommendations (PARs).

   d) Authorizing changes in the Emergency Classification and notification of offsite authorities.

   e) Authorizing any extraordinary emergency measures, such as the use of Company emergency personnel exposure limits.

   f) Authorizing the administration of potassium iodine (KI) to onsite personnel.

   g) Authorizing the administration of KI to offsite monitoring personnel.

   h) Approving information for inclusion in media releases.

   i) Authorizing overtime and other expenses associated with maintaining an appropriate onsite Emergency Organization throughout the emergency response period.

   j) Authorizing the evacuation of the plant site and specifying the appropriate evacuation route.

4) The Site Emergency Coordinator is responsible for ensuring the performance of the following delegable activities:

   a) Coordinating and direct all onsite activities.

   b) Maintaining liaison with offsite emergency support groups providing onsite assistance and support the Emergency Director in the development of a coordinated recovery action plan for onsite.

   c) Recommending changes in Emergency Classification to the Emergency Director.

   d) Managing TSC Operations. This includes:
      - Collecting and analyzing technical information to assess plant operations.
      - Providing technical counsel in support of the Control Room (CR).
      - Assessing radiological release potential.
      - Determining actual or potential release rates.
      - On-site exposure monitoring and contamination control.
      - Repairing plant components or systems as required by the emergency and / or consequences.

   e) Providing management direction to the Control Room (CR) through the Operations Advisor (TSC).

   f) Providing management direction to the Operational Support Center (OSC) through the OSC Director.

   g) Assigning plant staff personnel to positions in the Onsite Emergency Organization as appropriate.

   h) Establishing and maintaining onsite personnel accountability.

5.6.2 TSC Director

The TSC Director is responsible for the following activities:

1) Staffing and activation of the TSC and providing assistance to the SEC in performance of their response activities.

2) Ensuring adequate staffing is available in the TSC.

3) Coordinating ongoing TSC operations

5.6.3 Radiological Advisor

The Radiological Advisor is responsible for the following activities:

1) Coordinating emergency radiological response efforts.

2) Advising the Site Emergency Coordinator on matters relating to radiological safety

3) Providing Radiological Engineering support to the TSC

4) Coordinating and supervising operation and control of radiological emergency data transmission systems, review and evaluation of data from these systems, and development of data and status updates for transmission offsite.

5) Prior to UDAC activation, assisting with PAR development based on Control Room dose assessment.

5.6.4 Radiological Data Processor

The Radiological Data Processor is responsible for the following activities:

1) Enabling TSC radiation monitors and verifies habitability.

2) Trending radiation levels in the plant.

3) Serving as the primary contact for Site RP Coordinator in the OSC.

4) Performing offsite Dose Calculations if EOF is unavailable.

5.6.5 Maintenance Advisor

The Maintenance Advisor is responsible for the following activities:

1) Coordinating maintenance activities between TSC and OSC

2) Advising the TSC staff on plant equipment repairs assessment, site materials capabilities and resource status as required.

5.6.6 Engineering Advisor

The Engineering Advisor is responsible for the following activities:

1) Ensuring adequate Engineering support is available to support emergency response based on plant conditions and events

2) Evaluating the safety consequences of the occurrence and advising the Site Emergency Coordinator of appropriate response actions and onsite and offsite recommended protective measures.

3) Advising the Site Emergency Coordinator on technical matters relating to nuclear and radiological safety.

4) Coordinating plant technical support.

5) Advising the Site Emergency Coordinator of actions and findings of support groups.

6) Assisting the Site Emergency Coordinator in determining personnel deployment for emergency support assignments.

7) Providing operation and control of emergency data transmission systems, and reviewing and evaluating plant data.

5.6.7 Plant Process Computer (PPC) Operator

The PPC Operator is responsible for the following activities:

1) Assisting the Reactor Engineer in reading the PPC data and preparing release pathway information for dose assessment purposes.

5.6.8 Mechanical Engineer

The Mechanical Engineer is responsible for the following activities:

1) Performing mechanical engineering assessments, trends and recommendations.

5.6.9 Electrical Engineer

The Electrical Engineer is responsible for the following activities:

1) Performing electrical engineering assessments, trends and recommendations.

5.6.10 Reactor Engineer

The Reactor Engineer is responsible for the following activities:

1) Performing reactor engineering assessments, trends and recommendations.

5.6.11 Operations Advisor

The Operations Advisor is responsible for the following activities:

1) Providing general operational advice and assistance to the SEC and TSC Staff.

5.6.12 Communications Advisor

The Communications Advisor is responsible for the following activities:

1) Overseeing TSC communications staff.

2) Performing or overseeing all off-site notifications when the SEC has responsibilities for classifications, notifications and PARs.

3) Maintaining continuous communications with the Control Room, transmitting and receiving technical data and procedural activities between the facilities.

4) As directed by the Site Emergency Coordinator, notifying plant staff and other affected individuals and organizations of the emergency and their assignments.

5.6.13 OPS Communicator - CR

The OPS Communicator - CR is responsible for the following activities:

1) From the Control Room maintaining continuous communications with the TSC, transmitting and receiving technical data and procedural activities between the facilities

5.6.14 Agency / ENS Communicator

The Agency ENS Communicator is responsible for the following activities:

1) Maintaining communications with the NRC over the Emergency Notification System (ENS) telephone line.

2) Performing State and local notifications if EOF is not available.

5.6.15 Security Advisor

The Security Advisor is responsible for the following activities:

1) Coordinating site security activities and advises the SEC on security matters.

2) Performing accountability in the TSC.

3) Coordinating evacuation or early dismissal of nonessential site personnel.

4) Overseeing the fitness for duty program in the TSC.

5.6.16 Administrative Advisor

The Administrative Advisor is responsible for the following activities:

1) Providing administrative support.

2) Directing clerical staff to requested emergency response facilities.

3) Establishing 24 hour shift schedules for all emergency response facilities.

4) Executing administrative/logistical functions as directed.

5.6.17 TSC Clerical Support

The TSC Clerical support is responsible for the following activities:

1) Providing clerical support to the TSC staff.

5.6.18 SEC Admin Assistant

The SEC Admin Assistant is responsible for the following activities:

1) Providing administrative support to the SEC.

2) Maintaining SEC log.

3) Assisting SEC with communications.

5.7 OPERATIONAL SUPPORT CENTER (OSC)

The functions of the OSC include:

1) Providing a location for staging trained personnel for assignment to relieve personnel and staff special emergency positions on an as-needed basis for:
   - Emergency maintenance, repair and damage control
   - Firefighting, search and rescue and first aid
   - Emergency sampling of plant fluids
   - A location for storage of selected emergency response equipment
   - Personnel decontamination

2) Providing an office for the OSC Director who determines and recommends repair/damage control and corrective actions for plant mechanical, instrumentation, and electrical systems.

3) Section 5.21 Figure 5-3, OSC Organization, illustrates the OSC organization chart. Specific OSC position functions are:

5.7.2 OSC Director

The OSC Director is responsible for the following activities:

1) Directing activities of OSC personnel.

2) Coordinating a repair plan to recover from the emergency, in cooperation with the SEC and Maintenance Advisor.

3) Coordinating the fabrication and sets up of any special equipment necessary at the direction of the SEC and Maintenance Advisor.

4) Coordinating the movement and accountability of maintenance teams.

5) Providing OSC status updates to the TSC.

5.7.3 Maintenance Coordinators (Mechanical, Instrument and Control, and Electrical)

The Maintenance Coordinators are responsible for the following activities:

1) Planning and coordinating resources to conduct assessment, maintenance, repair or installation of special equipment.

2) Providing team status updates to the Team Coordinator.

3) Providing technical advice to evaluation personnel in the TSC.

5.7.4 Team Coordinator

The Team Coordinator is responsible for the following activities:

1) Coordinating plant access and ensuring personnel entering a potentially hazardous plant area are informed of:

   a) Plant status.

   b) Potential hazards.

   c) Safety and radiation protection provisions.

   d) Appropriate protective equipment required.

2) Maintaining accountability of personnel dispatched from the OSC.

3) Maintaining the capability of communicating with personnel engaged in operations, maintenance or chemistry and radiation protection emergency response activities.

4) Ensuring response teams have been briefed on plant conditions prior to dispatch.

5) Assisting the Control Room and TSC/OSC in communicating with response teams.

5.7.5 Site Radiation Protection Coordinator

The Site Radiation Protection Coordinator is responsible for the following activities:

1) Providing personnel exposure monitoring and record keeping.

2) Directing in-plant surveys and establishing radiation and/or contamination control area boundaries.

3) Determining radiation protection access requirements for entry to radiologically controlled areas.

4) Determining when an emergency exposure authorization is required and providing justification to the SEC or ED.

5) Keeping the Radiological Advisor, OSC Director and Team Coordinator informed of actions and findings.

6) Coordinating briefing and dispatch of personnel into affected plant areas with the OSC Team Coordinator.

5.7.6 Chemistry Coordinator

The Chemistry Coordinator is responsible for the following activities:

1) Directing radiological and chemical analysis of in plant samples.

2) Maintaining proper records and logs.

3) Keeping the Radiological Advisor informed of actions and findings.

4) Coordinating, briefing, and dispatching of personnel into the plant for sampling or analysis with the Site Radiation Protection Coordinator and Team Coordinator.

5.7.7 Operations Coordinator

The Operations Coordinator is responsible for the following activities:

1) Coordinating operation's response outside the Control Room.

2) Ensuring the Control Room is updated on status of OSC team assignments.

5.7.8 Onsite Field Monitoring Teams (FMTs)

The onsite Field Monitoring Team is responsible for the following activities:

1) Performing radiation surveys around the plant site and obtaining appropriate samples for analysis.

2) Maintaining communications with the FMT Coordinator for reporting of monitoring results and maintaining cognizance of the emergency situation.

5.7.9 OSC Clerical Support

The OSC Clerical support is responsible for the following activities:

1) Providing support as needed to maintain OSC records and status boards.

5.7.10 Maintenance, RP, Chemistry and Operations Personnel

The following personnel provide support in planning and performing tasks in their disciplines.

1) Mechanical Maintenance personnel

2) Electrical Maintenance personnel

3) Technical Maintenance personnel

4) Radiation Protection personnel

5) Chemistry personnel

6) Operations personnel

5.8 EMERGENCY OPERATIONS FACILITY (EOF)

The principal functions of the EOF are to provide for strategic planning and control. The principal functions of the EOF staff are:

1) Control and Coordination

The EOF utility staff, under the direction of the Emergency Director (ED), manages and coordinates all PG&E technical direction and control of the integrated emergency response effort.

When activated, the EOF determines status of notifications, provides Protective Action Recommendations (PARs) and Public Information releases under the ED's authority.

2) Liaison/Interface

The EOF provides management level interfaces with offsite response organizations.

The EOF staff also interfaces with the JIC staff to provide information to the public through the media.

3) Assessment

The EOF provides a centralized location, immediately available to County decision makers in the County EOC for unified dose assessments.

4) Decision-Maker Staff Support

The EOF provides a center for response organizations to make staff specialists available to provide data and recommendations to County decision makers for their use in taking protective actions relating to either dose assessment evaluations or predictions of degraded conditions.

5) Company Interface

Site emergency response activities are communicated to the Company support organization by the Government Relations Coordinator located at the EOF.

The Government Relations Coordinator is provided with communications via the Company telephone system and data links through the local area network (LAN)/wide area network (WAN).

Section 5.22 Figure 5-4, EOF Organization, illustrates the EOF organization chart. Specific EOF position functions are as follows:

5.8.1 Emergency Director

After arrival at the Emergency Operations Facility, the Emergency Director maintains overall command of PG&E emergency response operations during the Alert, Site Area Emergency, and General Emergency classifications. The Emergency Director provides direction and support for onsite emergency response actions to the Site Emergency Coordinator, and ensures coordination of DCPP emergency actions with those of government, and General Office support through the PG&E Emergency Operations Center (PG&E EOC). The Emergency Director also approves plant status updates and information for inclusion in media releases.

Emergency Director responsibilities and authorities are separated into two categories. The first category involves decision making for overall emergency response direction and protective action recommendations that may impact the general public. The second category relates to the administration and management of the utility response organization. Duties in the latter category include:

- Interface between DCPP/PG&E and Federal/State/local emergency response agencies.
- Communicate plant status updates and radiological release data to NRC/FEMA, County/State EOC, PG&E EOC, and Joint Information Center (JIC) personnel.
- Provide administrative, technical, and logistical support to station emergency operations.
- Ensure continuity of emergency organization resources.
- Determine when to deactivate the Emergency Response Organization.

Emergency Director responsibility and authority for overall response direction and for recommending protective actions to offsite authorities is initially assumed by the Site Emergency Coordinator until the Emergency Director position is assumed at the EOF by the assigned staff member.

EOF administrative and facility management functions are assumed by the EOF Director. The Emergency Director's primary responsibility is to place the EOF in an operational status capable of early field monitoring team direction and control, Emergency Assessment and Response System (EARS) operation, and plant data analysis.

1) The Emergency Director is responsible for implementing the following non-delegable activities and authorizations:

   a) Providing direction for all emergency response operations performed by Company personnel.

   b) Authorizing any recommendations of the Company regarding evacuation, or other emergency measures including PARs, to non-Company emergency support groups.

   c) Authorizing changes in the Emergency Classification and notification of offsite authorities.

   d) Authorizing any extraordinary emergency measures, such as the use of Company emergency personnel exposure limits.

   e) Authorizing the administration of KI to offsite monitoring personnel.

2) The Emergency Director is responsible for ensuring the performance of the following delegable activities:

   a) Approving information for inclusion in media releases.

   b) Requesting assistance as necessary for onsite or offsite radiation monitoring from Federal agencies, either through the County/State Emergency Operations Center once established, or directly.

   c) Maintaining liaison with offsite emergency response organizations providing onsite assistance and of a coordinated recovery action plan for onsite.

   d) Modifying or re-organizing the Emergency Response Organization based upon the type of accident and specific accident emergency response needs.

   e) De-escalating the emergency classification and/or establishing a recovery organization.

5.8.2 EOF Director

The EOF Director is responsible for the following activities:

1) Directing the activation of the utility portion of the EOF and establishing communications.

2) Providing administrative and management direction of the EOF staff in support of the event response.

3) Keeping the Site Emergency Coordinator informed and serving as his contact at the EOF.

4) Coordinating access control of the EOF and UDAC portion of the building as well as the JIC with the facility security and County Sheriff's Watch Commander.

5.8.3 Radiological Manager

The Radiological Manager is responsible for the following activities:

1) Developing radiological data and status information for evaluation by UDAC personnel and distribution to EOF and EOC personnel.

2) Directing the activities of offsite monitoring teams and the Offsite Emergency Laboratory (OEL).

3) In coordination with the UDAC Coordinator, maintaining records, and providing findings in status reports.

4) Performing dose projections and providing radiological assessment information for the determination of Protective Action Recommendations. Advising the TSC of PARs (ED not in EOF command), or formulating PARs for ED approval.

5) Ensuring proper exposure controls are taken for DCPP offsite emergency response personnel.

5.8.4 Dose Assessor

The Dose Assessor is responsible for the following activities:

1) Performing dose projections using dose assessment computer models or manual dose calculations.

2) Updating the Radiological Manager, Dose Assessment Coordinator and UDAC staff on the status of any plant release and of dose projection results.

5.8.5 Dose Assessment Coordinator

The Dose Assessment Coordinator is responsible for the following activities:

1) Monitoring the plant telephone bridge line.

2) Directing and coordinating the DCPP offsite dose assessment activities.

3) Coordinating the deployment of Field Monitoring Teams in support of dose assessment activities.

4) Coordinating assessment and communications with offsite agency personnel in the UDAC.

5.8.6 Field Monitoring Team Coordinator

The Field Monitoring Team Coordinator is responsible for the following activities:

1) Dispatching and coordinating the activities of the Field Monitoring Teams (utility and County) and Offsite Emergency Lab.

2) Providing recommendations regarding establishing controlled access areas and determining the boundaries of such areas in cooperation with County personnel assigned to the monitoring team.

3) Coordinating monitoring activities for the Monitoring, Decontamination and Reception Centers.

5.8.7 Field Monitoring Team Communicator

The Field Monitoring Team Communicator is responsible for the following activities:

1) Establishing and maintaining communications with the Field Monitoring Teams.

2) Recording and reporting field monitoring survey, sample and exposure information.

5.8.8 Offsite Field Monitoring Teams

The Offsite Filed Monitoring Teams are responsible for the following activities:

1) Performing radiation surveys and obtaining environmental samples to monitor and track any releases of radioactivity outside the Protected Area.

2) Maintaining communications with the FMT Communicator to report environmental conditions and to obtain event information and instructions.

3) Coordinating monitoring activities and reporting of results with the County personnel assigned to the monitoring team.

4) Providing recommendations regarding establishing controlled access areas and determining the boundaries of such areas in cooperation with County personnel assigned to the monitoring team.

5) Assisting in monitoring personnel and evaluating their exposure as required.

5.8.9 HPN Communicator

The HPN Communicator is responsible for the following activities:

1) Monitoring plant and environment radiological data.

2) Maintaining radiological communications with the NRC on the HPN line.

3) Keeping the Radiological Manager informed on NRC requests and reporting activities.

5.8.10 Offsite Emergency Lab Analyst

The Offsite Emergency Lab Analyst is responsible for the following activities:

1) Performing environmental sample analysis to monitor and track any releases of radioactivity outside the Protected Area.

2) Maintaining communications with the FMT Communicator to report sample results and to obtain event information and instructions.

3) Performing habitability surveys and maintaining contamination controls at the Lab.

5.8.11 Engineering Liaison

The Engineering Liaison is responsible for the following activities:

1) Activating and operating plant data computer systems for obtaining plant data.

2) Providing technical assistance to response personnel.

3) Notifying and updating INPO for any event of Alert or higher.

4) Disseminating plant status updates if automated systems fail.

5.8.12 Communications Coordinator

The Communications Coordinator is responsible for the following activities:

1) Assisting the Emergency Director in preparing and approving notifications.

2) Overseeing the transmittal and distribution of notifications.

5.8.13 Offsite Communicator

The Offsite Communicator is responsible for the following activities:

1) Transmitting, receiving, and documenting notification information.

2) Notifying corporate offices and individuals of the event.

5.8.14 Advisor to the County

The Advisor to the County is responsible for the following activities:

1) Assisting the EOF Director with setup and activation of the EOF.

2) Acting as a technical specialist at the County EOF, informing County response staff members of plant conditions and recommended protective actions.

3) Maintaining awareness of plant conditions and emergency response activities.

4) Assisting in the interface between DCPP and County EOC personnel.

5.8.15 Government Relations Coordinator

The Government Relations Coordinator is responsible for the following activities:

1) Monitoring actions and events from the EOF to provide information to other Government Relations Representatives and JIC personnel.

2) Coordinating communication between PG&E offices in Washington, D.C., Sacramento and San Francisco.

3) Evaluating and responding to external Company governmental issues and informing the ED of corporate status and decisions.

4) Communicating PG&E public information from the JIC to County EOC and EOF personnel.

5) Supporting the development and review of information for use in media statements.

6) Coordinating with JIC staff for tracking and controlling rumors at the EOF.

5.8.16 EOF Security Support

The EOF Security support is responsible for the following activities:

1) Providing building access controls for the EOF/County EOC.

5.8.17 EOF Clerical Support

The EOF Clerical support is responsible for the following activities:

1) Providing communications, copying, distribution and other administrative support to the EOF staff.

5.8.18 ED Admin Assistant

The ED Admin Assistant is responsible for the following activities:

1) Providing administrative support to the ED.

2) Maintaining the ED log.

3) Assisting the ED with communications.

5.8.19 UDAC Meteorologist

The UDAC Meteorologist is responsible for the following activities:

1) Determining current and forecast meteorological information.

5.8.20 EOF Security Liaison

The EOF Security Liaison is responsible for the following activities:

1) Providing assistance to the TSC Security Advisor and the EOF Director as requested.

5.9 JOINT INFORMATION CENTER (JIC)

The principal function of the JIC is to provide information to the general public through the media.

Section 5.23 Figure 5-5, JIC Organization, illustrates the JIC organization chart. Specific JIC position functions are:

5.9.1 Company Spokesperson

The Company Spokesperson is responsible for the following activities:

1) Consulting with the Public Information Officer (PIO) and other Company officials to provide the following in an emergency:

   a) Characterizes Company responsibility for the event.

   b) Characterizes concern for any impacts to public.

   c) Describes Company emergency response actions

2) Participating in media briefings to provide additional technical expertise and representation of the Company at the senior leadership level.

3) Participating in the Emergency Director video conference briefings and assisting with the development of media briefing talking points.

4) Working closely with Company government and public relations staff to assist with community issues related to the emergency.

5.9.2 JIC Director

The JIC Director is responsible for the following activities:

1) Acting as a point of contact for other facility managers and maintaining current emergency status information throughout the event.

2) Overseeing the functional organization of the JIC, including facility setup and activation, fitness-for-duty of ERO personnel (including behavioral assessments), coordinating additional resources and personnel, JIC security, clerical support, parking, etc.

3) Participating in intra facility video conference briefings to obtain approved public information.

4) Coordinating the collection of information and the development of draft media releases and media briefing talking points by the News Writer and Technical Advisors for approval by the PIO.

5) Coordinating with the PIO on any changes, corrections or additions to media releases and media briefing talking points and ensuring that they are available for use in time for media briefings.

6) Coordinating with the Government Relations Coordinator for investigating unanswered questions posed by the media and resolving reported rumors.

7) Ensuring the JIC is adequately staffed at all times during an emergency.

8) Communicating with the Company Spokesperson while in transit for providing status of facility readiness, where to go first, key issues for the NRC, etc.

5.9.3 Public Information Officer (PIO)

The PIO is responsible for the following activities:

1) Coordinating media briefings and any follow-up media interviews including plant visits.

2) Serving as a PG&E Spokesperson and lead monitor during media briefings.

3) Reviewing and approving public information prior to its release to the media and coordinating with the JIC Director for clarity.

4) Participating in intra facility video conference briefings to obtain approved public information.

5) Coordinating media briefings with the Company Spokesperson, Company officials, the SLO County Public Information Officer (PIO), and other participating government agencies.

6) Developing communications strategies, key messages and other material for the media.

7) Identifying Company Spokesperson(s) and other Company representatives at media briefings.

8) Providing regular communications to the PG&G External Communications Department regarding the status of media briefings and approved and released information, and additional staffing needs.

5.9.4 Assistant PIO

The Assistant PIO is responsible for the following activities:

1) Under direction of the PIO, serving as a PG&E spokesperson.

2) Providing communications to PG&E External Communications Department.

3) Coordinating with the PIO and News Writer to ensure timely and accurate information is released to the public.

4) Attending pre-briefings conducted with the SLO County PIO to review the agenda, logistics and key messages used during each media briefing.

5) Coordinating the development of media releases with the News Writer.

6) Assisting the PIO in coordinating media briefings and any other media interviews including plant visits.

7) Advising the PIO of rumors as reported by the media or the News Media Liaisons.

8) Helping to develop key messages for use with the media and ensuring formality and consistency of Company presentations during media briefings.

5.9.5 Technical Advisor - Health Physics

The Technical Advisor -HP is responsible for the following activities:

1) Assisting the News Writer in verifying and writing of approved media briefing talking points and media releases.

2) Coordinating with the EOF and JIC staff for maintaining current status of projected dose, radiological plant conditions, and field monitoring.

3) Analyzing radiological data for the JIC personnel.

4) Describing radiological conditions in layperson's terms during media briefings.

5.9.6 Technical Advisor - Operations

The Technical Advisor - OPS is responsible for the following activities:

1) Assisting the News Writer in verifying and writing of approved media briefing talking points and media releases.

2) Providing technical assistance to assure that approved information is accurately described in general and understandable terms for the media briefing talking points and media briefings.

3) Observing the Emergency Director video conference briefings and interpreting technical information for the PIO, Assistant PIO, and the News Writer.

4) Maintaining current information on plant conditions and providing updates to the JIC Director, PIO, and the Company Spokesperson.

5) Reviewing NRC Event Reports for information on event and reports discrepancies to the PIO.

6) Assisting JIC staff to ensure technically correct information is released.

7) Presenting plant information to the media as directed by the PIO.

5.9.7 News Media Liaison - Site

The News Media Liaison - Site is responsible for the following activities:

1) Operating the computer and projector system used to display graphics and other information during media briefings.

2) Assuming the "News Media Liaison - Corporate" responsibilities on an interim basis until relieved by Company news personnel.

3) Recording any unanswered questions by the Company Spokesperson or PIO during media briefings.

4) Distributing approved media documents.

5.9.8 News Media Liaison - Corporate

The News Media Liaison - Corporate is responsible for the following activities:

1) Coordinating with media personnel arriving at the JIC and providing approved background information and facility orientation.

2) Acting as an interface for the External Communications Department for the media in between briefings.

3) Recording any unanswered questions by the Company Spokesperson or PIO during media briefings.

4) Advising the PIO of relevant information obtained from the media.

5) Distributing approved media documents.

5.9.9 News Writer

The News Writer is responsible for the following activities:

1) Collecting facts and developing media briefing talking points and media releases, as directed using approved information from video conferences, Emergency Notification Forms and tailboard forms.

5.9.10 JIC Clerical Support

The JIC Clerical support is responsible for the following activities:

1) Providing administrative and distribution support as needed for the JIC Staff.

5.9.11 JIC Security

The JIC Security is responsible for the following activities:

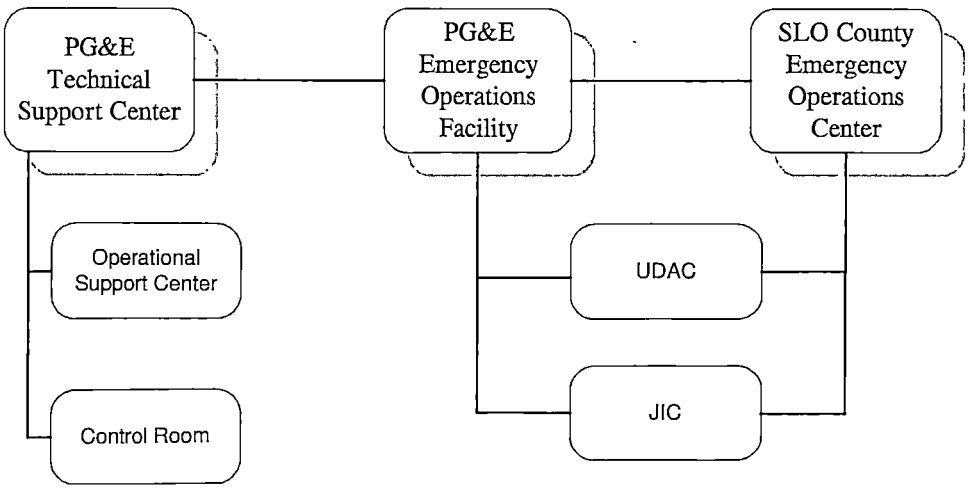
1) Providing access control for JIC areas.

5.10 FACILITY FUNCTIONAL RELATIONSHIPS

The representation of the integrated relationships between government response organizations and the licensee is shown in Figure 1 below.

The individual in charge at each center is responsible for center communications, recording important events, decisions, and actions, and assuring resource continuity (technical, administrative, and material).

FIGURE 1



5.11 COMPANY SUPPORT

Company support capabilities include public information, procurement of materials, contract services, construction services and meteorology. These capabilities, for the most part, are located at PG&E's General Office Complex in San Francisco. In the event of a general or company-wide emergency, PG&E's Emergency Operations Center (PG&E EOC) is staffed either in San Francisco or at an alternate site in San Ramon. Due to the physical distance between the PG&E EOC and Diablo Canyon Power Plant, an extensive communications system is used to notify PG&E EOC personnel, exchange status information and coordinate support requests. The primary PG&E EOC role will be to assist the with overall recovery effort, particularly those activities which are conducted offsite.

To maintain preparedness of the PG&E EOC and Incident Command System (ICS) management structure, and comply with California Public Utility Commission requirements, the Company Emergency Plan makes provisions for conducting periodic drills and exercises of simulated emergency conditions.

In an emergency classification level of Alert or higher the Emergency Director will take command and control of the event at the EOF and will direct all emergency response activities. The Emergency Director will work with the Site Emergency Coordinator, the PG&E EOC and local, State, and Federal officials, to develop a comprehensive response for the specific emergency situation. The Emergency Director will communicate with the Chief Nuclear Officer (CNO) and Nuclear Liaison in the PG&E EOC to arrange for the necessary Company resources to support the short-and/or long-term emergency response effort.

5.11.1 PG&E EOC Organization

The PG&E EOC is structured following the National Incident Management System (NIMS) Incident Command System (ICS) modified to address PG&E's unique operating requirements. All Company organizations with a role in emergency response are represented in the PG&E EOC, including a Nuclear Liaison. The Nuclear Liaison is the primary point of contact for technical information between the EOF and PG&E EOC.

5.11.2 Notification of Company Departments

It is Company policy that selected departments be routinely informed of plant activities and/or notified of unusual events. Nuclear generation is routinely informed of overall plant operations and promptly notified of all emergencies.

The Chief Nuclear Officer is the primary individual in charge of Company support activities. If the CNO cannot be contacted directly by the plant staff via Company or commercial telephone systems, notification will be through the use of a paging system. The Company support organization is also immediately notified of any occurrence that influences the plant's load carrying capability.

Company support activities are directed by the Emergency Director through the Government Relations Coordinator located at the EOF.

The Government Relations Coordinator is provided with communications via the Company telephone system and data links through the local area network (LAN)/wide area network (WAN).

5.12 NON-COMPANY ORGANIZATIONS SUPPORT

Other organizations involved in emergency response include government agency organizations at the Federal, State and local levels and commercial enterprises. Various non-Company groups have written agreements outlining their emergency response commitments. When an exchange of information, response action or concept of operation is governed by a regulation, law or executive order, the commitments are documented by either signature papers within the body of the planning documents or by written agreements. This commitment will outline specific work to be performed or be an agreement to respond to an emergency. These agreements are maintained and verified yearly.

5.12.1 Local Services Support

Additional support from regional and local services has been contracted to further enhance PG&E's capability to handle all types of onsite emergencies. These services include medical, hospital, ambulance and firefighting support. These services provide immediate 24-hour-a-day, on-call support.

5.12.2 Letters of Agreement

Letters of Agreement for services are maintained and reviewed annually with the organizations listed below.

1) Cambria Community Healthcare District

2) CALFIRE / San Luis Obispo County Fire Dept.

3) Department of California Highway Patrol

4) DOE Oak Ridge Operations Office

5) French Hospital Medical Center

6) INPO Nuclear Power Plant Agreement

7) Marian Medical Center

8) Rogers Helicopters, Inc.

9) San Luis Ambulance Service, Inc.

10) United States Coast Guard

5.12.3 Medical Consultants

Diablo Canyon has agreements with local hospitals for handling accidents involving radioactive contamination. The Radiation Emergency Assistance Center/Training Site (REAC/TS) is also available for consultation and response to radiation related injuries. This support is discussed in Section 6.

5.12.4 Hospitals

French Hospital in San Luis Obispo will handle cases of both radiological and non-radiological injuries occurring at Diablo Canyon Power Plant.

The Company also has an agreement with Marian Medical Center in Santa Maria to handle injured persons who may be contaminated with radioactive materials.

5.12.5 Ambulance Service

Arrangements have been made with ambulance services in San Luis Obispo County to handle cases of personnel injury at Diablo Canyon, including those involving radioactive contamination.

5.12.6 Firefighting Support

CALFIRE/San Luis Obispo County Fire Department will be called to assist with a fire in the plant or a fire in the surrounding grasslands. Designated members of the CALFIRE/SLO County Fire Department are trained in radiation protection practices. DCPP provides trained personnel to monitor potential radiation exposures to offsite fire agency personnel. The CALFIRE/SLO County Fire Department is a participating agency in the San Luis Obispo County/Cities "Nuclear Power Plant Emergency Response Plan." The California Firefighting mutual aid agreement provides the memorandum of understanding for firefighting support through the State.

5.12.7 Air Transportation

Various air transportation services are available to the Company under emergency response conditions. Arrangements with commercial enterprises are discussed in Section 7.

5.13 NON-COMPANY INDUSTRIAL SUPPORT ORGANIZATION

5.13.1 Notification

Plant implementing procedures make provisions for early notification and information transfer to these various support organizations. The list of designated persons and emergency phone numbers are used by the plant emergency response staff to make early contact to place these organizations on alert status. This listing would include primary manufacturing suppliers, other regional nuclear utilities, and specialty nuclear utility response organizations.

The principal response organizations in the non-Company industrial organization category include:

1) Westinghouse Electric Corporation, Pittsburgh, Pa.

   The DCPP Nuclear Steam Supply Systems were supplied by Westinghouse. In its capacity as a supplier, Westinghouse can lend emergency assistance to the Company on an around-the-clock basis.

   The Westinghouse Electric Company Emergency Response Plan:

   a) Defines the Westinghouse emergency response organization, role, scope, functions and responsibilities, and how it is activated.

   b) Identifies key Westinghouse personnel available in the early phases of an emergency response.

   c) Defines the primary Westinghouse interfaces with involved parties.

   d) Defines the Westinghouse role in emergency news communications and their interrelationship with the Company and news media.

2) United States Nuclear Industry Event Response Framework

   The United States Nuclear Industry Event Response Framework is a coordinating guide for the industry support organizations. The Framework is used by the industry support organizations for the purpose of coordinating response to an event that affects the nuclear industry. The Framework outlines each agencies roles regarding, response, technical data assessment, logistics, and operating experience that they will provide.

   The industry support organizations within the Framework are:

   - Nuclear Energy Institute (NEI)
   - Institute of Nuclear Power Operations (INPO)
   - Electric Power Research Institute (EPRI)

5.14 COORDINATION WITH PARTICIPATING SAN LUIS OBISPO COUNTY AGENCIES

San Luis Obispo County authorities are assigned the lead role in coordinating offsite emergency activities. The County has prepared a plan specifically applicable to DCPP: "San Luis Obispo County/Cities Nuclear Power Plant Emergency Response Plan."

The San Luis Obispo County/Cities Plan will be activated upon notification by PG&E of an event at the Alert or higher Emergency Classification level, or by an independent remote alarm indication located in the State Warning Center in Sacramento staffed 24 hours a day by the California Office of Emergency Services (CA OES). Initial PG&E notification will be received by the County Sheriff's Department Watch Commander from the plant Control Room via dedicated phone line, commercial phone, or radio.

Upon notice of a potential accident, PG&E will immediately transmit to the County all of the information required for initial assessment including protective measures recommended at that time. The response taken will be in accordance with the joint County/PG&E Emergency Classification system ensuring there are no misunderstandings of event severity.

The County Emergency Response Organization has overall responsibility for authorization and coordination of offsite emergency response activities, including:

1) Coordination with California Office of Emergency Services (CA OES) and other participating State and local agencies.

2) Determining the appropriate response and implementing appropriate protective actions for the general public.

3) Monitoring offsite locations and controlling access to problem areas. The Company will assist with offsite environmental monitoring as well as provide monitoring for evacuated populations and offsite emergency workers.

4) Arranging for medical treatment, health, and sanitation services for the general public. Procuring and distributing stable iodine thyroid blocking tablets for institutional populations as well as emergency workers. Initial stocks of KI for Emergency Workers are provided by PG&E.

5) Public information releases regarding offsite response and protective measures to be taken. (The Company is responsible for media releases concerning onsite events and protective measures. Media releases pertaining to onsite conditions will be coordinated with County public information personnel.)

Since the Sheriff's Department Watch Commander is staffed 24-hours-a-day the Control Room or TSC will make initial notification to the Sheriff's Department. The Sheriff's Department, in turn, will notify selected members of the County Emergency Response Organization. Since both the County EOC and the PG&E EOF are co-located, communication channels will remain open from plant site to this offsite location during County participation.

Initially, the Site Emergency Coordinator, or, once he arrives at the EOF, the Emergency Director will:

- Keep the County informed of meteorological conditions, results from pertinent surveys by Company personnel, and conditions at the plant. An Advisor to the County, a Company representative, will be assigned to the County Emergency Operations Center to assist in interpretation of technical information received from DCPP.
- Recommend appropriate protective actions to the County.

The Site Emergency Coordinator and the Emergency Director will be in communication with the technical personnel from the various Federal and State agencies to formulate a coordinated plan of action.

County facilities are used for centralized public information dissemination. A local Company public information specialist will serve as a spokesperson for the onsite and offsite activities of the Company.

Initial media releases and statements will be coordinated by the County Public Information Manager (PIM) in the EOC and the PG&E Public Information Officer (PIO). Contact and briefings with media personnel will be held at the Emergency Response Joint Information Center off Highway 1 (near the EOF). Media briefings may be held at the JIC at the ALERT or higher level classification. Media briefings may also take place at the Company EOC.

The Emergency Director, through the PIO and the Assistant PIO will establish a schedule and format for updates to the Company Spokesperson, San Luis Obispo County and other agencies at the County EOC. The County will promulgate jointly agreed upon position statements.

Rumor control is under the jurisdiction of the County organization. Centralized and authenticated information provides the Joint Information Center with a consistent, reliable source of information.

5.15 COORDINATION WITH PARTICIPATING STATE OF CALIFORNIA AGENCIES

The California Office of Emergency Services (CA OES) will be notified under the same circumstances as the County. CA OES provides assistance as outlined in the State of California "Nuclear Power Plant Emergency Response Plan." CA OES and the California Department of Public Health (CDPH) are the primary State response agencies for nuclear power plant accidents. Summaries of their responsibilities under terms of the State Plan are given below.

5.15.1 California Office of Emergency Services (CA OES)

CA OES has executive authority for the coordination of State resources and the responsibility of general planning. CA OES will:

- Alert State agencies, Federal organizations (other than NRC), volunteer organizations and adjacent Counties and States.
- Coordinate State radiological monitoring of areas, personnel, and equipment to support local County authority.
- Assess radiological situations.
- Operate the California State Warning Center (SWC), the State 24-hour communication network.
- Establish liaison with utility representatives.
- Coordinate all requests for Federal assistance.
- Prepare and coordinate public information and media releases with local, State, and Federal agencies and the Company.
- Coordinate State mutual aid.
- Update and maintain the State of California Nuclear Power Plant Emergency Response Plan.
- Coordinate, review, and approve emergency plans by other State agencies and some local jurisdictions.
- Assist the utility, local and State response agencies in development, conduct and coordination of offsite training programs. Evaluate offsite training programs developed by other agencies.
- Assist in the development, conduct and coordination of offsite drills and periodic exercises. Evaluate and critique the drills and exercises. Recommend improvements in plans, procedures and training programs.

5.15.2 California Department of Public Health (CDPH)

CDPH assists CA OES in maintaining an adequate state of emergency preparedness and provides technical and advisory support. As specified in the State Plan, CDPH will:

- Assist in monitoring the environment, personnel, and equipment in support of local authority.
- Establish and direct measures to mitigate radiological impact on public health. Coordinate with Department of Agriculture and local Agricultural Commission to prevent consumption of unacceptably contaminated food and fodder.
- Establish human exposure criteria; assess public impact of radiation levels. Maintain data on population dosimetry.
- Establish maximum contamination levels for controlled areas. Direct and assist local jurisdictions in defining contaminated areas. Establish measures to limit the spread of contamination.
- Identify laboratories capable of providing radiological support, including assay of ingestion pathway samples.
- Establish levels and guidance for protective action for the ingestion pathway.
- Direct and assist in collection of, and provide for laboratory analysis of, food and fodder samples taken by State and local authority.
- Establish policies and procedures for potential use of prophylactic substances to prevent or reduce the biological effects of radiation.
- Establish radiological safety criteria for recovery and re-occupancy of controlled areas.

5.16 COORDINATION WITH PARTICIPATING FEDERAL GOVERNMENT AGENCIES

The National Response Framework (NRF) integrates Federal domestic prevention, preparedness, response, and recovery plans into a single all-discipline, all-hazards plan. The NRF consists of a "base plan" plus multiple subject-specific annexes that expand on, and further delineate, interagency roles, responsibilities and activities in response to particular incidents.

5.16.1 Nuclear Regulatory Commission (NRC)

The NRC responds to incidents under its own statutory authorities and responsibilities in accordance with the NRF and, if applicable, as an integral part of the overall response by the Federal Government. Under the NRF's Nuclear/Radiological Incident (NRI) Annex, the NRC is the Federal "Coordinating Agency" that owns, has custody of, authorizes, regulates, or is otherwise deemed responsible for incidents involving facilities and/or materials licensed by the NRC. Accordingly, the NRC performs the specified Federal-level response functions, as appropriate and consistent with the agency's authorities and responsibilities.

For incidents below the threshold of an Incident of National Significance, the NRC, as the Coordinating Agency, performs the Federal-level functions and coordinates the overall Federal response as provided in the NRI Annex. The designated "cooperating agencies" (e.g., Department of Energy, Environmental Protection Agency, Department of Agriculture) provide assistance and support to the NRC. For Incidents of National Significance, the Department of Homeland Security (DHS) is responsible for the overall coordination of Federal response activities and the NRC, as Coordinating Agency, performs the annex-specified Federal-level functions in concert with DHS.

5.16.2 Federal Emergency Management Agency (FEMA)

FEMA serves as the NRI "annex coordinator" of Federal resources and coordinates the assistance to affected State, local and tribal governments under the Stafford Act or Federal-to-Federal support provision of the NRF.

5.16.3 Department of Energy (DOE)

Under the NRF NRI Annex, the DOE will dispatch radiological assistance teams to aid in monitoring and provide technical guidance. These teams are advisory and will not assume control from local authorities. Teams can be dispatched from Oakland, Livermore, Los Angeles, San Diego, and Las Vegas. Normally the CA OES will be the primary contact for requesting DOE assistance.

Response resources available from the DOE regional offices include:

- Federal Radiological Monitoring & Assessment Center (FRMAC)
- Radiological Assistance Program Teams (RAP)
- Atmospheric Release Advisory Capability (ARAC)
- Joint Nuclear Accident Coordination Center
- Nuclear Emergency Search Team (NEST)

Although these resources could originate from Lawrence Livermore Laboratory (LLL) near Livermore, California, the DOE aircraft and helicopters providing transportation support would originate from the DOE Las Vegas, Nevada facilities. Transit time for team response, once alerted, would be approximately six hours.

5.16.4 Coast Guard

The U.S. Coast Guard may be requested to assist in emergency actions involving vessels and persons, off-shore and adjacent to the plant. The Coast Guard has one or more vessels based at Morro Bay, approximately eight miles north of the plant. Upon notification, the Coast Guard will notify and attempt to remove persons and vessels from affected coastal waters. They will prevent vessels from entering affected areas and vessels suspected of being radioactively contaminated until they can be surveyed. The Coast Guard maintains "U.S. Coast Guard Procedures to be followed upon Notification of an Emergency at Diablo Canyon Power Plant."

The San Luis Obispo County/Cities Emergency Response Plan provides that the Sheriff's Watch Commander will make notifications to the United States Coast Guard (USCG). If the situation at the plant requires immediate protective actions on the part of the general public and the County Emergency Operations Center has not had time to be activated, the plant will notify the USCG to place them on standby or make recommendations for protective actions as appropriate.

5.16.5 Environmental Protection Agency (EPA)

EPA, through its Nuclear Radiation Assessment Division and its Office of Radiation Programs in Las Vegas, can provide trained health physics personnel, field sampling equipment and laboratory facilities for assessment and monitoring during an emergency. EPA provides radiological monitoring support for DOE in initial stages of an emergency and assumes the lead responsibility in the intermediate to long-term recovery period.

5.17 CROSS REFERENCE TO NUREG-0654

NUREG 0654	DCPP Emergency Plan	NUREG 0654	DCPP Emergency Plan
A.1.a	5.11, 5.12, 5.13, 5.14, 5.15, 5.16	F.1.a	5.6, 5.14
A.1.b	5.11, 5.12, 5.13, 5.14, 5.15, 5.16	F.1.b	5.3, 5.14
A.1.c	5.10	F.1.c	5.6, 5.8
A.1d	5.3.2, 5.6.1, 5.8.1	F.1.d	5.6,
A.1.e	5.4.1, 5.12.1, 5.14, 5.15.1	F.1.e	5.3, 5.14
A.3	5.12, 5.12.2, 5.14, 5.15, 5.16	G.3.a	5.6, 5.8, 5.9
A.4	5.4.1, 5.6.2, 5.8.1, 5.9.2,	G.3.b	5.9, 5.14
B.1	5.1.3, 5.18	G.4.a	5.9
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5.18 TABLE 5-1A, DCPP ON-SHIFT ERO STAFFING

Functional Area	Major Tasks	Emergency Positions	Shift Staffing[d]
1. Plant Operations and Assessment of Operational Aspects[c]	Control Room 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 & Communication	Licensee	Shift Foreman/RO	1[a]
	Local/ State	Shift Phone Talker (SRO/RO/NO)	1
	Federal	Shift Foreman/RO	1[a]
4. Radiological Assessment	Dose Assessment	Work Control Shift Foreman	1[a]
	In-plant Surveys	C&RP Technician	1
	Chemistry	C&RP Technician	1
5. Plant System Engineering, Repair, and Corrective Actions	Technical Support	Work Control Shift Foreman	1
	Repair and Corrective Actions	Mechanical Maint (operations) Elect/I&C Maint (Maint, SCT)	1[a] 2
6. In-Plant PAs	Radiation Protection	C&RP Technician	2[a]
7. Firefighting	--	Fire Department	5
8. 1st Aid and Rescue Ops	--	Industrial Fire Officers	2[a]
9. Site Access Control and Accountability	Security & 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) Respirator and self-contained breathing apparatus (SCBA) training requirements described in emergency planning program of instruction.

5.18 TABLE 5-1B, DCPP AUGMENTED ERO STAFFING

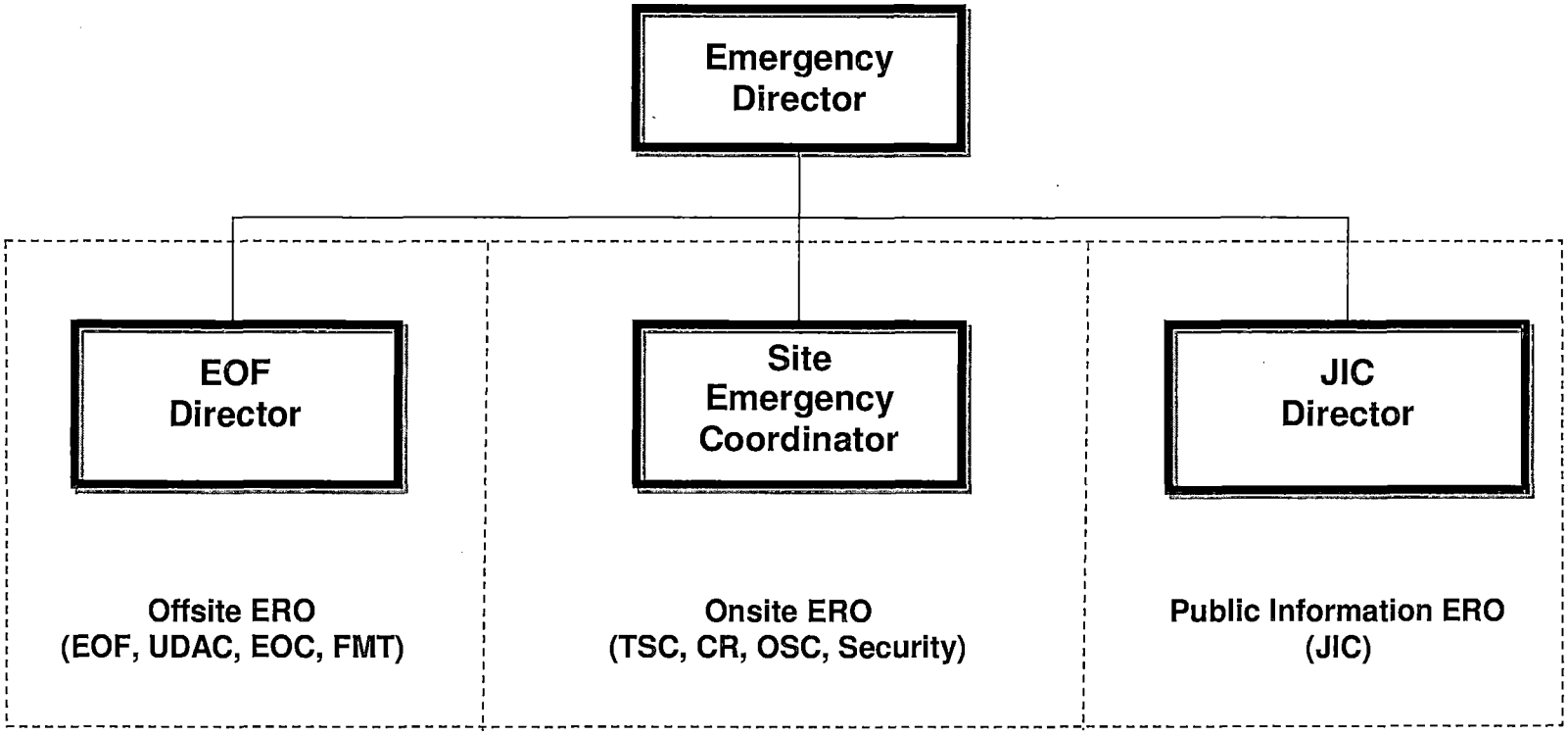
Functional Area	Major Tasks	Emergency Positions		*60 Minute	Full Augmentation
2. Emergency Direction and Control	Command and Control	Site Emergency Coordinator	(TSC)	1	
		Emergency Director	(EOF)	1	
	Facility Control	TSC Director	(TSC)		1
		EOF Director	(EOF)	1	
3. Notification & Communication	Emergency Communications	Communications Coordinator	(EOF)	1	
		Agency/ENS Communicator	(TSC)	1	
		HPN Communicator	(EOF)		1
	Plant Status & Technical Activities	Communications Advisor	(TSC)		1
		OPS Communicator	(CR)		1
		Engineering Liaisons	(EOF)		2
	In-Plant Team Control	Team Coordinator	(OSC)		1
	Governmental	Offsite Communicator	(EOF)	1	
		Advisor to the County	(County EOC)		1
		Government Relations Coordinator	(EOF)		1
4. Radiological Assessment	Offsite Dose Assessment	Radiological Manager	(EOF)	1	
		Dose Assessment Coordinator	(EOF)		1
		Dose Assessor	(EOF)	1	
		UDAC Meteorologist			1
	Offsite Surveys	FMT Coordinator	(EOF)		1
		FMT Communicator	(EOF)		1
		Field Monitoring Team	(EOF)	4	
		Offsite Emergency Lab Analyst	(EOF)		1
	Onsite Surveys	Field Monitoring Team	(OSC)	2	
	In-plant Surveys	C&RP Technician	(OSC)	2	(d)
	Chemistry	C&RP Technician			(d)
		Chemistry Coordinator	(OSC)		1
	RP Supervisory	Radiological Advisor	(TSC)		1
		Site RP Coordinator	(OSC)	1	

Functional Area	Major Tasks	Emergency Positions		*60 Minute	Full Augmentation
5. Plant System Engineering, Repair, and Corrective Actions	Technical Support / Accident Analysis	Engineering Advisor	(TSC)		1
		Reactor Engineer	(TSC)	1	
		Mechanical Engineer	(TSC)	1	
		Electrical Engineer	(TSC)	1	
		Operations Advisor	(TSC)	1	
		Radiological Data Processor	(TSC)		1
		PPC Operator	(TSC)		1
	Repair and Corrective Actions	Mechanical Maintenance	(OSC)		(d)
		Electrical/I&C Maintenance	(SCT)		(d)
		Maintenance Advisor	(TSC)	1	
		OSC Director	(OSC)	1	
		Mechanical Coordinator	(OSC)	1	
		Electrical Coordinator	(OSC)	1	
		I&C Coordinator	(OSC)	1	
		Operations Coordinator	(OSC)		1
6. In-Plant Protective Actions	Radiation Protection	C&RP Technician		4	(d)
8. 1st Aid and Rescue Ops	--	Firefighters			(d)
9. Site Access Control and Personnel Accountability	Security & Accountability	Security Personnel		(e)	(e)
		Security Advisor	(TSC)		1
		Security Liaison	(EOF)	(f)	1
10. Resource Allocation and Administration	Logistics	Administrative Advisor	(TSC)		1
		Security	(EOF)		1
	Administration	ED Admin Assistant	(EOF)		1
		SEC Admin Assistant	(TSC)		1
		Clerical Staff	(TSC/EOF/OSC)		3
		UDAC Clerical Staff	(EOF)		1

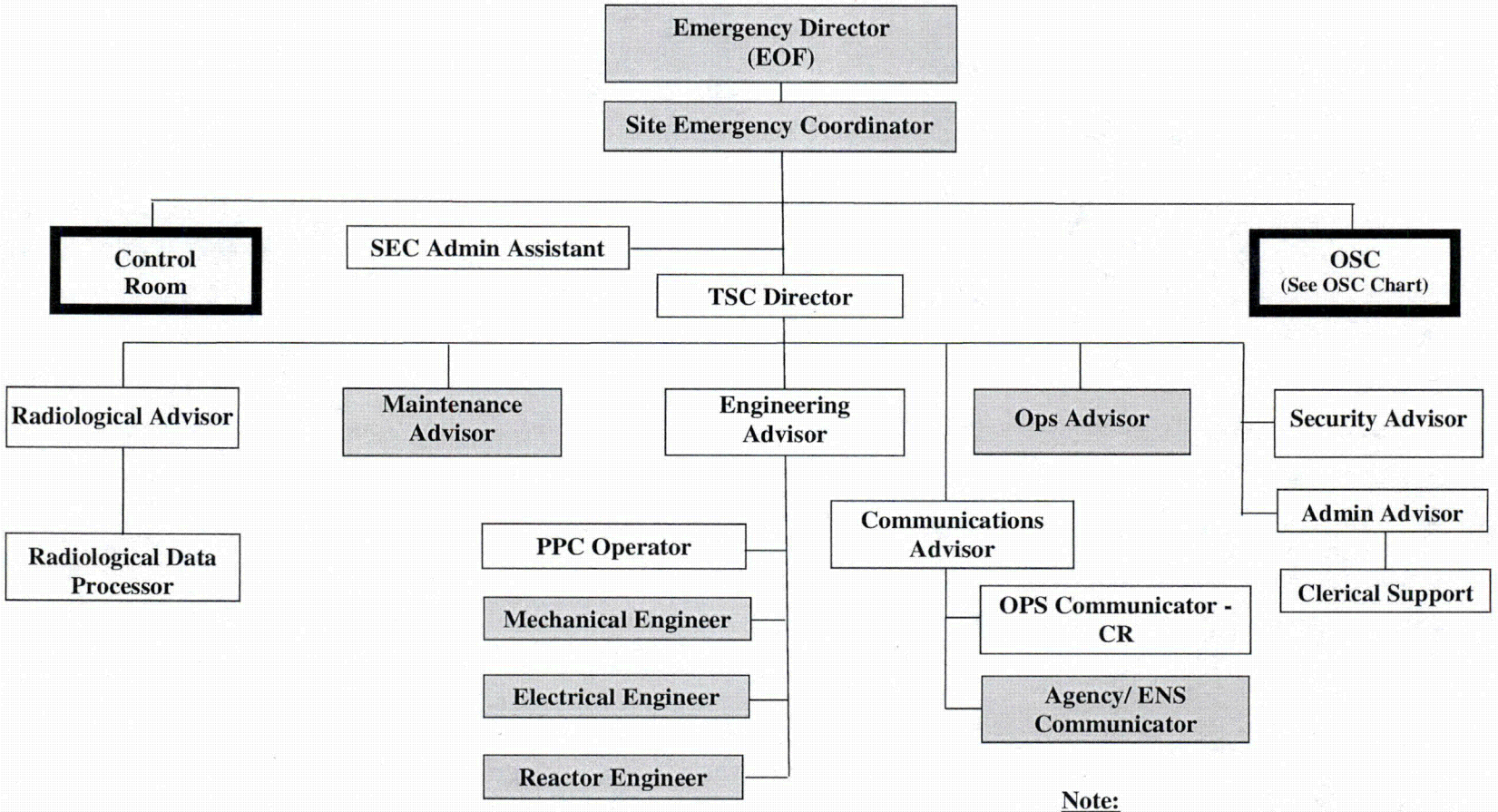
Functional Area	Major Tasks	Emergency Positions		*60 Minute	Full Augmentation
11. Public Information	Media Interface	Company Spokesperson	(JIC)		1
		News Media Liaison - Corp	(JIC)		1
		News Media Liaison - Site	(JIC)		1
	Information Development	Public Info Officer	(JIC)	1	
		Technical Advisor - OPS	(JIC)		1
		Technical Advisor - HP	(JIC)		1
		News Writer	(JIC)		1
		Assistant PIO	(JIC)		1
	Facility Operation and Control	JIC Director	(JIC)	1	
		JIC Security	(JIC)		1
		JIC Clerical Staff	(JIC)		1
TOTAL:				**32**	**39**

Notes:
* Response time is based on optimum travel conditions.
(d) Personnel numbers depend on the type and extent of the emergency.
(e) Per DCPP Security Plan.
(f) Position only required for security related events.

5.19 FIGURE 5-1, OVERALL COMMAND AND CONTROL STRUCTURE

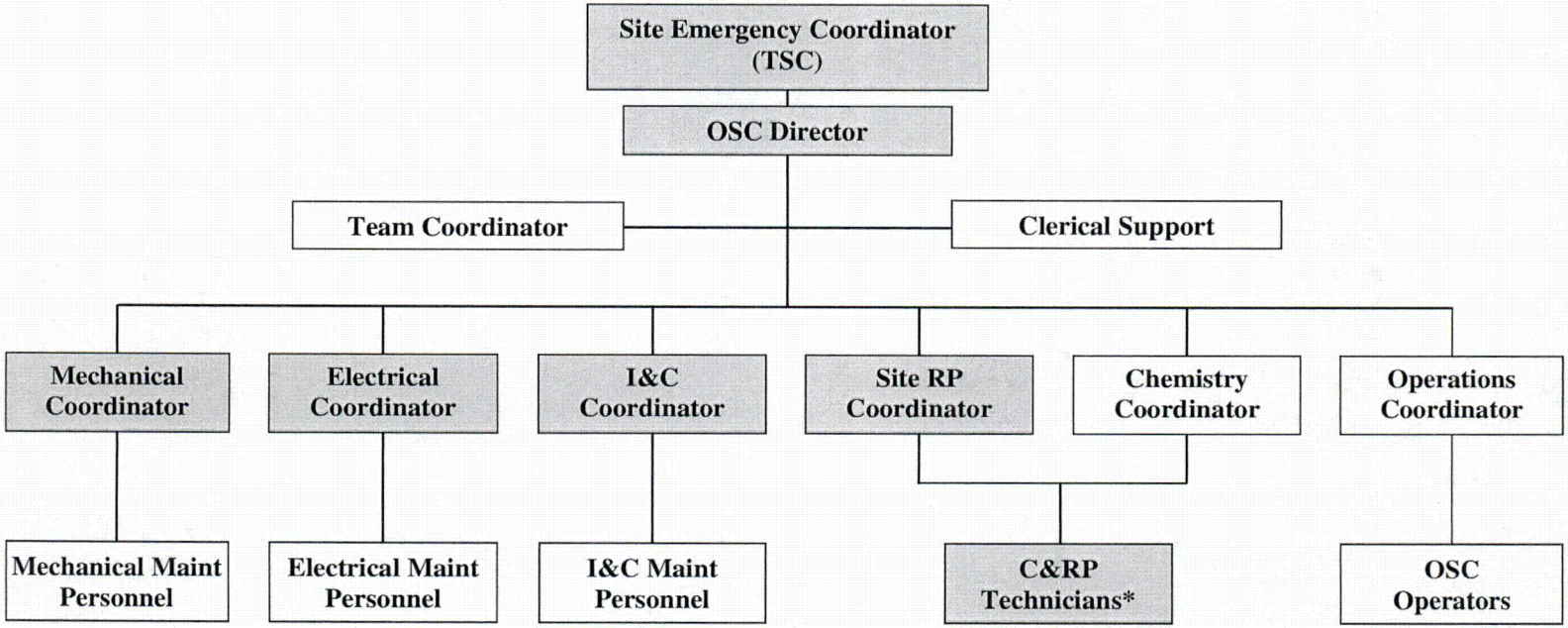


5.20 FIGURE 5-2, TSC ORGANIZATION



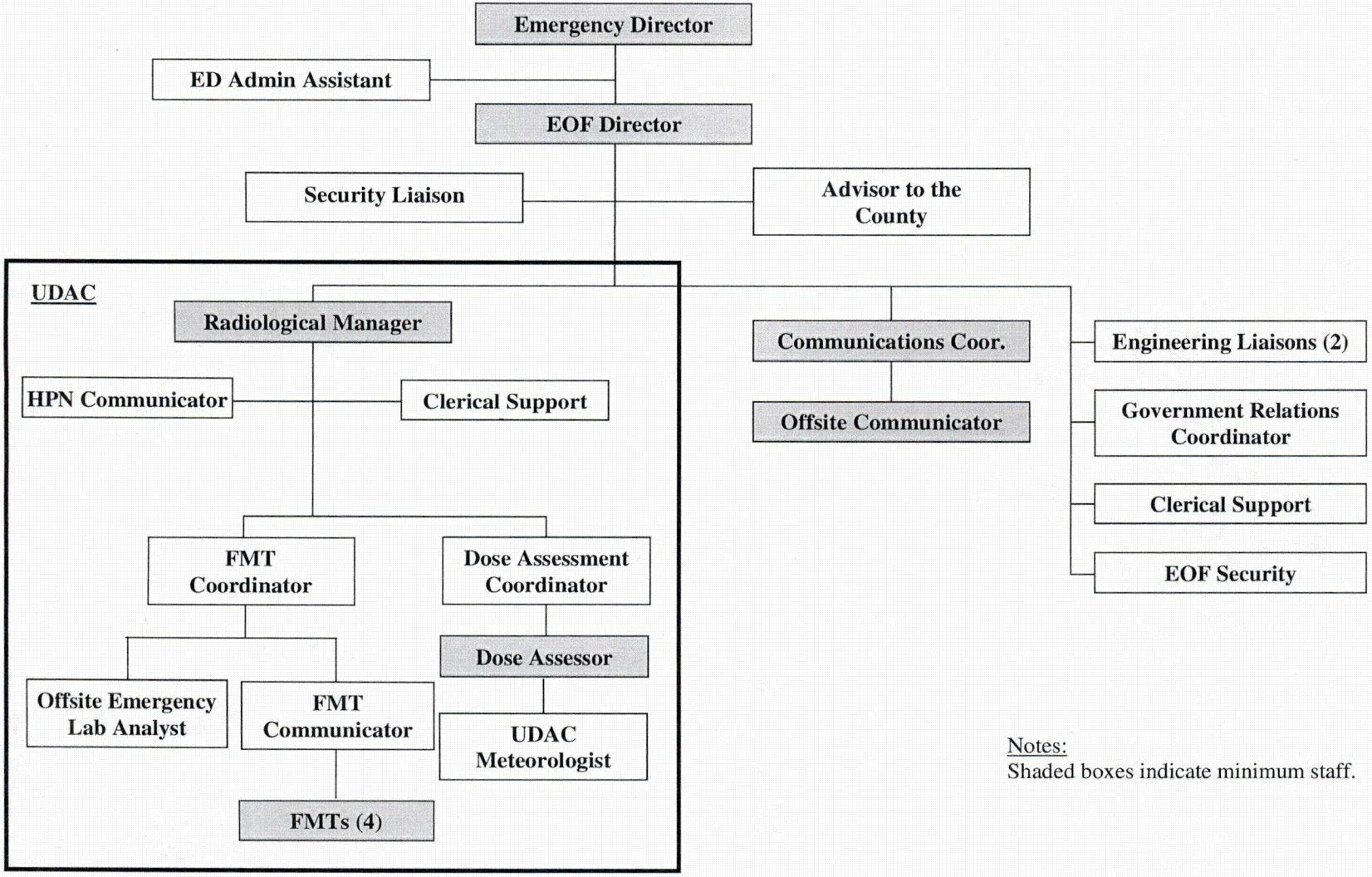
Note:
Shaded boxes indicate minimum staffing.

5.21 FIGURE 5-3, OSC ORGANIZATION



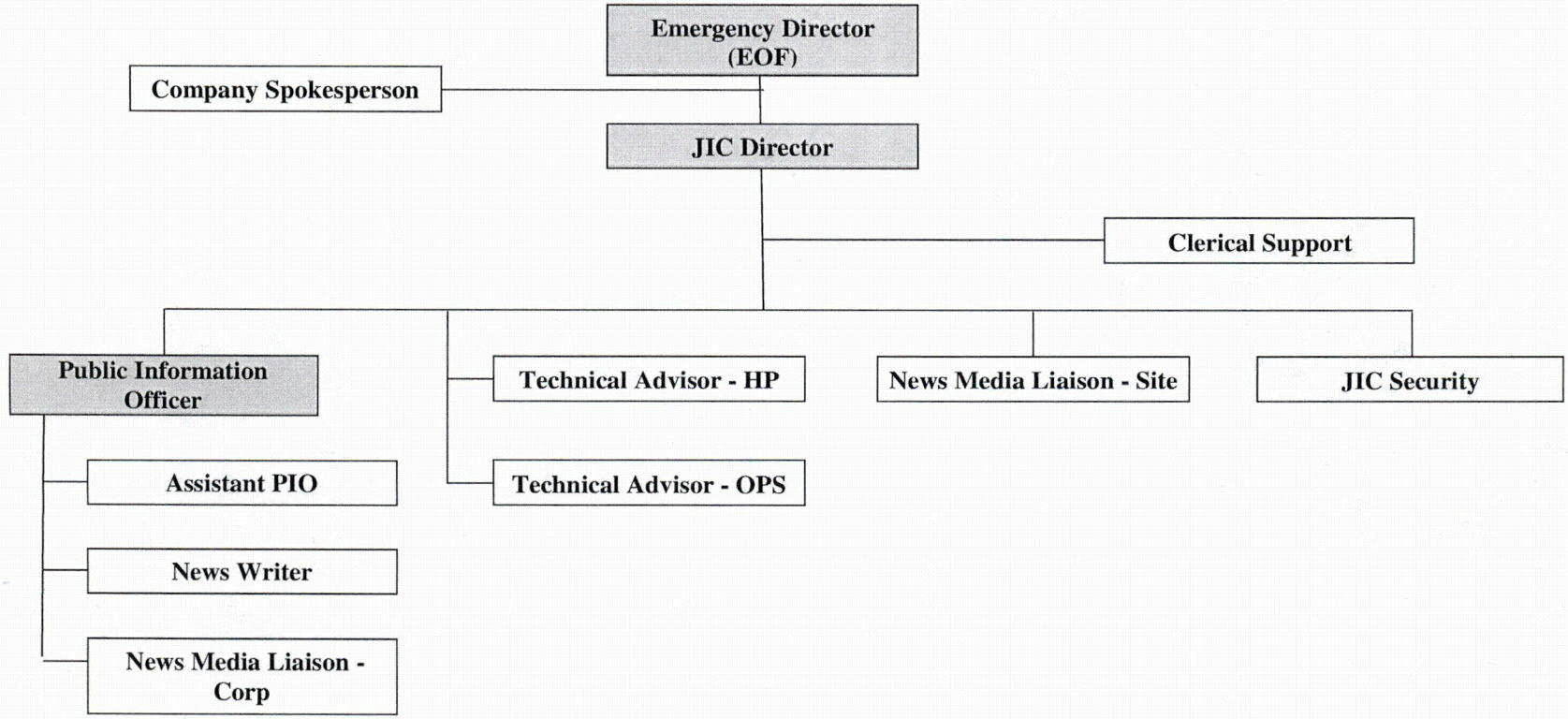
Note:
Shaded boxes indicate minimum staffing.
* 8 C&RP Technicians:
4 In-plant protective actions
2 In-plant surveys
2 FMT members

5.22 FIGURE 5-4, EOF ORGANIZATION



Notes:
Shaded boxes indicate minimum staff.

5.23 FIGURE 5-5, JIC ORGANIZATION



Notes:
Shaded boxes identify minimum staff.

Pacific Gas and Electric Company

Diablo Canyon Power Plant

Summary of the Analysis of Changes

Emergency Plan Appendix B, Revision 4.02

Offsite Agency Support Documents

Summary of the Analysis for Changes to Emergency Plan, Appendix B, Revision 4.02

Original Content	Content Change	Change Number / Type of Change Reason for Change
E-Plan Appendix B B. OFFSITE AGENCY SUPPORT DOCUMENTS •Federal Radiological Emergency Response Plan	E-Plan Appendix B B. OFFSITE AGENCY SUPPORT DOCUMENTS •National Response Framework Nuclear/Radiological Incident Annex	Editorial change with no change of intent. Annual E-Plan review, SAPN 50621760, found an inconsistency between name of Federal Response Plan contained in Appendix B and current Federal Plan. This change does not alter the scope or intent of Appendix B.

Enclosure 6
PG&E Letter DCL-16-004
PG&E Letter DIL-16-001

Pacific Gas and Electric Company

Diablo Canyon Power Plant

Emergency Plan Appendix B, Revision 4.02

Offsite Agency Support Documents

B. OFFSITE AGENCY SUPPORT DOCUMENTS

The following plans and procedures, which relate to response to an emergency at Diablo Canyon, are provided by the associated offsite agencies. These documents are maintained by Emergency Planning. These documents are reviewed for any impact to the Diablo Canyon Emergency Plan.

- San Luis Obispo County / Cities Nuclear Power Plant Emergency Response Plan
- State of California Nuclear Power Plant Emergency Response Plan
- Westinghouse Electric Company Emergency Response Plan
- Diablo Canyon Power Plant Emergency Response Plan Implementing Procedures Listing
- French Hospital Emergency Response Plan
- National Response Framework Nuclear/Radiological Incident Annex
- Institute of Nuclear Power Operation INPO's Role in an Emergency
- U.S. Coast Guard Procedures to be Followed Upon Notification of an Emergency at Diablo Canyon Nuclear Power Plant

B.1 CROSS REFERENCE TO NUREG-0654

This appendix implements NUREG-0654 Part II, C.1.a, C.1.b, C.1.c, and P.6.

Pacific Gas and Electric Company

Diablo Canyon Power Plant

Summary of the Analysis of Changes

Emergency Plan Appendix F, Revision 4.03

ERO On-Shift Staffing Analysis Report

Summary of the Analysis for Changes to Emergency Plan, Appendix F, Revision 4.03

Original Content	Content Change	Change Number / Type of Change Reason for Change
E-Plan Appendix F 6. LIST OF REFERENCES 6.23 EOP E-3, No documents identified	E-Plan Appendix F 6. LIST OF REFERENCES 6.23 EOP E-3, Steam Generator Tube Rupture	Editorial change with no change of intent. Annual E-Plan review, SAPN 50621760, found an inaccurate procedure reference in Appendix F. This change does not alter the scope or intent of Appendix F.

Pacific Gas and Electric Company

Diablo Canyon Power Plant

Emergency Plan Appendix F, Revision 4.03

ERO On-Shift Staffing Analysis Report

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1. INTRODUCTION

1.1 On Shift Staffing Analysis Regulatory Basis and Guidance

The requirements for an on-shift emergency response organization are provided in 10 CFR 50.47(b)(2) and 10 CFR 50 Appendix E. §50.47(b) states, in part, the following:

> On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times...

§50 Appendix E.IV, Content of Emergency Plans, subsection A states:

> The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's ERO and the means for notification of such individuals in the event of an emergency.

§50.47(b) states that on-shift staffing levels must be adequate, but provides no specific definition of the term "adequate" for use in this context. §50 Appendix E.IV likewise does not specify a basis for the composition or assignments of the on-shift emergency response organization (ERO).

NUREG-0654, which is used for the review and approval of emergency plans, provides general guidance for what constituted adequate on-shift staffing by way of a table, but approval and implementation of this table has not been consistent throughout the industry as it also is not developed upon a technical basis. The NRC states that licensees must have enough on-shift staff to perform specified tasks in various functional areas of emergency response. All shifts must have the capability to perform these emergency functions 24 hours a day, 7 days a week, to minimize the impact of radiological emergencies and to provide for the protection of public health and safety.

As part of the overall Emergency Preparedness rulemaking published in November of 2011, the Commission amended §50, Appendix E, Section IV.A, "Organization," to address concerns regarding the assignment of tasks or responsibilities to on-shift ERO personnel that would potentially overburden them and prevent the timely performance of their Emergency Plan functions. §50 Appendix E.IV subsection A.9 was added to state:

> By December 24, 2012, for nuclear power reactor licensees, a detailed analysis demonstrating that on-shift personnel assigned Emergency Plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the Emergency Plan.

In conjunction with the new rule, the NRC issued, Interim Staff Guidance (ISG) NSIR/DPR-ISG-01. ISG Section IV.C provides specific detail on the criteria and acceptable methods for the conduct of the on-shift staffing analysis, including the endorsement of NEI 10-05. The NEI analysis methodology composed of the following:

- Identification of the on-shift ERO staffing and response time requirements.
- Identification of the site specific event scenarios described in the ISG.
- Documentation of a Task Analysis (TA) for each event scenario.
- Documentation of a Time Motion Study (TMS), if deemed necessary.

The ISG considers the analysis report to be the technical basis for the on-shift staffing, and requires that the results be incorporated into the Emergency Plan as a part of the formal licensee licensing bases.

1.2 On-shift Staffing Analysis Summary Results

The on-shift ERO analysis concluded that the DCPP on-shift staff is sufficient to perform all procedurally required plant and emergency response tasks without overburden prior to the arrival of the augmented ERO.

Refer to sections 4 and 5 for the specific details and additional information regarding task analysis and time motion study results.

2. ON-SHIFT STAFFING COMPLEMENT

2.1 On-Shift Staffing Licensing Basis

The Diablo Canyon Emergency Plan Revision 3.03, dated 03/31/83, is established as the approved licensing basis for the on-shift staffing complement.

Section 5.1.7, Normal Shift Complement, documents the nineteen (19) minimum on-shift crew for the operation of Units 1 and 2 as follows:

- 1 - Shift Foreman with a Senior Operator's License (SOL)
- 1 - Shift Engineer (SOL)
- 2 - Senior Control Operator (SOL)
- 2 - Control Operator with an Operator's License (OL)
- 2 - Assistant Control Operator (OL)
- 5 - Auxiliary Operators
- 2 - Chemical and Radiation Protection Technician
- 2 - Control Technicians
- 1 - Shift Clerk
- 1 - Shift Security Supervisor

2.2 On-Shift Staffing Complement Used in the Analysis

Only personnel required to be on-shift are credited in the staffing analysis. The on-shift personnel complement is limited to the minimum required number and composition as described in the DCPP Emergency Plan.

Functional Area	Major Tasks	Emergency Positions	Analysis Shift Staffing
1. Plant Operations and Assessment of Operational Aspects[(c)]	Control Room 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 & Communication	Licensee	Shift Foreman/RO	1[(a)]
	Local/State	Shift Phone Talker (SRO/RO/NO)	1
	Federal	Shift Foreman/RO	1[(a)]
4. Radiological Assessment	Dose Assessment	Work Control Shift Foreman	1[(a)]
	In-plant Surveys	C&RP Technician	1
	Chemistry	C&RP Technician	1
5. Plant System Engineering, Repair, and Corrective Actions	Technical Support	Work Control Shift Foreman	1
	Repair and Corrective Actions	Mechanical Maint (Operations) Elect/I&C Maint (Maint. SCT)	1[(a)] 2
6. In-Plant PAs	Radiation Protection	C&RP Technician	2[(a)]
7. Firefighting	--	Fire Department	5
8. 1st Aid and Rescue Ops	--	Industrial Fire Officers	2[(a)]
9. Site Access Control and Accountability	Security & 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.

3. EVENT ANALYSIS

3.1 List of Potential FSAR and ISG Events Analyzed

Selection of Design Basis Accident (DBA) events for this analysis follows the guidance given in NEI 10-05:

- Some Design Basis Accidents may be analyzed in several cases, each case reflecting different initial assumptions affecting radiological consequences (e.g., RCS activity, leak rates, etc.). For example, an analysis may contain a conservative case (e.g., a bounding case with parameters at Technical Specification allowable limits) and a realistic case (e.g., using typically expected parameters reflecting sound operational decision-making). The staffing analysis for that particular Design Basis Accident may use the radiological consequences associated with the realistic case (NEI 10-05 Section 2.8).
- If the site's Updated Final Safety Analysis Report (UFSAR) presents multiple analyses of a postulated accident type reflecting different initiating event severities (e.g., a LOCA analyzed in both a small-break and a large break case), the one resulting in the highest emergency classification should be used for the staffing analysis. If the conditions of similar postulated accidents would result in the same emergency classification, select the case that causes the most severe radiological consequences. Should neither criterion differentiate between the available cases, the licensee may choose the case to be used for a staffing analysis (NEI 10-05 Section 2.8).
- In cases where a Design Basis Accident analysis includes a radiological release, and the starting point of the release is not clearly defined, the staffing analysis may assume that the release begins 15-minutes after the initiating event. Licensees are free to use a starting point of less than 15-minutes if desired. Elapsed times of greater than 15-minutes may also be used; however, a documented basis for the selected time should be developed and appended to the staffing analysis (NEI 10-05 Section 2.8).
- In accordance with NSIR/DPR-ISG-01, Interim Staff Guidance - Emergency Planning for Nuclear Power Plants, the staffing analysis for at least one Design Basis Accident must include an assessment of the actions performed in response to a General Emergency. This same event must also include a radiological release that results in a dose that exceeds the Environmental Protection Agency's (EPA) Protective Action Guides (PAGs) beyond the site boundary, and thus necessitates promulgation of a Protective Action Recommendation (PAR) (NEI 10-05 Section 2.10).

DCPP FSAR Section 15.4, Condition IV - Limiting Faults, lists the following events within this category:

3.1.1 Major Reactor Coolant System Pipe Ruptures (Large Break Loss of Coolant Accident) - FSAR 15.4.1

3.1.2 Major Secondary System Pipe Ruptures - FSAR 15.4.2

3.1.3 Steam Generator Tube Rupture (SGTR) - FSAR 15.4.3

3.1.4 Single Reactor Coolant Pump (RCP) Locked Rotor - FSAR 15.4.4

3.1.5 Fuel Handling Accident (FHA) - FSAR 15.4.5

3.1.6 Rupture of a Control Rod Drive Mechanism Housing (RCCA Ejection) - FSAR 15.4.6

3.1.7 Rupture of a Waste Gas Decay Tank - FSAR 15.4.7

3.1.8 Rupture of a Liquid Holdup Tank - FSAR 15.4.8

3.1.9 Rupture of a Volume Control Tank - FSAR 15.4.9

Additionally, the following events were analyzed to comply with the ISG for the new on-shift staffing rule in 10 CFR 50 Appendix E.

3.1.10 Design Basis Threat (DBT) - ISG IV.C On-Shift Staffing Analysis

3.1.11 Probable Aircraft Threat (PAT) - ISG IV.C On-Shift Staffing Analysis

3.1.12 Control Room Evacuation due to Fire - ISG IV.C On-Shift Staffing Analysis

3.1.13 Station Blackout (SBO) - ISG IV.C On-Shift Staffing Analysis

3.1.14 Appendix R Fire Response - ISG IV.C On-Shift Staffing Analysis

3.1.15 SAMG - ISG IV.C On-Shift Staffing Analysis

3.2 Disposition of Events

DCPP Emergency Plan Section 4.4, DCPP and ISFSI FSAR Analyzed Accidents Correlated to Emergency Classifications, was used to define the Condition IV events that would result in an event declaration. Event Classification Levels (ECLs) are based on the Emergency Action Levels (EALs) specified in Appendix D of the Emergency Plan.

Refer to Table 3-1 for the summary disposition of the DCPP site specific events that are carried forward in the on-shift staffing analysis.

3.2.1 Large Break Loss of Coolant Accident (LB-LOCA) - FSAR 15.4.1

This event results in a Site Area Emergency ECL based on EAL FS1 (RCS Potential Loss #2 or Loss #2 and FC Loss #3 or Loss #6) and is carried forward in the analysis.

3.2.2 Major Secondary System Pipe Ruptures - FSAR 15.4.2

The steam system piping failure accident analysis, described in FSAR Section 15.4.2.1, is performed assuming a hot zero power initial condition with the control rods inserted in the core, except for the most reactive rod, which remains fully withdrawn out of the core. This condition could occur while the reactor is at hot shutdown at the minimum required shutdown margin, or after the plant has been tripped manually, or by the reactor protection system following a steam line break from an at power condition. Per the FSAR the Main Steam Line (MSL) Rupture (Hot at 0 Power) represents the limiting DBA event in this category with regard to damage consequence. With respect to operator action based on procedure steps, the MSL

Rupture (at 100% Power) represents the limiting event with respect to number and speed of actions the on-shift staff must perform to fully shutdown the plant.

a. MSL Rupture (Hot at 0 Power) - FSAR 15.4.2.1

This event results in no ECL threshold being exceeded and is therefore not carried forward in the analysis.

b. Major Rupture of a Main Feedwater Pipe - FSAR 15.4.2.2

This event results in no ECL threshold being exceeded and is therefore not carried forward in the analysis.

c. MSL Rupture at 100% Power - FSAR 15.4.2.3

This event results in no ECL threshold being exceeded and is therefore not carried forward in the analysis.

3.2.3 Steam Generator Tube Rupture (SGTR) - FSAR 15.4.3

As a DBA this event results in up to a Site Area Emergency ECL based on EAL FS1 (RCS Potential Loss #2 or Loss #2 and FC Loss #6) and is carried forward in the analysis.

Additionally, the scope of this event will be expanded to result in a General Emergency with offsite radiological doses that exceed the EPA PAGs and necessitate PARs in order to comply with the specifications of NSIR/DPR-ISG-01, Interim Staff Guidance Emergency Planning for Nuclear Power Plants.

3.2.4 Reactor Coolant Pump (RCP) Locked Rotor - FSAR 15.4.4

This event assumes a failed fuel source term such that EP RB-14A dose point radiation is greater than 3 R/hr. This condition results in an Unusual Event ECL based on EAL SU5.1 and is carried forward in the analysis.

3.2.5 Fuel Handling Accident (FHA) - FSAR 15.4.5

This category IV accident includes two events, one of which is applicable to the on-shift staffing analysis.

This accident is assumed to occur 100 hours after shutdown. This latter interval represents approximately the minimum time required to prepare (cooldown, head and internals removal, cavity flooding, etc.) the core for refueling.

a. Fuel Handling Accident in the Containment Building - FSAR 15.4.5.3.1

This event assumes a failed fuel source term such that radiation monitor RM-2 is greater than 21 mR/hr. This condition results in an Alert ECL based on EAL RA2.1.

Fuel handling activities performed in the Containment Building during an outage would include numerous extra personnel available for event response. Since

there will not be a time during refueling activities in the Containment Building when only the minimum on-shift ERO is present, the fuel handling accident in this area is not included in the on-shift staffing analysis.

b. Fuel Handling Accident in the Fuel Handling Area - FSAR 15.4.5.3.2

This event assumes a failed fuel source term such that radiation monitor RM-58 is greater than 20 mR/hr. This condition results in an Alert ECL based on EAL RA2.1 and will be included in the on-shift staffing analysis.

3.2.6 Rupture of a Control Rod Mechanism Housing (RCCA ejection) - FSAR 15.4.6

This event assumes a failed fuel source term such that radiation monitor RM-30/31 is greater than 6 R/hr. This condition results in an Alert ECL based on EAL FA1.1 (RCS Loss #1 or Loss #2) and is carried forward in the analysis.

3.2.7 Rupture of a Waste Gas Decay Tank - FSAR 15.4.7

This event assumes a source term such that effluent radiation monitor readings exceed the table R-1 threshold values. This condition results in an Unusual Event ECL based on EAL RU2.2 and is carried forward in the analysis.

3.2.8 Rupture of a Liquid Holdup Tank - FSAR 15.4.8

This event assumes a source term such that effluent radiation monitor readings exceed the table R-1 threshold values. This condition results in an Unusual Event ECL based on EAL RU2.2 and is carried forward in the analysis.

3.2.9 Rupture of a Volume Control Tank - FSAR 15.4.9

This event assumes a source term such that effluent radiation monitor readings exceed the table R-1 threshold values. This condition results in an Unusual Event ECL based on EAL RU2.2 and is carried forward in the analysis.

3.2.10 Design Basis Threat (DBT)

This event results in a Site Area Emergency ECL based on EAL HS4.1 and is carried forward in the analysis. The scope of this scenario will include impact on both units.

3.2.11 Probable Aircraft Threat (PAT)

This event results in an Alert ECL based on EAL HA4.1 and is carried forward in the analysis. The scope of this scenario will include impact on both units.

3.2.12 Control Room Evacuation due to Fire

This event results in an Alert ECL based on EAL HA5.1 and is carried forward in the analysis. The scope of this scenario will include impact on both units.

3.2.13 Station Blackout (SBO)

This event results in a Site Area Emergency ECL based on EAL SS1.1 and is carried forward in the analysis. The scope of this scenario will include impact on both units.

3.2.14 Appendix R Fire Response

The Control Room fire scenario requiring evacuation and plant shutdown at the remote stations is the most severe Appendix R scenario with regard to operator actions as stated in OP AP-8A Section 3.1. No additional Appendix R fire response scenarios are carried forward in the analysis.

3.2.15 SAMG

An event that results in the conditions necessary for entry into SAMG space and is not carried forward in the analysis.

Task 274961, implement transition from the EOP's to SACRG-1 and SAMG training (which includes classroom and simulator training) is given in licensed operator continuing training on a four year frequency. None of the UFSAR limiting fault events result in entry conditions into SAMG procedures prior to the ERO augmentation. Entry conditions into SAMG procedures for all of the other events analyzed, with the exception of the event established to artificially exceed PAGs, are not expected to occur until after the augmenting ERO has responded. DCPP SACRG-1 entry conditions are as follows:

- EOP ECA-0.0, LOSS OF ALL AC POWER, when core exit TCs are greater than 1200 degrees F and actions to cool the core are not successful.
- EOP FR-S.1, RESPONSE TO NUCLEAR POWER GENERATION/ATWS, when core exit TCs are greater than 1200 degrees F and actions to cool the core are not successful.
- EOP FR-C.1, RESPONSE TO INADEQUATE CORE COOLING, when core exit TCs are greater than 1200 degrees F and actions to cool the core are not successful.
- EOP ECA-1.3, SUMP BLOCKAGE GUIDELINE, when core exit TC temperatures are greater than 1200 degrees F and increasing and actions to cool the core are not successful.
- EDMG EDG-7, when Core Exit T/Cs are greater than 1200 degrees F and rising and actions to cool the core are not successful.

It is therefore concluded that the on-shift ERO would not be called upon to perform SAMG functions and activities for the events analyzed for this report prior to the assistance of the greater ERO in the emergency facilities being available.

3.3 Table 3-1: NEI 10-05 Appendix A Table, Analyzed Events and Accidents

Analysis #	Summary Description of Event or Accident	Plant Mode	Reference Document(s)	ECL	Analysis Required?
1	Large Break Loss of Coolant Accident (LB-LOCA)	1	FSAR 15.4.1	SAE	Yes
2.a	Main Steam Line Rupture (Hot at 0% Power)	1	FSAR 15.4.2.1	None	No[1]
2.b	Major Rupture of a Main Feedwater Pipe	1	FSAR 15.4.2.2	None	No[1]
2.c	Main Steam Line Rupture (at 100% Power)	1	FSAR 15.4.2.3	None	No
3	Steam Generator Tube Rupture (SGTR)	1	FSAR 15.4.3	GE[2]	Yes
4	Reactor Coolant Pump (RCP) Locked Rotor	1	FSAR 15.4.4	UE	Yes
5.a	Fuel Handling Accident in the Containment Building	6/D	FSAR 15.4.5.3.1	Alert	No[3]
5.b	Fuel Handling Accident in the Fuel Handling Area	1	FSAR 15.4.5.3.2	Alert	Yes
6	Rupture of a Control Rod Mechanism Housing	1	FSAR 15.4.6	Alert	Yes
7	Rupture of a Waste Gas Decay Tank	1	FSAR 15.4.7	UE	Yes
8	Rupture of a Liquid Holdup Tank	1	FSAR 15.4.8	UE	Yes
9	Rupture of a Volume Control Tank	1	FSAR 15.4.9	UE	Yes
10	Design Basis Threat (DBT)	1	CP M-15A	SAE	Yes
11	Probable Aircraft Threat (PAT)	1	CP M-15A	Alert	Yes
12	Control Room Evacuation Due to Fire	1	OP AP-8A	Alert	Yes
13	Station Blackout (SBO)	1	EOP ECA-0.0	SAE	Yes
14	Appendix R Fire Response	1	Appendix R OP AP-8A	Alert	No[4]
15	SAMG	1	SACRG-1	GE	No[5]

[1] The MSL rupture for hot at 0% power event and the MFW rupture event are bounded by the MSL rupture at full power event and are not analyzed separately in this report.
[2] The FSAR steam generator tube rupture results in a Site Area Emergency ECL. The scope of this event will be expanded to result in a General Emergency with offsite radiological doses that exceed the EPA PAGs and necessitate PARs in order to comply with the specifications of the ISG.
[3] The FSAR fuel handling accident in the containment building occurs during refueling outage conditions where significant personnel resources are available and is bounded by the fuel handling accident in the fuel handling area.
[4] The Control Room fire and evacuation is the limiting Appendix R fire response scenario with regard to complex actions by the on-shift ERO.
[5] The entry conditions for SAMG actions do not occur prior to the arrival of the augmenting ERO for any of the FSAR category IV events or other scenarios performed within this analysis.

3.4 Scope/Sequence of Events

3.4.1 General Assumptions and Limitations

a. On-shift personnel can report to their assigned response locations within timeframes sufficient to allow for performance of assigned actions. The following are the typical locations of the on-shift personnel:

• Shift Manager	Control Room
• U1 Shift Foreman	Control Room
• U2 Shift Foreman	Control Room
• U1 Control Operator - ATC	Control Room
• U2 Control Operator - ATC (U2 RO)	Control Room
• U1 Control Operator - BOP (U1 BOPCO)	Control Room
• U2 Control Operator - BOP (U2 BOPCO)	Control Room
• Shift Phone Talker (SPT)	Control Room
• Work Control Shift Foreman	Work Control Center
• Work Control Lead	Work Control Center
• U1 Turbine Building Operator	Work Control Center
• U2 Turbine Building Operator	Work Control Center
• U1 Aux Building Operator	Work Control Center
• U2 Aux Building Operator	Work Control Center
• Intake Watch Operator	Work Control Center
• C&RP Technician #1	85' RCA Access Office
• C&RP Technician #2	Chemistry Office
• Shift Control Technician #1	Instrument Maint. Shop
• Shift Control Technician #2	Instrument Maint. Shop
• Watch Commander (DCWC)	Central Alarm Station
• Firefighters (5) - FBM #1, #2, #3, #4, #5	Fire Department Building

b. The on-shift staff possesses the necessary Radiation Worker qualifications to obtain normal dosimetry and to enter Radiologically Controlled Areas (but not high, locked high or very high radiation areas) without the aid of a Radiation Protection (RP) Technician.

c. It is assumed that personnel assigned to the major response area of Plant Operations & Safe Shutdown meet the requirements and guidance established by NRC regulations and are able to satisfactorily perform the functions and tasks necessary to achieve and maintain safe shutdown. Staff performance within this area is not evaluated as part of this assessment, unless a role/function/task from another major response area is assigned as a collateral duty.

d. It is assumed that personnel assigned to the major response area of Firefighting meet the requirements and guidance established by NRC regulations and are able to satisfactorily perform the functions and tasks necessary to fight a fire. Staff performance within this area is regularly analyzed through other station programs (e.g., fire drills) and will not be evaluated as part of this assessment, unless a role/function/task from another major response area is assigned as a collateral duty.

e. The on-site 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/function/task from another major response area is assigned as a collateral duty.

f. Individuals holding the position of radiation protection technician or chemistry technician are qualified to perform the range of tasks expected of their position.

g. The task of making a simple and brief communication has minimal impact on the ability to perform other assigned functions/tasks, and is therefore an acceptable collateral duty for all positions. Examples include making a plant page announcement or placing a call for assistance to an offsite resource such as local law enforcement. This assumption does not apply to emergency notification to an Offsite Response Organization (ORO) or the NRC.

h. The task of performing a peer check has minimal impact on the ability to perform other assigned functions/tasks, and is therefore an acceptable collateral duty for all positions. Examples include performing a peer check on a recommended emergency classification or notification form for transmittal to offsite authorities.

i. 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). The ERO augmentation time is based on the time of event declaration until the time of turnover of the function/responsibility. Specifically, any time needed by the augmenting ERO to acquire materials or prepare for turnover is accounted for.

   Section 6 of the DCPP Emergency Plan states that notification of the ERO should begin immediately after event declaration (Alert or higher). A response time of approximately 60 minutes is specified. The Emergency Plan does not specify a time requirement for relief of the emergency response functions from the on-shift staff; however, the emergency procedures direct relief to occur in the steps following facility activation. Relief of the on-shift ERO is assumed to occur no sooner than 90 minutes from the time of event declaration.

   For purposes of this analysis, 120 minutes will be used as the time period for the conduct of on-shift ERO response actions.

3.5 Event Specific Information

3.5.1 Analysis Event #1 - Large Break Loss of Coolant Accident (LB-LOCA)

The unit is operating normally at 100% power in an equilibrium condition. Upon occurrence of a double-ended break in the cold leg between the RCP and the reactor vessel, RCS depressurization results in a pressure decrease in the pressurizer. Within 45 seconds of the break, a reactor trip signal occurs when the pressurizer low pressure trip setpoint is reached and safety injection occurs when the applicable SI setpoint is reached. A loss of offsite power occurs at reactor trip.

The limiting single failure assumed for a large break LOCA is the loss of one train of ECCS pumps (one charging, one high head SI pump, and one residual heat removal pump). One ECCS train delivers flow through the injection lines to each loop. All emergency diesel generators (EDGs) are assumed to start.

Initial Conditions:	Both units 100% power, equilibrium conditions, end of core life.
Abnormal Conditions:	One train of ECCS not available (one charging, one high head SI pump, and one residual heat removal pump OOS).
Scenario Events:	• Double-ended shear of cold leg. • A loss of offsite power occurs at reactor trip.
Notes:	None
Procedures Used:	CAP AP-1 CAP E-5 CAP P-2:I CAP P-3:I EOP E-0 EOP E-1 EOP E-1.3 EP G-1 EP G-2 EP G-3 EP RB-2 EP RB-4 O-19 OP AP-26 OP1.DC37 RCP D-220 RCP D-240 RCP D-310 RCP D-600 SCARP JA-001

3.5.2 Analysis Event #3 - Steam Generator Tube Rupture (SGTR)

This scenario has been selected to result in a General Emergency with offsite radiological doses that exceed the EPA PAGs and necessitate PARs per the ISG.

The accident initiates at power and involves the complete severance of a single steam generator tube. The reactor trip automatically trips the turbine and with a coincident loss of offsite power, the steam dump valves automatically close to protect the condenser. The steam generator pressure rapidly increases resulting in steam discharge to the atmosphere through the steam generator PORVs (and safety valves if their setpoint is reached). When offsite power is not available, the pressure relief system on the ruptured S/G discharges to the atmosphere rather than the condenser. This increases the environmental impact of the SGTR.

The reactor coolant is contaminated with fission products at a level able to support the offsite radiological conditions, thus a non-realistic damage source term input is needed (DBA accident corresponds to continuous operation with a limited amount of defective fuel rods). The accident leads to an increase in contamination of the secondary system due to leakage from the reactor coolant system (RCS).

Normal operation of the various plant control systems is assumed, with the exception of the failure of the condenser steam dump system which allows discharge of activity to the atmosphere takes place via the steam generator power-operated relief valves (and safety valves if their setpoint is reached).

The magnitude of the break flow is such that recovery procedures can be carried out on a time scale that ensures that break flow to the secondary system is terminated before water level in the affected steam generator rises into the main steam pipe.

Initial Conditions:	Both units 100% power, equilibrium conditions, end of core life.
Abnormal Conditions:	• Coolant activity (gap failure) is sufficient to result in an offsite dose that exceeds the EPA PAGs beyond the site boundary. • Containment radiation > 20 R/hr to facilitate forcing the event to result in a General Emergency ECL.
Scenario Events:	• Guillotine break of one SG tube. • Coincident loss of offsite power upon reactor trip. • SG 10% valve failed open on the ruptured SG.
Notes:	Crew actions to be completed before ruptured SG is filled and pressurized to RCS pressure.
Procedures Used:	CAP AP-1 CAP E-1 CAP E-6 EOP E-0 EOP E-2 EOP E-3 EOP ECA-3.1 EP G-1 EP G-2 EP G-3 EP G-4 EP G-5 OP AP-26 OP1.DC37 SCARP JA-001 SP 603

3.5.3 Analysis Event #4 - Reactor Coolant Pump (RCP) Locked Rotor

The event consists of an instantaneous seizure of one RCP rotor with all loops operating. The plant is assumed to be operating at a normal steady state power level, nominal steady state pressure, and nominal steady state coolant average temperature (+ 2.5°F for SG fouling). Initial pressure is established at 38 psi above nominal pressure (2250 psia) to allow for errors in the pressurizer pressure measurement and control channels.

Following initiation of the reactor trip, the rapid expansion of the coolant in the reactor core, combined with reduced heat transfer in the steam generators causes an insurge into the pressurizer and a pressure increase throughout the RCS. The insurge into the pressurizer compresses the steam volume, actuates the automatic spray system, opens the power-operated relief valves, and opens the pressurizer safety valves in that sequence. The three power-operated relief valves function properly during the accident.

Initial Conditions:	Both units 100% power, equilibrium conditions, end of core life.
Abnormal Conditions:	• Pressurizer pressure is 38 psig above program. • RCS T_{ave} is 2.5°F above program.
Scenario Events:	One RCP fails via a locked rotor.
Notes:	<10% clad damage.
Procedures Used:	CAP E-1 EOP E-0 EOP E-0.1 EP G-1 EP G-2 EP G-3 EP G-4 EP G-5 EP RB-14A EP RB-4 O-19 OP1.DC37 RCP D-220 RCP D-240 RCP D-310 SCARP JA-001 STP G-11

3.5.4 Analysis Event #5 - Fuel Handling Accident in the Fuel Handling Area

The event consists of a fuel assembly striking a sharp object or dropped fuel assembly in the spent fuel pool, resulting in fuel cladding integrity failure. Normal Auxiliary Building ventilation is in service. All automatic ventilation systems function as designed. The personnel air lock and equipment hatch are close. Auxiliary Building and Fuel Handling Building ARMs are operating properly.

Initial Conditions:	Both units 100% power, equilibrium conditions, end of core life.
Abnormal Conditions:	None
Scenario Events:	• Catastrophic failure of spent fuel handling machine such that a twice-burned fuel assembly is dropped onto the spent fuel racks. • Cladding integrity is lost for the dropped fuel assembly.
Notes:	Shift staffing is at minimum with the exception of the Fuel Handling crew, which includes an SRO dedicated to the fuel moves.
Procedures Used:	EP G-1 EP G-2 EP G-3 OP AP-21 OP1.DC37 RCP D-310 RCP D-600

3.5.5 Analysis Event #6 - Rupture of a Control Rod Mechanism Housing

The event consists of the mechanical failure of a control rod mechanism pressure housing resulting in the ejection of an RCCA and drive shaft. A rapid positive reactivity insertion occurs with the system depressurization and adverse core power distribution, which leads to localized fuel rod damage.

The reactor is operated with the RCCAs inserted only far enough to permit load follow. Power range high neutron flux trip (high and low setting) and high rate of neutron flux increase trip function as designed.

Initial Conditions:	• Unaffected unit at 100% power, equilibrium conditions, end of core life. • Affected unit at 80% power, equilibrium conditions, end of core life.
Abnormal Conditions:	• Core Flux is adverse, such that flux is distributed to the center of the core. • Boron concentration is such that the most reactive control rod (as part of a group) is inserted far enough to allow turbine load following. • As a result of the rod ejection, 100% gap activity is released from one fuel assembly.
Scenario Events:	The most reactive control rod is ejected from the core.
Notes:	Leak rate does not exceed that postulated for one ejected rod.
Procedures Used:	CAP AP-1 CAP E-1 CAP P-3:I EOP E-0 EOP E-1 EOP E-1.2 EP G-1 EP G-2 EP G-3 OP C-3:IV OP L-5 OP1.DC37 SCARP JA-001 STP R-19

3.5.6 Analysis Event #7 - Rupture of Waste Gas Decay Tank

The event consists of equipment malfunction / failure that results in a release of all of the activity stored in the tank. Total curies are restricted to $1x10^5$ Curies.

The failure occurs immediately upon completion of the liquid transfer, releasing the entire contents of the tank to the auxiliary building vault. The assumption of the release of the contents of only a single tank is based on a design that allows all liquid holdup tanks to be isolated from each other when they are in use.

All of the noble gases and varying amounts of the iodines are released from the auxiliary building vault to the auxiliary building atmosphere. These effluents are exhausted from the auxiliary building at ground level. There is no decay in the auxiliary building. No liquids escape from the vaults during the accident.

Initial Conditions:	• Both units 100% power, equilibrium conditions, end of core life. • All plant ventilation systems operational in standard line-up.
Abnormal Conditions:	• One gas decay tank is filled to maximum pressure with concentration equal to the maximum allowed by procedure. • The affected tank is not in service.
Scenario Events:	The affected gas decay tank is ruptured at the maximum rate and is completely depressurized in 10 minutes.
Notes:	None
Procedures Used:	EP G-1 EP G-2 EP G-3 EP RB-2, Att 9.1 EP RB-4 EP RB-8 EP R-2 OP AP-14 OP1.DC37 RCP D-310 RCP D-410 RCP D-500 RCP D-600 SP 603

3.5.7 Analysis Event #8 - Rupture of a Liquid Holdup Tank

The event consists of equipment malfunction / failure that results in a release of all of the activity stored in a Liquid Holdup Tank.

The failure occurs immediately upon completion of the liquid transfer, releasing the entire contents of the tank to the auxiliary building vault. The assumption of the release of the contents of only a single tank is based on a design that allows all liquid holdup tanks to be isolated from each other when they are in use.

All of the noble gases and varying amounts of the iodines are released from the auxiliary building vault to the auxiliary building atmosphere. These effluents are exhausted from the auxiliary building at ground level. There is no decay in the auxiliary building. No liquids escape from the vaults during the accident.

Initial Conditions:	• Both units 100% power, equilibrium conditions, end of core life. • All plant ventilation systems operational in standard line-up.
Abnormal Conditions:	• One liquid holdup tank is filled to 95%. • Concentration equal to the maximum allowed by procedure ($1x10^5$ Curies).
Scenario Events:	The affected liquid holdup tank is ruptured such that the entire tank is drained to the room.
Notes:	None
Procedures Used:	EP G-1 EP G-2 EP G-3 EP R-2 EP RB-2 EP RB-4 EP RB-8 OP AP-14 OP1.DC37 RCP D-310 RCP D-410 RCP D-500 RCP D-600 SP 603

3.5.8 Analysis Event #9 - Rupture of a Volume Control Tank

The event consists of operator error or equipment malfunction / failure that results in a release of all of the activity stored in a Volume Control Tank.

All of the noble gases and varying amounts of the iodines are released from the VCT vault to the auxiliary building atmosphere. These effluents are exhausted from the auxiliary building at ground level. There is no decay in the auxiliary building. No liquids escape from the VCT vault or Aux Building sumps during the accident.

Initial Conditions:	• Both units 100% power, equilibrium conditions, end of core life. • All plant ventilation systems operating in standard line-up.
Abnormal Conditions:	None
Scenario Events:	The VCT is ruptured such that the entire tank is drained to the room/sump.
Notes:	The VCT contains $1x10^5$ Curies.
Procedures Used:	EP G-1 EP G-2 EP G-3 EP R-2 EP RB-2 EP RB-4 EP RB-8 OP AP-14 OP AP-25 OP C-5:III OP C-7A OP C-8:III OP L-5 OP1.DC37 RCP D-310 RCP D-410 RCP D-500 RCP D-600 SCARP JA-001 SP 603

3.5.9 Analysis Event #10 - Design Basis Threat (DBT)

The event consists of notification to the Shift Manager from the Security Watch Commander that a hostile action is occurring at or inside the Protected Area. A hostile force will breach the Protected Area fence but is neutralized with no adverse consequences to plant safety. Damage inflicted on plant systems, structures and components is not sufficient to prevent safe shutdown or cause a radiological release. There is no fire significant enough to warrant firefighting efforts prior to the arrival of offsite resources or the augmented ERO.

The event must account for the expected constraints on the movement of personnel (e.g., movement not allowed, limited movement using the 2-person rule, etc.). Specifically, individuals must usually be in, or readily able to respond to, assigned response locations before being credited with performing a function/task that implements the Emergency Plan.

An analysis objective is to confirm that sufficient staff is available to simultaneously implement both the Emergency Plan and the Security Plan.

Initial Conditions:	Both units 100% power, equilibrium conditions, end of core life.
Abnormal Conditions:	None
Scenario Events:	The Shift Manager is notified by the Security Watch Commander that an adversarial force matching the Design Basis Threat is engaged in a hostile action such that Security officers stationed inside the Protected Area are under attack.
Notes:	• This scenario constitutes a dual unit event. • No prior notification of a threat is given before the initiation of hostile actions.
Procedures Used:	CP M-15A EOP E-0 EP G-1 EP G-2 EP G-3 SCARP JA-001 SP 600 SP 609 SP 611

3.5.10 Analysis Event #11 - Probable Aircraft Threat (PAT)

This event includes all emergency response actions taken prior to an aircraft impact in accordance with RG 1.214 for an aircraft threat that is greater than 5 minutes, but less than 30 minutes, from the site, including the dispersal of the fire department away from target areas. These actions should generally reflect those listed in 10 CFR 50.54(hh)(1), as expanded upon in Regulatory Guide 1.214, and others required by the Emergency Plan.

The event consists of notification to the Shift Manager from the NRC Headquarters Operations Officer (HOO) that a Probable Aircraft Threat has been declared for Diablo Canyon Power Plant.

Initial Conditions:	Both units 100% power, equilibrium conditions, end of core life.
Abnormal Conditions:	None
Scenario Events:	The Shift Manager receives a phone call from the NRC HQ HOO that a Probable Aircraft Threat (impact > 5 minutes but < 30 minutes) has been issued for DCPP.
Notes:	• This scenario constitutes a dual unit event. • Validation of authenticity of the notification is confirmed.
Procedures Used:	CP M-15A EOP E-0 EP G-1 EP G-2 EP G-3 OP AP-25 OP1.DC37 SCARP JA-001 SP 603 SP 611

3.5.11 Analysis Event #12 - Control Room Evacuation due to Fire

The event consists of a localized fire in the Control Room Envelope that requires evacuation of the Control Room. Dual unit Shutdown from outside the Control Room is required.

Initial Conditions:	Both units 100% power, equilibrium conditions, end of core life.
Abnormal Conditions:	None
Scenario Events:	• A fire ignites inside the Control Room in fire annunciator panel FP0P. • Smoke and gases necessitate the evacuation of the Control Room.
Notes:	This scenario constitutes a dual unit event.
Procedures Used:	CAP E-1 CP M-6 EP G-2 EP G-3 O-19 OP AP-8A SCARP JA-001 SP 420 SP 501 SP 600 SP 603

3.5.12 Analysis Event #13 - Station Blackout (SBO)

The event consists of a loss of offsite power and a failure of all emergency AC power sources resulting in a Station Blackout (Loss of all AC power). Both units are affected.

Initial Conditions:	Both units 100% power, equilibrium conditions, end of core life.
Abnormal Conditions:	None
Scenario Events:	• An 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 loss of all AC power.
Notes:	• This scenario constitutes a dual unit event. • The scenario must be developed such that restoration of any AC power source is not possible before the arrival of ERO personnel (120 minutes).
Procedures Used:	CP M-10 EOP E-0 EOP ECA-0.0 EOP ECA 0.3 EP G-1 EP G-2 EP G-3 EP G-4 EP G-5 EP R-2 EP RB-4 OP J-4C:III OP1.DC37 SCARP JA-001 SP 602 SP 603 SP 608

3.6 Table 3-2: Event Procedures

	LB-LOCA	SGTR	RCP Locked Rotor	FHA	CRDM Rupture	WGDT Rupture	Holdup Tank Rupture	VCT Rupture	DBT	PAT	CR Fire	SBO
CAP AP-1	X	X			X							
CAP E-1		X	X		X						X	
CAP E-5	X											
CAP E-6		X										
CAP P-2:I	X											
CAP P-3:I	X				X							
CP M-6											X	
CP M-10												X
CP M-15A									X	X		
EOP E-0	X	X	X		X				X	X		X
EOP E 0.1			X									
EOP E-1	X				X							
EOP E-1.2					X							
EOP E-1.3	X											
EOP E-2		X										
EOP E-3		X										
EOP ECA-0.0												X
EOP ECA-0.3												X
EOP ECA-3.1		X										
EP G-1	X	X	X	X	X	X	X	X	X	X		X
EP G-2	X	X	X	X	X	X	X	X	X	X	X	X
EP G-3	X	X	X	X	X	X	X	X	X	X	X	X
EP G-4		X	X									X
EP G-5		X	X									X
EP R-2						X						X
EP RB-2	X					X	X	X				
EP RB-4	X					X	X	X				X
EP RB-8						X	X	X				
EP RB-14A			X									
O-19	X		X								X	
OP AP-8A											X	
OP AP-14						X	X	X				
OP AP-21				X								
OP AP-25								X		X		
OP AP-26	X	X										
OP C-3:IV					X							
OP C-5:III								X				

4. ON-SHIFT STAFFING TASK ANALYSIS

Refer to Section 7, On-Shift Staffing Analysis Results Tables, for additional documentation of the on-shift staffing task analysis results.

4.1 Event Specific Task Analysis Summaries

4.1.1 Analysis Event #1 - Large Break Loss of Coolant Accident (LB-LOCA)

The Work Control Shift Foreman performed task (5/13) NRC notifications (via wireless 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.

4.1.2 Analysis Event #3 - Steam Generator Tube Rupture (SGTR)

This scenario was chosen to result in a General Emergency with offsite radiological doses that exceed the EPA PAGs and necessitate PARs to identify all EP related tasks required by that ECL.

The Work Control Shift Foreman performed task (5/12) Offsite radiological assessment. Per Table 3.1 of NEI 10-05, operations positions that perform Table 2 tasks and this EP task are required to have the collective performance of those tasks analyzed and validated by a time motion study.

4.1.3 Analysis Event #4 - Reactor Coolant Pump (RCP) Locked Rotor

Based on the results of the task analysis, no positions were identified as meeting the requirements for further analysis under the NEI 10-05 time motion study for this event.

4.1.4 Analysis Event #5 - Fuel Handling Accident in the Fuel Handling Area

The Work Control Shift Foreman performed task (5/12) Offsite radiological assessment. Per Table 3.1 of NEI 10-05, operations positions that perform Table 2 tasks and this EP task are required to have the collective performance of those tasks analyzed and validated by a time motion study.

4.1.5 Analysis Event #6 - Rupture of a Control Rod Mechanism Housing

Based on the results of the task analysis, no positions were identified as meeting the requirements for further analysis under the NEI 10-05 time motion study for this event.

	LB-LOCA	SGTR	RCP Locked Rotor	FHA	CRDM Rupture	WGDT Rupture	Holdup Tank Rupture	VCT Rupture	DBT	PAT	CR Fire	SBO
OP C-7A								X				
OP C-8:III								X				
OP L-5					X			X				
OP J-4C:III												X
OP1.DC37	X	X	X	X	X	X	X	X		X		X
RCP D-220	X		X									
RCP D-240	X		X									
RCP D-310	X		X	X		X	X	X				
RCP D-410						X	X	X				
RCP D-500						X	X	X				
RCP D-600	X			X		X	X	X				
SCARP JA-001	X	X	X		X			X	X		X	X
SP 420											X	
SP 501											X	
SP 600									X		X	
SP 602												X
SP 603		X				X	X	X		X	X	X
SP 608												X
SP 609									X			
SP 611									X	X		
STP G-11			X									
STP R-19					X							

4.1.6 Analysis Event #7 - Rupture of Waste Gas Decay Tank

The Work Control Shift Foreman performed task (5/12) Offsite radiological assessment. Per Table 3.1 of NEI 10-05, operations positions that perform Table 2 tasks and this EP task are required to have the collective performance of those tasks analyzed and validated by a time motion study.

4.1.7 Analysis Event #8 - Rupture of a Liquid Holdup Tank

The Work Control Shift Foreman performed task (5/12) Offsite radiological assessment. Per Table 3.1 of NEI 10-05, operations positions that perform Table 2 tasks and this EP task are required to have the collective performance of those tasks analyzed and validated by a time motion study.

4.1.8 Analysis Event #9 - Rupture of a Volume Control Tank

The Work Control Shift Foreman performed task (5/12) Offsite radiological assessment. Per Table 3.1 of NEI 10-05, operations positions that perform Table 2 tasks and this EP task are required to have the collective performance of those tasks analyzed and validated by a time motion study.

4.1.9 Analysis Event #10 - Design Basis Threat (DBT)

The U2 BOPCO performed task (5/13) Perform NRC notifications. Per Table 3.1 of NEI 10-05, operations positions that perform Table 2 tasks and these EP tasks are required to have the collective performance of those tasks analyzed and validated by a time motion study.

4.1.10 Analysis Event #11 - Probable Aircraft Threat (PAT)

Based on the results of the task analysis, no positions were identified as meeting the requirements for further analysis under the NEI 10-05 time motion study for this event.

4.1.11 Analysis Event #12 - Control Room Evacuation due to Fire

The Work Control Shift Foreman performed task (5/13) NRC notifications (via wireless 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.

4.1.12 Analysis Event #13 - Station Blackout (SBO)

The Work Control Shift Foreman performed task (5/13) NRC notifications (via wireless 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.

4.2 Task Analysis Result Summary

4.2.1 Performance Validation (Task Qualifications)

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.

NEI 10-05 Table 5 - Emergency Plan Implementation task analysis controlling methods are correlated with the site specific JPM and performance objective references in Attachment 1 (refer to section 8.1).

The task analysis did not identify any non-validated tasks that were performed by the on-shift positions.

4.2.2 Potential Task Overlaps (by position)

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

a. The Work Control Shift Foreman performed task (5/13) NRC Notification while simultaneously performing task (2/4) STA oversight (see list of events below). 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..

- Analysis Event #1 - Loss of Coolant Accident (LOCA)
- Analysis Event #12 - Control Room Evacuation due to Fire
- Analysis Event #13 - Station Blackout (SBO)

b. The Work Control Shift Foreman performed task (5/12) Offsite Radiological Assessment while simultaneously performing task (2/4) STA oversight (see list of events below). Per NEI 10-05 Table 3-1, operations personnel that perform the task of offsite radiological assessment and other operations related tasks must be evaluated by time motion analysis.

- Analysis Event #3 - Steam Generator Tube Rupture (SGTR)
- Analysis Event #5 - Fuel Handling Accident (FHA)
- Analysis Event #7 - Rupture of Waste Gas Decay Tank
- Analysis Event #8 - Rupture of a Liquid Holdup Tank
- Analysis Event #9 - Rupture of a Volume Control Tank

c. The U2 BOPCO performed the tasks of NRC notification (5/13) and plant operations (2/8) in Analysis Event #10 - Design Basis Threat (DBT). 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.

4.2.3 Potential Task Overlap Requiring Time Motion Study

For combinations of tasks that resulted in the same potential overlap in multiple events, demonstration and evaluation of those task combinations may be conducted in one or more time motion studies, provided actions, environment and task timing are similar or are bounded.

a. The results of the task analysis indicate that the following events require time motion study:

- Analysis Event #3 - Steam Generator Tube Rupture (SGTR)
- Analysis Event #10 - Design Basis Threat (DBT)
- Analysis Event #12 - Control Room Evacuation due to Fire

b. The results of the task analysis indicate that the following events do not require time motion study:

- Analysis Event #1 - Large Break Loss of Coolant Accident does not require time motion study. Verification of potential task overlap (5/13) NRC Notification for the Work Control Shift Foreman will be demonstrated during the time motion study for Analysis Event # 12. The control Room Fire event is bounding for task overburden based on the work environment and operator actions.
- Analysis Event #5 - Fuel Handling Accident does not require time motion study. Verification of potential task overlap (5/12) Offsite radiological assessment for the Work Control Shift Foreman will be demonstrated during the time motion study for Analysis Event # 3. The SGTR event is bounding for task overburden based on the significance of the radiological release, Emergency Classification Level (ECL) and operator actions.
- Analysis Event #7 - Rupture of Waste Gas Decay Tank does not require time motion study. Verification of potential task overlap (5/12) Offsite radiological assessment for the Work Control Shift Foreman will be demonstrated during the time motion study for Analysis Event # 3. The SGTR event is bounding for task overburden based on the significance of the radiological release, Emergency Classification Level (ECL) and operator actions.
- Analysis Event #8 - Rupture of a Liquid Holdup Tank does not require time motion study. Verification of potential task overlap (5/12) Offsite radiological assessment for the Work Control Shift Foreman will be demonstrated during the time motion study for Analysis Event # 3. The SGTR event is bounding for task overburden based on the significance of the radiological release, Emergency Classification Level (ECL) and operator actions.
- Analysis Event #9 - Rupture of a Volume Control Tank does not require time motion study. Verification of potential task overlap (5/12) Offsite radiological assessment for the Work Control Shift Foreman will be demonstrated during the time motion study for Analysis Event # 3. The SGTR event is bounding for task overburden based on the significance of the radiological release, Emergency Classification Level (ECL) and operator actions.

- Analysis Event #13 - Station Blackout does not require time motion study. Verification of potential task overlap (5/13) NRC Notification for the Work Control Shift Foreman will be demonstrated during the time motion study for Analysis Event # 12. The control Room Fire event is bounding for task overburden based on the work environment and operator actions.

5. ON-SHIFT STAFFING TIME MOTION STUDY

Refer to sections 7.2 and 7.3, NEI 10-05 Appendix D & E On-Shift Staffing Analysis Results Tables, for additional documentation of the on-shift staffing time motion study results.

5.1 Analysis Event #3 - Steam Generator Tube Rupture (SGTR) TMS Results

The Work Control Shift Foreman performed task (5/12) Offsite Radiological Assessment while simultaneously performing STA oversight tasks. The dose assessment application is installed on a computer within the Control Room where access to plant indications is readily available and observation of the crew is not inhibited. Equipment location, easy to use software, rapid generation of results and compatibility with the overview function assigned as (2/4) STA tasks resulted in an evaluation of no overburden.

The Work Control Shift Foreman (STA) is evaluated as being capable of performing offsite radiological assessment for all events in this analysis without overburden of other tasks.

5.2 Analysis Event #10 - Design Basis Threat (DBT) TMS Results

Time motion study analysis determined that task (5/13) Perform NRC Notifications did not result in an overlap with task (2/8) U2 CR panel operations for the Unit 2 BOPCO. The task of NRC notification was done sequentially with the EOP actions, with no delay.

5.3 Analysis Event #12 - Control Room Evacuation due to Fire

The Work Control Shift Foreman performed task (5/13) NRC notification (via wireless headset) while simultaneously performing STA oversight tasks. Since the task of continuous NRC communication is compatible with the (2/4) STA oversight tasks, based on the ability to have full movement throughout the facility to observe plant status and operator response this was not determined to be an overburden to the position.

The Work Control Shift Foreman (STA) is evaluated as being capable of performing NRC Notification for all events in this analysis without overburden of other tasks.

6. LIST OF REFERENCES

6.1 10 CFR 50.47(b)(2)

6.2 10 CFR 50 Appendix E Section IV.A.9

6.3 NSIR/DPR-ISG-01, Interim Staff Guidance - Emergency Planning for Nuclear Power Plants

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

6.5 DCPP Units 1 & 2 FSAR Update, Chapter 15, Accident Analyses

6.6 Appendix R

6.7 Diablo Canyon Emergency Plan Revision 3.03, dated 03/31/1983 [Latest approved NRC SER shift staffing document]

6.8 CAP AP-1, Prompt Steam Generator Leak Identification

6.9 CAP E-1, Primary Systems Sampling

6.10 CAP E-5, Liquid Radwaste, Boron Recycle, and Miscellaneous Point Sampling

6.11 CAP E-6, Secondary System Sampling

6.12 CAP P-2:I, PASS Liquid Sampling During Post-Accident Conditions

6.13 CAP P-3:I, PASS Containment Air Sampling During Post-Accident Conditions

6.14 CP M-10, Fire Protection of Safe Shutdown Equipment

6.15 CP M-15A, Site Specific Security Threat - Initial Response (10CFR2.390)

6.16 CP M-6, Fire

6.17 EOP E-0, Reactor Trip or Safety Injection

6.18 EOP E-0.1, Reactor Trip Response

6.19 EOP E-1, Loss of Reactor or Secondary Coolant

6.20 EOP E-1.2, Post LOCA Cooldown and Depressurization

6.21 EOP E-1.3, Transfer to Cold Leg Recirculation

6.22 EOP E-2, Faulted Steam Generator Isolation

6.23 EOP E-3, Steam Generator Tube Rupture

6.24 EOP ECA-0.3, Restore 4kV Buses

6.25 EOP ECA-0.0, Loss of All Vital AC Power

6.26 EOP ECA-3.1, SGTR With Loss of Reactor Coolant -Subcooled Recovery Desired

6.27 EP G-1, Emergency Classification and Emergency Plan Activation

6.28 EP G-2, Interim Emergency Response Organization

6.29 EP G-3, Emergency Notification of Off-Site Agencies

6.30 EP G-4, Assembly and Accountability

6.31 EP G-5, Evacuation of Non-Essential Site Personnel

6.32 EP R-2, Release of Airborne Radioactive Materials Initial Assessment

6.33 EP RB-14A, Initial Detection of Fuel Cladding Damage

6.34 EP RB-2, Emergency Exposure Guides

6.35 EP RB-4, Access to and Establishment of Controlled Areas Under Emergency Conditions

6.36 EP RB-8, Instructions for Field Monitoring Teams

6.37 EP R-2, Release of Airborne Radioactive Materials Initial Assessment

6.38 O-19, Nuclear Operator Actions Following a Reactor Trip

6.39 OP AP-8A, Control Room Inaccessibility - Establishing Hot Standby

6.40 OP AP-14, Tank Ruptures

6.41 OP AP-21, Irradiated Fuel Damage

6.42 OP AP-25, Rapid Load Reduction or Shutdown

6.43 OP AP-26, Loss of Offsite Power

6.44 OP C-3:IV, Main Unit Turbine - Turbine Shutdown

6.45 OP C-5:III, Moisture Separator Reheaters - Shutdown

6.46 OP C-7A, Condensate and Booster Pumps

6.47 OP C-8:III, Shutdown and Clearing of a Main Feedwater Pump

6.48 OP J-4C:III, Generator Hydrogen - Remove From Service

6.49 OP L-5, Plant Cooldown from Minimum Load to Cold Shutdown

6.50 OP1.DC10, Conduct of Operations

6.51 OP1.DC37, Plant Logs

6.52 RCP D-220, Control of Access to High, Locked High, and Very High Radiation Areas

6.53 RCP D-240, Radiological Posting

6.54 RCP D310, RCA Access Control

6.55 RCP D410, Issuing Respiratory Protective Equipment

6.56 RCP D500, Routine and Job Coverage Surveys

6.57 RCP D600, Personnel Decontamination and Evaluation

6.58 SCARP JA-001, Reactor Trip and Shutdown Job Aid

6.59 SP 420, Inprocessing Vehicles through VIS/Active Barriers (10CFR2.390)

6.60 SP 501, Lock and Key Control

6.61 SP 600, Diablo Canyon Power Plant Security Protective Strategy

6.62 SP 602, Compensatory Measures (SGI)

6.63 SP 603, Security During Operational Emergencies

6.64 SP 608, Security During Loss of Alarm Annunciation System (SGI)

6.65 SP 609, Additional Security Personnel During Security Contingencies or Plant Emergencies

6.66 SP 611, Security During a Hostile Action (10CFR2.390)

6.67 STP G-11, Procedure for Obtaining Charcoal Filter Media for Laboratory Testing (Methyl Iodine)

6.68 STP R-19, Shutdown Margin Determination

6.69 AWP EP-006, Emergency Preparedness Scenario Manual

6.70 EPD 452J: Activate VANS

6.71 EPD 710J-10 thru 42: Classification and Notification

6.72 LJC-150 thru 152: Control Room Dose Assessment

7. ON-SHIFT STAFFING ANALYSIS RESULTS TABLES

7.1 NEI 10-05 Appendix B On-Shift Staffing Analysis Results Tables

7.1.1 Analysis Event #1 - Large Break Loss of Coolant Accident (LB-LOCA)

Table 1 - On-Shift Positions
Analysis Event #1 - Large Break Loss of Coolant Accident (LB-LOCA)

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1.	Shift Manager	Section 5 Table 5-1		2 / 1 5 / 1 5 / 3 5 / 5 5 / 8 5 / 10	No	No
2.	U1 Shift Foreman	Section 5 Table 5-1		2 / 2	No	No
3.	U2 Shift Foreman	Section 5 Table 5-1		2 / 3	No	No
4.	WCSFM	Section 5 Table 5-1		2 / 4 5 / 11 **5 / 13**	No	**Yes**
5.	U1 Control Operator	Section 5 Table 5-1		2 / 5	No	No
6.	U2 Control Operator	Section 5 Table 5-1		2 / 6	No	No
7.	U1 BOPCO	Section 5 Table 5-1		2 / 7	No	No
8.	U2 BOPCO	Section 5 Table 5-1		2 / 8	No	No
9.	Work Control Lead	Section 5 Table 5-1		2 / 9.A 2 / 9.B	No	No
10.	U1 Turbine Building Operator	Section 5 Table 5-1		2 / 10	No	No
11.	U1 Aux Building Operator	Section 5 Table 5-1		2 / 11	No	No
12.	U2 Turbine Building Operator	Section 5 Table 5-1		2 / 12	No	No
13.	U2 Aux Building Operator	Section 5 Table 5-1		N/A	No	No
14.	Intake Watch Operator	Section 5 Table 5-1		2 / 14	No	No
15.	Shift Phone Talker	Section 5 Table 5-1		5 / 6 5 / 9	No	No
16.	Shift Control Tech #1	Section 5 Table 5-1		N/A	No	No
17.	Shift Control Tech #2	Section 5 Table 5-1		N/A	No	No
18.	Fire Brigade Leader	Section 5 Table 5-1		N/A	No	No
19.	FBT Member #1	Section 5 Table 5-1		N/A	No	No
20.	FBT Member #2	Section 5 Table 5-1		N/A	No	No
21.	FBT Member #3	Section 5 Table 5-1		N/A	No	No
22.	FBT Member #4	Section 5 Table 5-1		N/A	No	No
23.	C&RP Technician #1	Section 5 Table 5-1	120	4 / 1 4 / 4	No	No
24.	C&RP Technician #2	Section 5 Table 5-1	120	4 / 7 4 / 8	No	No
25.	Watch Commander	Section 5 Table 5-1		5 / 15	No	No

TABLE 2 - Plant Operations & Safe Shutdown
Analysis Event #1 - Large Break Loss of Coolant Accident (LB-LOCA)
Minimum Operations Crew (Two Units - One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Manager	Plant Oversight	Ops Training Program
2.	Unit Supervisor	U1 Shift Foreman	Direct CR panel operations	Ops Training Program
3.	Unit Supervisor	U2 Shift Foreman	Direct CR panel operations	Ops Training Program
4.	Shift Technical Advisor	WCSFM	STA Tasks	Ops Training Program
5.	Reactor Operator #1	U1 Control Operator	U1 CR panel operations	Ops Training Program
6.	Reactor Operator #2	U2 Control Operator	U2 CR panel operations	Ops Training Program
7.	Other	U1 BOPCO	U1 CR panel operations	Ops Training Program
8.	Other	U2 BOPCO	U2 CR panel operations	Ops Training Program
9.	Reactor Operator #3	Work Control Lead	A. U1 / U2 CR panel operations	Ops Training Program
			B. Direct in-plant operations	Ops Training Program
10.	Auxiliary Operator #1	U1 Turbine Building Operator	In-plant / Local operations	Ops Training Program
11.	Auxiliary Operator #2	U1 Aux Building Operator	In-plant / Local operations	Ops Training Program
12.	Auxiliary Operator #3	U2 Turbine Building Operator	In-plant / Local operations	Ops Training Program
13.	Other	U2 Aux Building Operator	N/A	N/A
14.	Other	Intake Watch Operator	In-plant / Local operations	Ops Training Program
15.	Other	Shift Phone Talker	N/A	N/A
Other (non-Operations) Personnel				
16.	I&C Technician	Shift Control Tech #1	N/A	N/A
17.	I&C Technician	Shift Control Tech #2	N/A	N/A

TABLE 3 - Firefighting
Analysis Event #1 - Large Break Loss of Coolant Accident (LB-LOCA)

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader	N/A	N/A
2.	FBT Member #1	N/A	N/A
3.	FBT Member #2	N/A	N/A
4.	FBT Member #3	N/A	N/A
5.	FBT Member #4	N/A	N/A

TABLE 4 - Radiation Protection and Chemistry
Analysis Event #1 - Large Break Loss of Coolant Accident (LB-LOCA)

Line	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)										
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120
1.	In-Plant Survey On-Shift Position: **C&RP Tech #1**	X	X	X									
2.	On-Site Radiological Survey On-Shift Position: N/A												
3.	Personnel Monitoring On-Shift Position: N/A												
4.	Job Coverage On-Shift Position: **C&RP Tech #1**			X	X	X	X	X	X	X	X	X	X
5.	Offsite Radiological Assessment On-Shift Position: N/A												
6.	Other RP - Describe: On-Shift Position: N/A												
7.	Sampling On-Shift Position: **C&RP Tech #2**			X	X	X	X	X	X	X	X	X	X
8.	Post Rx-Trip Checklist On-Shift Position: **C&RP Tech #2**			X	X	X	X	X	X	X	X	X	X

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 will be analyzed as part of the time motion study.
- Task (4/1) In Plant Surveys was performed for 23 minutes after the event announcement was made. C&RP Technician #1 then performed task (4/3) Job Coverage for C&RP Technician #2 during sampling and post reactor trip checklist tasks.
- Post trip checklist tasks only prioritize sampling activities for the Chemistry Technician; they do not constitute an overlap in tasks.

TABLE 5 - Emergency Plan Implementation
Analysis Event #1 - Large Break Loss of Coolant Accident (LB-LOCA)

Line	Function/Task	On-Shift Position	Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Manager	Ops Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill Program
4.	Approve extension to allowable dose limits	N/A	EP Drill Program
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	EP Drill Program
6.	ERO notification	Shift Phone Talker	Ops Training Program EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	EP Drill Program
8.	Complete State/local notification form	Shift Manager	EP Drill Program
9.	Perform State/local notifications	Shift Phone Talker	Ops Training Program EP Drill Program
10.	Complete NRC event notification form	Shift Manager	EP Drill Program
11.	Activate ERDS	WCSFM	EP Drill Program
12.	Offsite radiological assessment	N/A	Ops Training Program EP Drill Program
13.	Perform NRC notifications	**WCSFM**	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	Watch Commander	EP Drill Program

Notes:

- Line #3, #8 and #9 includes initial and follow-up State/local notifications.

7.2.2 Analysis Event #3 - Steam Generator Tube Rupture (SGTR)

Table 1 - On-Shift Positions
Analysis Event #3 - Steam Generator Tube Rupture (SGTR)

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1.	Shift Manager	Section 5 Table 5-1		2 / 1 5 / 1 5 / 2 5 / 3 5 / 5 5 / 8	No	No
2.	U1 Shift Foreman	Section 5 Table 5-1		2 / 2	No	No
3.	U2 Shift Foreman	Section 5 Table 5-1		5 / 10 5 / 13	No	No
4.	WCSFM	Section 5 Table 5-1		2 / 4 5 / 11 **5 / 12**	No	**Yes**
5.	U1 Control Operator	Section 5 Table 5-1		2 / 5	No	No
6.	U2 Control Operator	Section 5 Table 5-1		N/A	No	No
7.	U1 BOPCO	Section 5 Table 5-1		2 / 7	No	No
8.	U2 BOPCO	Section 5 Table 5-1		N/A	No	No
9.	Work Control Lead	Section 5 Table 5-1		2 / 9.A 2 / 9.B	No	No
10.	U1 Turbine Building Operator	Section 5 Table 5-1		2 / 10	No	No
11.	U1 Aux Building Operator	Section 5 Table 5-1		N/A	No	No
12.	U2 Turbine Building Operator	Section 5 Table 5-1		N/A	No	No
13.	U2 Aux Building Operator	Section 5 Table 5-1		N/A	No	No
14.	Intake Watch Operator	Section 5 Table 5-1		N/A	No	No
15.	Shift Phone Talker	Section 5 Table 5-1		5 / 6 5 / 9	No	No
16.	Shift Control Tech #1	Section 5 Table 5-1		N/A	No	No
17.	Shift Control Tech #2	Section 5 Table 5-1		N/A	No	No
18.	Fire Brigade Leader	Section 5 Table 5-1		N/A	No	No
19.	FBT Member #1	Section 5 Table 5-1		N/A	No	No
20.	FBT Member #2	Section 5 Table 5-1		N/A	No	No
21.	FBT Member #3	Section 5 Table 5-1		N/A	No	No
22.	FBT Member #4	Section 5 Table 5-1		N/A	No	No
23.	C&RP Technician #1	Section 5 Table 5-1	120	4 / 1	No	No
24.	C&RP Technician #2	Section 5 Table 5-1	120	4 / 7 4 / 8	No	No
25.	Watch Commander	Section 5 Table 5-1		5 / 15	No	No

TABLE 2 - Plant Operations & Safe Shutdown
Analysis Event #3 - Steam Generator Tube Rupture (SGTR)
Minimum Operations Crew (Two Units - One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Manager	Plant Oversight	Ops Training Program
2.	Unit Supervisor	U1 Shift Foreman	Direct CR panel operations	Ops Training Program
3.	Unit Supervisor	U2 Shift Foreman	N/A	N/A
4.	Shift Technical Advisor	WCSFM	STA Tasks	Ops Training Program
5.	Reactor Operator #1	U1 Control Operator	U1 CR panel operations	Ops Training Program
6.	Reactor Operator #2	U2 Control Operator	N/A	N/A
7.	Other	U1 BOPCO	U1 CR panel operations	Ops Training Program
8.	Other	U2 BOPCO	N/A	N/A
9.	Reactor Operator #3	Work Control Lead	A. Perform U1 CR panel operations	Ops Training Program
			B. Direct in-plant operations	Ops Training Program
10.	Auxiliary Operator #1	U1 Turbine Building Operator	In-plant / Local operations	Ops Training Program
11.	Auxiliary Operator #2	U1 Aux Building Operator	N/A	N/A
12.	Auxiliary Operator #3	U2 Turbine Building Operator	N/A	N/A
13.	Other	U2 Aux Building Operator	N/A	N/A
14.	Other	Intake Watch Operator	N/A	N/A
15.	Other	Shift Phone Talker	N/A	N/A
Other (non-Operations) Personnel				
16.	I&C Technician	Shift Control Tech #1	N/A	N/A
17.	I&C Technician	Shift Control Tech #2	N/A	N/A

TABLE 3 - Firefighting
Analysis Event #3 - Steam Generator Tube Rupture (SGTR)

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader	N/A	N/A
2.	FBT Member #1	N/A	N/A
3.	FBT Member #2	N/A	N/A
4.	FBT Member #3	N/A	N/A
5.	FBT Member #4	N/A	N/A

TABLE 4 - Radiation Protection and Chemistry
Analysis Event #3 - Steam Generator Tube Rupture (SGTR)

Line	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)											
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120
1.	In-Plant Survey On-Shift Position: **C&RP Tech #1**		X	X	X	X	X	X	X	X	X	X	X
2.	On-Site Radiological Survey On-Shift Position: N/A												
3.	Personnel Monitoring On-Shift Position: N/A												
4.	Job Coverage On-Shift Position: N/A												
5.	Offsite Radiological Assessment On-Shift Position: N/A												
6.	Other RP - Describe: On-Shift Position: N/A												
7.	Sampling On-Shift Position: **C&RP Tech #2**	X	X	X	X	X	X	X	X	X	X	X	X
8.	Post Rx-Trip Checklist On-Shift Position: **C&RP Tech #2**	X	X	X	X	X	X	X	X	X	X	X	X

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 will be analyzed as part of the time motion study.
- Post trip checklist tasks only prioritize sampling activities for the Chemistry Technician; they do not constitute an overlap in tasks.

TABLE 5 - Emergency Plan Implementation
Analysis Event #3 - Steam Generator Tube Rupture (SGTR)

Line	Function/Task	On-Shift Position	Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Manager	Ops Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	Shift Manager	EP Drill Program
3.	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill Program
4.	Approve extension to allowable dose limits	N/A	EP Drill Program
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	EP Drill Program
6.	ERO notification	Shift Phone Talker	Ops Training Program EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	EP Drill Program
8.	Complete State/local notification form	Shift Manager	EP Drill Program
9.	Perform State/local notifications	Shift Phone Talker	Ops Training Program EP Drill Program
10.	Complete NRC event notification form	U2 Shift Foreman	EP Drill Program
11.	Activate ERDS	WCSFM	EP Drill Program
12.	Offsite radiological assessment	**WCSFM**	Ops Training Program EP Drill Program
13.	Perform NRC notifications	U2 Shift Foreman	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	Watch Commander	EP Drill Program

Notes:

- Line #3, #8 and #9 includes initial and follow-up State/local notifications.

7.2.3 Analysis Event #4 - Reactor Coolant Pump (RCP) Locked Rotor

Table 1 - On-Shift Positions
Analysis Event #4 - Reactor Coolant Pump (RCP) Locked Rotor

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1.	Shift Manager	Section 5 Table 5-1		2 / 1 5 / 1 5 / 3 5 / 5 5 / 8	No	No
2.	U1 Shift Foreman	Section 5 Table 5-1		2 / 2	No	No
3.	U2 Shift Foreman	Section 5 Table 5-1		5 / 10 5 / 13	No	No
4.	WCSFM	Section 5 Table 5-1		2 / 4 5 / 11	No	No
5.	U1 Control Operator	Section 5 Table 5-1		2 / 5	No	No
6.	U2 Control Operator	Section 5 Table 5-1		N/A	No	No
7.	U1 BOPCO	Section 5 Table 5-1		2 / 7	No	No
8.	U2 BOPCO	Section 5 Table 5-1		N/A	No	No
9.	Work Control Lead	Section 5 Table 5-1		2 / 9	No	No
10.	U1 Turbine Building Operator	Section 5 Table 5-1		2 / 10	No	No
11.	U1 Aux Building Operator	Section 5 Table 5-1		N/A	No	No
12.	U2 Turbine Building Operator	Section 5 Table 5-1		N/A	No	No
13.	U2 Aux Building Operator	Section 5 Table 5-1		N/A	No	No
14.	Intake Watch Operator	Section 5 Table 5-1		N/A	No	No
15.	Shift Phone Talker	Section 5 Table 5-1		5 / 6 5 / 9	No	No
16.	Shift Control Tech #1	Section 5 Table 5-1		N/A	No	No
17.	Shift Control Tech #2	Section 5 Table 5-1		N/A	No	No
18.	Fire Brigade Leader	Section 5 Table 5-1		N/A	No	No
19.	FBT Member #1	Section 5 Table 5-1		N/A	No	No
20.	FBT Member #2	Section 5 Table 5-1		N/A	No	No
21.	FBT Member #3	Section 5 Table 5-1		N/A	No	No
22.	FBT Member #4	Section 5 Table 5-1		N/A	No	No
23.	C&RP Technician #1	Section 5 Table 5-1	120	4 / 1	No	No
24.	C&RP Technician #2	Section 5 Table 5-1	120	4 / 7 4 / 8	No	No
25.	Watch Commander	Section 5 Table 5-1		N/A	No	No

TABLE 2 - Plant Operations & Safe Shutdown
Analysis Event #4 - Reactor Coolant Pump (RCP) Locked Rotor
Minimum Operations Crew (Two Units - One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Manager	Plant Oversight	Ops Training Program
2.	Unit Supervisor	U1 Shift Foreman	Direct CR panel operations	Ops Training Program
3.	Unit Supervisor	U2 Shift Foreman	N/A	N/A
4.	Shift Technical Advisor	WCSFM	STA Tasks	Ops Training Program
5.	Reactor Operator #1	U1 Control Operator	U1 CR panel operations	Ops Training Program
6.	Reactor Operator #2	U2 Control Operator	N/A	N/A
7.	Other	U1 BOPCO	U1 CR panel operations	Ops Training Program
8.	Other	U2 BOPCO	N/A	N/A
9.	Reactor Operator #3	Work Control Lead	Direct in-plant operations	Ops Training Program
10.	Auxiliary Operator #1	U1 Turbine Building Operator	In-plant / Local operations	Ops Training Program
11.	Auxiliary Operator #2	U1 Aux Building Operator	N/A	N/A
12.	Auxiliary Operator #3	U2 Turbine Building Operator	N/A	N/A
13.	Other	U2 Aux Building Operator	N/A	N/A
14.	Other	Intake Watch Operator	N/A	N/A
15.	Other	Shift Phone Talker	N/A	N/A
		Other (non-Operations) Personnel		
16.	I&C Technician	Shift Control Tech #1	N/A	N/A
17.	I&C Technician	Shift Control Tech #2	N/A	N/A

TABLE 3 - Firefighting
Analysis Event #4 - Reactor Coolant Pump (RCP) Locked Rotor

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader	N/A	N/A
2.	FBT Member #1	N/A	N/A
3.	FBT Member #2	N/A	N/A
4.	FBT Member #3	N/A	N/A
5.	FBT Member #4	N/A	N/A

TABLE 4 - Radiation Protection and Chemistry
Analysis Event #4 - Reactor Coolant Pump (RCP) Locked Rotor

Line	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)											
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120
1.	In-Plant Survey On-Shift Position: **C&RP Tech #1**			X	X	X	X	X	X	X	X	X	X
2.	On-Site Radiological Survey On-Shift Position: N/A												
3.	Personnel Monitoring On-Shift Position: N/A												
4.	Job Coverage On-Shift Position: N/A												
5.	Offsite Radiological Assessment On-Shift Position: N/A												
6.	Other RP - Describe: On-Shift Position: N/A												
7.	Sampling On-Shift Position: **C&RP Tech #2**	X	X	X	X	X	X	X	X	X	X	X	X
8.	Post Rx-Trip Checklist On-Shift Position: **C&RP Tech #2**	X	X	X	X	X	X	X	X	X	X	X	X

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 will be analyzed as part of the time motion study.
- Post trip checklist tasks only prioritize sampling activities for the Chemistry Technician; they do not constitute an overlap in tasks.

TABLE 5 - Emergency Plan Implementation
Analysis Event #4 - Reactor Coolant Pump (RCP) Locked Rotor

Line	Function/Task	On-Shift Position	Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Manager	Ops Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill Program
4.	Approve extension to allowable dose limits	N/A	EP Drill Program
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	EP Drill Program
6.	ERO notification	Shift Phone Talker	Ops Training Program EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	EP Drill Program
8.	Complete State/local notification form	Shift Manager	EP Drill Program
9.	Perform State/local notifications	Shift Phone Talker	Ops Training Program EP Drill Program
10.	Complete NRC event notification form	U2 Shift Foreman	EP Drill Program
11.	Activate ERDS	WCSFM	EP Drill Program
12.	Offsite radiological assessment	N/A	Ops Training Program EP Drill Program
13.	Perform NRC notifications	U2 Shift Foreman	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	N/A	EP Drill Program

Notes:

- Line #3, #8 and #9 includes initial and follow-up State/local notifications.

7.2.4 Analysis Event #5 - Fuel Handling Accident in the Fuel Handling Area

Table 1 - On-Shift Positions
Analysis Event #5 - Fuel Handling Accident in the Fuel Handling Area

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1.	Shift Manager	Section 5 Table 5-1		2 / 1 5 / 1 5 / 3 5 / 5 5 / 8	No	No
2.	U1 Shift Foreman	Section 5 Table 5-1		2 / 2	No	No
3.	U2 Shift Foreman	Section 5 Table 5-1		5 / 10 5 / 13	No	No
4.	WCSFM	Section 5 Table 5-1		2 / 4 5 / 11 **5 / 12**	No	**Yes**
5.	U1 Control Operator	Section 5 Table 5-1		N/A	No	No
6.	U2 Control Operator	Section 5 Table 5-1		N/A	No	No
7.	U1 BOPCO	Section 5 Table 5-1		N/A	No	No
8.	U2 BOPCO	Section 5 Table 5-1		N/A	No	No
9.	Work Control Lead	Section 5 Table 5-1		N/A	No	No
10.	U1 Turbine Building Operator	Section 5 Table 5-1		N/A	No	No
11.	U1 Aux Building Operator	Section 5 Table 5-1		N/A	No	No
12.	U2 Turbine Building Operator	Section 5 Table 5-1		N/A	No	No
13.	U2 Aux Building Operator	Section 5 Table 5-1		N/A	No	No
14.	Intake Watch Operator	Section 5 Table 5-1		N/A	No	No
15.	Shift Phone Talker	Section 5 Table 5-1		5 / 6 5 / 9	No	No
16.	Shift Control Tech #1	Section 5 Table 5-1		N/A	No	No
17.	Shift Control Tech #2	Section 5 Table 5-1		N/A	No	No
18.	Fire Brigade Leader	Section 5 Table 5-1		N/A	No	No
19.	FBT Member #1	Section 5 Table 5-1		N/A	No	No
20.	FBT Member #2	Section 5 Table 5-1		N/A	No	No
21.	FBT Member #3	Section 5 Table 5-1		N/A	No	No
22.	FBT Member #4	Section 5 Table 5-1		N/A	No	No
23.	C&RP Technician #1	Section 5 Table 5-1	120	4 / 1	No	No
24.	C&RP Technician #2	Section 5 Table 5-1	120	4 / 4	No	No
25.	Watch Commander	Section 5 Table 5-1		N/A	No	No

TABLE 2 - Plant Operations & Safe Shutdown
Analysis Event #5 - Fuel Handling Accident in the Fuel Handling Area
Minimum Operations Crew (Two Units - One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Manager	Plant Oversight	Ops Training Program
2.	Unit Supervisor	U1 Shift Foreman	Direct CR panel operations	Ops Training Program
3.	Unit Supervisor	U2 Shift Foreman	N/A	N/A
4.	Shift Technical Advisor	WCSFM	STA Tasks	Ops Training Program
5.	Reactor Operator #1	U1 Control Operator	N/A	N/A
6.	Reactor Operator #2	U2 Control Operator	N/A	N/A
7.	Other	U1 BOPCO	N/A	N/A
8.	Other	U2 BOPCO	N/A	N/A
9.	Reactor Operator #3	Work Control Lead	N/A	N/A
10.	Auxiliary Operator #1	U1 Turbine Building Operator	N/A	N/A
11.	Auxiliary Operator #2	U1 Aux Building Operator	N/A	N/A
12.	Auxiliary Operator #3	U2 Turbine Building Operator	N/A	N/A
13.	Other	U2 Aux Building Operator	N/A	N/A
14.	Other	Intake Watch Operator	N/A	N/A
15.	Other	Shift Phone Talker	N/A	N/A
		Other (non-Operations) Personnel		
16.	I&C Technician	Shift Control Tech #1	N/A	N/A
17.	I&C Technician	Shift Control Tech #2	N/A	N/A

TABLE 3 - Firefighting
Analysis Event #5 - Fuel Handling Accident in the Fuel Handling Area

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader	N/A	N/A
2.	FBT Member #1	N/A	N/A
3.	FBT Member #2	N/A	N/A
4.	FBT Member #3	N/A	N/A
5.	FBT Member #4	N/A	N/A

TABLE 4 - Radiation Protection and Chemistry
Analysis Event #5 - Fuel Handling Accident in the Fuel Handling Area

Line	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)											
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120
1.	In-Plant Survey On-Shift Position: **C&RP Tech #1**		X	X	X	X	X	X	X	X	X	X	X
2.	On-Site Radiological Survey On-Shift Position: N/A												
3.	Personnel Monitoring On-Shift Position: **C&RP Tech #2**		X	X	X	X	X	X	X	X	X	X	X
4.	Job Coverage On-Shift Position: N/A												
5.	Offsite Radiological Assessment On-Shift Position: N/A												
6.	Other RP - Describe: On-Shift Position: N/A												
7.	Sampling On-Shift Position: N/A												
8.	Post Rx-Trip Checklist On-Shift Position: N/A												

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 will be analyzed as part of the time motion study.

TABLE 5 - Emergency Plan Implementation
Analysis Event #5 - Fuel Handling Accident in the Fuel Handling Area

Line	Function/Task	On-Shift Position	Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Manager	Ops Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill Program
4.	Approve extension to allowable dose limits	N/A	EP Drill Program
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	EP Drill Program
6.	ERO notification	Shift Phone Talker	Ops Training Program EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	EP Drill Program
8.	Complete State/local notification form	Shift Manager	EP Drill Program
9.	Perform State/local notifications	Shift Phone Talker	Ops Training Program EP Drill Program
10.	Complete NRC event notification form	U2 Shift Foreman	EP Drill Program
11.	Activate ERDS	WCSFM	EP Drill Program
12.	Offsite radiological assessment	**WCSFM**	Ops Training Program EP Drill Program
13.	Perform NRC notifications	U2 Shift Foreman	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	N/A	EP Drill Program

Notes:

- Line #3, #8 and #9 includes initial and follow-up State/local notifications.

7.2.5 Analysis Event #6 - Rupture of a Control Rod Mechanism Housing

Table 1 - On-Shift Positions
Analysis Event #6 - Rupture of a Control Rod Mechanism Housing

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1.	Shift Manager	Section 5 Table 5-1		2 / 1 5 / 1 5 / 3 5 / 5 5 / 8	No	No
2.	U1 Shift Foreman	Section 5 Table 5-1		2 / 2	No	No
3.	U2 Shift Foreman	Section 5 Table 5-1		5 / 10 5 / 13	No	No
4.	WCSFM	Section 5 Table 5-1		2 / 4 5 / 11	No	No
5.	U1 Control Operator	Section 5 Table 5-1		2 / 5	No	No
6.	U2 Control Operator	Section 5 Table 5-1		N/A	No	No
7.	U1 BOPCO	Section 5 Table 5-1		2 / 7	No	No
8.	U2 BOPCO	Section 5 Table 5-1		N/A	No	No
9.	Work Control Lead	Section 5 Table 5-1		2 / 9.A 2 / 9.B	No	No
10.	U1 Turbine Building Operator	Section 5 Table 5-1		2 / 10	No	No
11.	U1 Aux Building Operator	Section 5 Table 5-1		2 / 11	No	No
12.	U2 Turbine Building Operator	Section 5 Table 5-1		N/A	No	No
13.	U2 Aux Building Operator	Section 5 Table 5-1		N/A	No	No
14.	Intake Watch Operator	Section 5 Table 5-1		N/A	No	No
15.	Shift Phone Talker	Section 5 Table 5-1		5 / 6 5 / 9	No	No
16.	Shift Control Tech #1	Section 5 Table 5-1		N/A	No	No
17.	Shift Control Tech #2	Section 5 Table 5-1		N/A	No	No
18.	Fire Brigade Leader	Section 5 Table 5-1		N/A	No	No
19.	FBT Member #1	Section 5 Table 5-1		N/A	No	No
20.	FBT Member #2	Section 5 Table 5-1		N/A	No	No
21.	FBT Member #3	Section 5 Table 5-1		N/A	No	No
22.	FBT Member #4	Section 5 Table 5-1		N/A	No	No
23.	C&RP Technician #1	Section 5 Table 5-1	120	N/A	No	No
24.	C&RP Technician #2	Section 5 Table 5-1	120	4 / 7 4 / 8	No	No
25.	Watch Commander	Section 5 Table 5-1		5 / 15	No	No

TABLE 2 - Plant Operations & Safe Shutdown
Analysis Event #6 - Rupture of a Control Rod Mechanism Housing
Minimum Operations Crew (Two Units - One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Manager	Plant Oversight	Ops Training Program
2.	Unit Supervisor	U1 Shift Foreman	Direct CR panel operations	Ops Training Program
3.	Unit Supervisor	U2 Shift Foreman	N/A	N/A
4.	Shift Technical Advisor	WCSFM	STA Tasks	Ops Training Program
5.	Reactor Operator #1	U1 Control Operator	U1 CR panel operations	Ops Training Program
6.	Reactor Operator #2	U2 Control Operator	N/A	N/A
7.	Other	U1 BOPCO	U1 CR panel operations	Ops Training Program
8.	Other	U2 BOPCO	N/A	N/A
9.	Reactor Operator #3	Work Control Lead	A. Direct in-plant operations	Ops Training Program
			B. U1 CR panel operations	Ops Training Program
10.	Auxiliary Operator #1	U1 Turbine Building Operator	In-plant / Local operations	Ops Training Program
11.	Auxiliary Operator #2	U1 Aux Building Operator	In-plant / Local operations	Ops Training Program
12.	Auxiliary Operator #3	U2 Turbine Building Operator	N/A	N/A
13.	Other	U2 Aux Building Operator	N/A	N/A
14.	Other	Intake Watch Operator	N/A	N/A
15.	Other	Shift Phone Talker	N/A	N/A
Other (non-Operations) Personnel				
16.	I&C Technician	Shift Control Tech #1	N/A	N/A
17.	I&C Technician	Shift Control Tech #2	N/A	N/A

TABLE 3 - Firefighting
Analysis Event #6 - Rupture of a Control Rod Mechanism Housing

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader	N/A	N/A
2.	FBT Member #1	N/A	N/A
3.	FBT Member #2	N/A	N/A
4.	FBT Member #3	N/A	N/A
5.	FBT Member #4	N/A	N/A

TABLE 4 - Radiation Protection and Chemistry
Analysis Event #6 - Rupture of a Control Rod Mechanism Housing

Line	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)											
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120
1.	In-Plant Survey On-Shift Position: N/A												
2.	On-Site Radiological Survey On-Shift Position: N/A												
3.	Personnel Monitoring On-Shift Position: N/A												
4.	Job Coverage On-Shift Position: N/A												
5.	Offsite Radiological Assessment On-Shift Position: N/A												
6.	Other RP - Describe: On-Shift Position: N/A												
7.	Sampling On-Shift Position: **C&RP Tech #2**	X	X	X	X	X	X	X	X	X	X	X	X
8.	Post Rx-Trip Checklist On-Shift Position: **C&RP Tech #2**	X	X	X	X	X	X	X	X	X	X	X	X

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 will be analyzed as part of the time motion study.
- Post trip checklist tasks only prioritize sampling activities for the Chemistry Technician; they do not constitute an overlap in tasks.

TABLE 5 - Emergency Plan Implementation
Analysis Event #6 - Rupture of a Control Rod Mechanism Housing

Line	Function/Task	On-Shift Position	Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Manager	Ops Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill Program
4.	Approve extension to allowable dose limits	N/A	EP Drill Program
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	EP Drill Program
6.	ERO notification	Shift Phone Talker	Ops Training Program EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	EP Drill Program
8.	Complete State/local notification form	Shift Manager	EP Drill Program
9.	Perform State/local notifications	Shift Phone Talker	Ops Training Program EP Drill Program
10.	Complete NRC event notification form	U2 Shift Foreman	EP Drill Program
11.	Activate ERDS	WCSFM	EP Drill Program
12.	Offsite radiological assessment	N/A	Ops Training Program EP Drill Program
13.	Perform NRC notifications	U2 Shift Foreman	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	Watch Commander	EP Drill Program

Notes:

- Line #3, #8 and #9 includes initial and follow-up State/local notifications.

7.2.6 Analysis Event #7 - Rupture of Waste Gas Decay Tank

Table 1 - On-Shift Positions
Analysis Event #7 - Rupture of Waste Gas Decay Tank

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1.	Shift Manager	Section 5 Table 5-1		2 / 1.A 2 / 1.B 5 / 1 5 / 3 5 / 5 5 / 8	No	No
2.	U1 Shift Foreman	Section 5 Table 5-1		2 / 2.A 2 / 2.B	No	No
3.	U2 Shift Foreman	Section 5 Table 5-1		5 / 10 5 / 13	No	No
4.	WCSFM	Section 5 Table 5-1		2 / 4 5 / 11 **5 / 12**	No	**Yes**
5.	U1 Control Operator	Section 5 Table 5-1		2 / 5	No	No
6.	U2 Control Operator	Section 5 Table 5-1		N/A	No	No
7.	U1 BOPCO	Section 5 Table 5-1		2 / 7	No	No
8.	U2 BOPCO	Section 5 Table 5-1		N/A	No	No
9.	Work Control Lead	Section 5 Table 5-1		2 / 9	No	No
10.	U1 Turbine Building Operator	Section 5 Table 5-1		N/A	No	No
11.	U1 Aux Building Operator	Section 5 Table 5-1		2 / 11	No	No
12.	U2 Turbine Building Operator	Section 5 Table 5-1		N/A	No	No
13.	U2 Aux Building Operator	Section 5 Table 5-1		N/A	No	No
14.	Intake Watch Operator	Section 5 Table 5-1		N/A	No	No
15.	Shift Phone Talker	Section 5 Table 5-1		5 / 6 5 / 9	No	No
16.	Shift Control Tech #1	Section 5 Table 5-1		N/A	No	No
17.	Shift Control Tech #2	Section 5 Table 5-1		N/A	No	No
18.	Fire Brigade Leader	Section 5 Table 5-1		N/A	No	No
19.	FBT Member #1	Section 5 Table 5-1		N/A	No	No
20.	FBT Member #2	Section 5 Table 5-1		N/A	No	No
21.	FBT Member #3	Section 5 Table 5-1		N/A	No	No
22.	FBT Member #4	Section 5 Table 5-1		N/A	No	No
23.	C&RP Technician #1	Section 5 Table 5-1	120	4 / 1	No	No
24.	C&RP Technician #2	Section 5 Table 5-1	120	4 / 4	No	No
25.	Watch Commander	Section 5 Table 5-1		N/A	No	No

TABLE 2 - Plant Operations & Safe Shutdown
Analysis Event #7 - Rupture of Waste Gas Decay Tank
Minimum Operations Crew (Two Units - One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Manager	A. Plant Oversight	Ops Training Program
			B. Respond to §50.54(x)/(y) requests	Ops Training Program
2.	Unit Supervisor	U1 Shift Foreman	A. Direct CR panel operations	Ops Training Program
			B. Notify NRC of §50.54(x)/(y)	Ops Training Program
3.	Unit Supervisor	U2 Shift Foreman	N/A	N/A
4.	Shift Technical Advisor	WCSFM	STA Tasks	Ops Training Program
5.	Reactor Operator #1	U1 Control Operator	U1 CR panel operations	Ops Training Program
6.	Reactor Operator #2	U2 Control Operator	N/A	N/A
7.	Other	U1 BOPCO	U1 CR panel operations	Ops Training Program
8.	Other	U2 BOPCO	N/A	N/A
9.	Reactor Operator #3	Work Control Lead	Direct in-plant operations	Ops Training Program
10.	Auxiliary Operator #1	U1 Turbine Building Operator	N/A	N/A
11.	Auxiliary Operator #2	U1 Aux Building Operator	In-plant / Local operations	Ops Training Program
12.	Auxiliary Operator #3	U2 Turbine Building Operator	N/A	N/A
13.	Other	U2 Aux Building Operator	N/A	N/A
14.	Other	Intake Watch Operator	N/A	N/A
15.	Other	Shift Phone Talker	N/A	N/A
Other (non-Operations) Personnel				
16.	I&C Technician	Shift Control Tech #1	N/A	N/A
17.	I&C Technician	Shift Control Tech #2	N/A	N/A

TABLE 3 - Firefighting
Analysis Event #7 - Rupture of Waste Gas Decay Tank

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader	N/A	N/A
2.	FBT Member #1	N/A	N/A
3.	FBT Member #2	N/A	N/A
4.	FBT Member #3	N/A	N/A
5.	FBT Member #4	N/A	N/A

TABLE 4 - Radiation Protection and Chemistry
Analysis Event #7 - Rupture of Waste Gas Decay Tank

Line	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)											
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120
1.	In-Plant Survey On-Shift Position: **C&RP Tech #1**	X	X	X	X	X	X	X	X	X	X	X	X
2.	On-Site Radiological Survey On-Shift Position: N/A												
3.	Personnel Monitoring On-Shift Position: N/A												
4.	Job Coverage On-Shift Position: **C&RP Tech #2**	X	X	X	X	X	X	X	X	X	X	X	X
5.	Offsite Radiological Assessment On-Shift Position: N/A												
6.	Other RP - Describe: On-Shift Position: N/A												
7.	Sampling On-Shift Position: N/A												
8.	Post Rx-Trip Checklist On-Shift Position: N/A												

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 will be analyzed as part of the time motion study.

TABLE 5 - Emergency Plan Implementation
Analysis Event #7 - Rupture of Waste Gas Decay Tank

Line	Function/Task	On-Shift Position	Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Manager	Ops Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill Program
4.	Approve extension to allowable dose limits	N/A	EP Drill Program
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	EP Drill Program
6.	ERO notification	Shift Phone Talker	Ops Training Program EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	EP Drill Program
8.	Complete State/local notification form	Shift Manager	EP Drill Program
9.	Perform State/local notifications	Shift Phone Talker	Ops Training Program EP Drill Program
10.	Complete NRC event notification form	U2 Shift Foreman	EP Drill Program
11.	Activate ERDS	WCSFM	EP Drill Program
12.	Offsite radiological assessment	**WCSFM**	Ops Training Program EP Drill Program
13.	Perform NRC notifications	U2 Shift Foreman	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	N/A	EP Drill Program

Notes:

- Line #3, #8 and #9 includes initial and follow-up State/local notifications.

7.2.7 Analysis Event #8 - Rupture of a Liquid Holdup Tank

Table 1 - On-Shift Positions
Analysis Event #8 - Rupture of a Liquid Holdup Tank

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1.	Shift Manager	Section 5 Table 5-1		2 / 1.A 2 / 1.B 5 / 1 5 / 3 5 / 5 5 / 8	No	No
2.	U1 Shift Foreman	Section 5 Table 5-1		2 / 2.A 2 / 2.B	No	No
3.	U2 Shift Foreman	Section 5 Table 5-1		5 / 10 5 / 13	No	No
4.	WCSFM	Section 5 Table 5-1		2 / 4 5 / 11 **5 / 12**	No	**Yes**
5.	U1 Control Operator	Section 5 Table 5-1		2 / 5	No	No
6.	U2 Control Operator	Section 5 Table 5-1		N/A	No	No
7.	U1 BOPCO	Section 5 Table 5-1		2 / 7	No	No
8.	U2 BOPCO	Section 5 Table 5-1		N/A	No	No
9.	Work Control Lead	Section 5 Table 5-1		2 / 9	No	No
10.	U1 Turbine Building Operator	Section 5 Table 5-1		N/A	No	No
11.	U1 Aux Building Operator	Section 5 Table 5-1		2 / 11	No	No
12.	U2 Turbine Building Operator	Section 5 Table 5-1		N/A	No	No
13.	U2 Aux Building Operator	Section 5 Table 5-1		N/A	No	No
14.	Intake Watch Operator	Section 5 Table 5-1		N/A	No	No
15.	Shift Phone Talker	Section 5 Table 5-1		5 / 6 5 / 9	No	No
16.	Shift Control Tech #1	Section 5 Table 5-1		N/A	No	No
17.	Shift Control Tech #2	Section 5 Table 5-1		N/A	No	No
18.	Fire Brigade Leader	Section 5 Table 5-1		N/A	No	No
19.	FBT Member #1	Section 5 Table 5-1		N/A	No	No
20.	FBT Member #2	Section 5 Table 5-1		N/A	No	No
21.	FBT Member #3	Section 5 Table 5-1		N/A	No	No
22.	FBT Member #4	Section 5 Table 5-1		N/A	No	No
23.	C&RP Technician #1	Section 5 Table 5-1	120	4 / 1	No	No
24.	C&RP Technician #2	Section 5 Table 5-1	120	4 / 4	No	No
25.	Watch Commander	Section 5 Table 5-1		N/A	No	No

TABLE 2 - Plant Operations & Safe Shutdown
Analysis Event #8 - Rupture of a Liquid Holdup Tank
Minimum Operations Crew (Two Units - One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Manager	A. Plant Oversight	Ops Training Program
			B. Respond to §50.54(x)/(y) requests	Ops Training Program
2.	Unit Supervisor	U1 Shift Foreman	A. Direct CR panel operations	Ops Training Program
			B. Notify NRC of §50.54(x)/(y)	Ops Training Program
3.	Unit Supervisor	U2 Shift Foreman	N/A	N/A
4.	Shift Technical Advisor	WCSFM	STA Tasks	Ops Training Program
5.	Reactor Operator #1	U1 Control Operator	U1 CR panel operations	Ops Training Program
6.	Reactor Operator #2	U2 Control Operator	N/A	N/A
7.	Other	U1 BOPCO	U1 CR panel operations	Ops Training Program
8.	Other	U2 BOPCO	N/A	N/A
9.	Reactor Operator #3	Work Control Lead	Direct in-plant operations	Ops Training Program
10.	Auxiliary Operator #1	U1 Turbine Building Operator	N/A	N/A
11.	Auxiliary Operator #2	U1 Aux Building Operator	In-plant / Local operations	Ops Training Program
12.	Auxiliary Operator #3	U2 Turbine Building Operator	N/A	N/A
13.	Other	U2 Aux Building Operator	N/A	N/A
14.	Other	Intake Watch Operator	N/A	N/A
15.	Other	Shift Phone Talker	N/A	N/A
Other (non-Operations) Personnel				
16.	I&C Technician	Shift Control Tech #1	N/A	N/A
17.	I&C Technician	Shift Control Tech #2	N/A	N/A

TABLE 3 - Firefighting
Analysis Event #8 - Rupture of a Liquid Holdup Tank

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader	N/A	N/A
2.	FBT Member #1	N/A	N/A
3.	FBT Member #2	N/A	N/A
4.	FBT Member #3	N/A	N/A
5.	FBT Member #4	N/A	N/A

TABLE 4 - Radiation Protection and Chemistry
Analysis Event #8 - Rupture of a Liquid Holdup Tank

Line	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)											
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120
1.	In-Plant Survey On-Shift Position: **C&RP Tech #1**	X	X	X	X	X	X	X	X	X	X	X	X
2.	On-Site Radiological Survey On-Shift Position: N/A												
3.	Personnel Monitoring On-Shift Position: N/A												
4.	Job Coverage On-Shift Position: **C&RP Tech #2**	X	X	X	X	X	X	X	X	X	X	X	X
5.	Offsite Radiological Assessment On-Shift Position: N/A												
6.	Other RP - Describe: On-Shift Position: N/A												
7.	Sampling On-Shift Position: N/A												
8.	Post Rx-Trip Checklist On-Shift Position: N/A												

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 will be analyzed as part of the time motion study.

TABLE 5 - Emergency Plan Implementation
Analysis Event #8 - Rupture of a Liquid Holdup Tank

Line	Function/Task	On-Shift Position	Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Manager	Ops Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill Program
4.	Approve extension to allowable dose limits	N/A	EP Drill Program
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	EP Drill Program
6.	ERO notification	Shift Phone Talker	Ops Training Program EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	EP Drill Program
8.	Complete State/local notification form	Shift Manager	EP Drill Program
9.	Perform State/local notifications	Shift Phone Talker	Ops Training Program EP Drill Program
10.	Complete NRC event notification form	U2 Shift Foreman	EP Drill Program
11.	Activate ERDS	WCSFM	EP Drill Program
12.	Offsite radiological assessment	**WCSFM**	Ops Training Program EP Drill Program
13.	Perform NRC notifications	U2 Shift Foreman	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	N/A	EP Drill Program

Notes:

- Line #3, #8 and #9 includes initial and follow-up State/local notifications.

7.2.8 Analysis Event #9 - Rupture of a Volume Control Tank

Table 1 - On-Shift Positions
Analysis Event #9 - Rupture of a Volume Control Tank

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1.	Shift Manager	Section 5 Table 5-1		2 / 1.A 2 / 1.B 5 / 1 5 / 3 5 / 5 5 / 8	No	No
2.	U1 Shift Foreman	Section 5 Table 5-1		2 / 2.A 2 / 2.B	No	No
3.	U2 Shift Foreman	Section 5 Table 5-1		5 / 10 5 / 13	No	No
4.	WCSFM	Section 5 Table 5-1		2 / 4 5 / 11 **5 / 12**	No	**Yes**
5.	U1 Control Operator	Section 5 Table 5-1		2 / 5	No	No
6.	U2 Control Operator	Section 5 Table 5-1		N/A	No	No
7.	U1 BOPCO	Section 5 Table 5-1		2 / 7	No	No
8.	U2 BOPCO	Section 5 Table 5-1		N/A	No	No
9.	Work Control Lead	Section 5 Table 5-1		2 / 9	No	No
10.	U1 Turbine Building Operator	Section 5 Table 5-1		2 / 10	No	No
11.	U1 Aux Building Operator	Section 5 Table 5-1		2 / 11	No	No
12.	U2 Turbine Building Operator	Section 5 Table 5-1		2 / 12	No	No
13.	U2 Aux Building Operator	Section 5 Table 5-1		N/A	No	No
14.	Intake Watch Operator	Section 5 Table 5-1		2 / 14	No	No
15.	Shift Phone Talker	Section 5 Table 5-1		5 / 6 5 / 9	No	No
16.	Shift Control Tech #1	Section 5 Table 5-1		N/A	No	No
17.	Shift Control Tech #2	Section 5 Table 5-1		N/A	No	No
18.	Fire Brigade Leader	Section 5 Table 5-1		N/A	No	No
19.	FBT Member #1	Section 5 Table 5-1		N/A	No	No
20.	FBT Member #2	Section 5 Table 5-1		N/A	No	No
21.	FBT Member #3	Section 5 Table 5-1		N/A	No	No
22.	FBT Member #4	Section 5 Table 5-1		N/A	No	No
23.	C&RP Technician #1	Section 5 Table 5-1	120	4 / 1 4 / 3 4 / 4	No	No
24.	C&RP Technician #2	Section 5 Table 5-1	120	4 / 7 4 / 8	No	No
25.	Watch Commander	Section 5 Table 5-1		N/A	No	No

TABLE 2 - Plant Operations & Safe Shutdown
Analysis Event #9 - Rupture of a Volume Control Tank
Minimum Operations Crew (Two Units - One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Manager	A. Plant Oversight	Ops Training Program
			B. Respond to §50.54(x)/(y) requests	Ops Training Program
2.	Unit Supervisor	U1 Shift Foreman	A. Direct CR panel operations	Ops Training Program
			B. Notify NRC of §50.54(x)/(y)	Ops Training Program
3.	Unit Supervisor	U2 Shift Foreman	N/A	N/A
4.	Shift Technical Advisor	WCSFM	STA Tasks	Ops Training Program
5.	Reactor Operator #1	U1 Control Operator	U1 CR panel operations	Ops Training Program
6.	Reactor Operator #2	U2 Control Operator	N/A	N/A
7.	Other	U1 BOPCO	U1 CR panel operations	Ops Training Program
8.	Other	U2 BOPCO	N/A	N/A
9.	Reactor Operator #3	Work Control Lead	Direct in-plant operations	Ops Training Program
10.	Auxiliary Operator #1	U1 Turbine Building Operator	In-plant / Local operations	Ops Training Program
11.	Auxiliary Operator #2	U1 Aux Building Operator	In-plant / Local operations	Ops Training Program
12.	Auxiliary Operator #3	U2 Turbine Building Operator	In-plant / Local operations	Ops Training Program
13.	Other	U2 Aux Building Operator	N/A	N/A
14.	Other	Intake Watch Operator	In-plant / Local operations	Ops Training Program
15.	Other	Shift Phone Talker	N/A	N/A
Other (non-Operations) Personnel				
16.	I&C Technician	Shift Control Tech #1	N/A	N/A
17.	I&C Technician	Shift Control Tech #2	N/A	N/A

TABLE 3 - Firefighting
Analysis Event #9 - Rupture of a Volume Control Tank

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader	N/A	N/A
2.	FBT Member #1	N/A	N/A
3.	FBT Member #2	N/A	N/A
4.	FBT Member #3	N/A	N/A
5.	FBT Member #4	N/A	N/A

TABLE 4 - Radiation Protection and Chemistry
Analysis Event #9 - Rupture of a Volume Control Tank

Line	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)											
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120
1.	In-Plant Survey On-Shift Position: **C&RP Tech #1**				X	X							
2.	On-Site Radiological Survey On-Shift Position: N/A												
3.	Personnel Monitoring On-Shift Position: **C&RP Tech #1**					X	X	X	X	X	X	X	X
4.	Job Coverage On-Shift Position: **C&RP Tech #1**	X	X										
5.	Offsite Radiological Assessment On-Shift Position: N/A												
6.	Other RP - Describe: On-Shift Position: N/A												
7.	Sampling On-Shift Position: **C&RP Tech #2**		X	X	X	X	X	X	X	X	X	X	X
8.	Post Rx-Trip Checklist On-Shift Position: **C&RP Tech #2**		X	X	X	X	X	X	X	X	X	X	X

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 will be analyzed as part of the time motion study.
- Task (4/4) Job Coverage was performed for 18 minutes to support operator unit 1 hydrogen isolation. A break with no tasks took place for 17 minutes and then task (4/1) In Plant Surveys was performed completed within 12 minutes. When completed, C&RP Technician #1 was stationed at the access control point to perform task (4/2) Personnel Monitoring when needed.
- Post trip checklist tasks only prioritize sampling activities for the Chemistry Technician; they do not constitute an overlap in tasks.

TABLE 5 - Emergency Plan Implementation
Analysis Event #9 - Rupture of a Volume Control Tank

Line	Function/Task	On-Shift Position	Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Manager	Ops Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill Program
4.	Approve extension to allowable dose limits	N/A	EP Drill Program
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	EP Drill Program
6.	ERO notification	Shift Phone Talker	Ops Training Program EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	EP Drill Program
8.	Complete State/local notification form	Shift Manager	EP Drill Program
9.	Perform State/local notifications	Shift Phone Talker	Ops Training Program EP Drill Program
10.	Complete NRC event notification form	U2 Shift Foreman	EP Drill Program
11.	Activate ERDS	WCSFM	EP Drill Program
12.	Offsite radiological assessment	**WCSFM**	Ops Training Program EP Drill Program
13.	Perform NRC notifications	U2 Shift Foreman	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	N/A	EP Drill Program

Notes:

- Line #3, #8 and #9 includes initial and follow-up State/local notifications.

7.2.9 Analysis Event #10 - Design Basis Threat (DBT)

Table 1 - On-Shift Positions
Analysis Event #10 - Design Basis Threat (DBT)

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1.	Shift Manager	Section 5 Table 5-1		2 / 1 5 / 1 5 / 2 5 / 3 5 / 5 5 / 7 5 / 8 5 / 10 5 / 11	No	No
2.	U1 Shift Foreman	Section 5 Table 5-1		2 / 2	No	No
3.	U2 Shift Foreman	Section 5 Table 5-1		2 / 3	No	No
4.	WCSFM	Section 5 Table 5-1		N/A	No	No
5.	U1 Control Operator	Section 5 Table 5-1		2 / 5	No	No
6.	U2 Control Operator	Section 5 Table 5-1		2 / 6	No	No
7.	U1 BOPCO	Section 5 Table 5-1		2 / 7	No	No
8.	U2 BOPCO	Section 5 Table 5-1		2 / 8 **5 / 13**	No	**Yes**
9.	Work Control Lead	Section 5 Table 5-1		N/A	No	No
10.	U1 Turbine Building Operator	Section 5 Table 5-1		N/A	No	No
11.	U1 Aux Building Operator	Section 5 Table 5-1		N/A	No	No
12.	U2 Turbine Building Operator	Section 5 Table 5-1		N/A	No	No
13.	U2 Aux Building Operator	Section 5 Table 5-1		N/A	No	No
14.	Intake Watch Operator	Section 5 Table 5-1		N/A	No	No
15.	Shift Phone Talker	Section 5 Table 5-1		5 / 6 5 / 9	No	No
16.	Shift Control Tech #1	Section 5 Table 5-1		N/A	No	No
17.	Shift Control Tech #2	Section 5 Table 5-1		N/A	No	No
18.	Fire Brigade Leader	Section 5 Table 5-1		N/A	No	No
19.	FBT Member #1	Section 5 Table 5-1		N/A	No	No
20.	FBT Member #2	Section 5 Table 5-1		N/A	No	No
21.	FBT Member #3	Section 5 Table 5-1		N/A	No	No
22.	FBT Member #4	Section 5 Table 5-1		N/A	No	No
23.	C&RP Technician #1	Section 5 Table 5-1	120	N/A	No	No
24.	C&RP Technician #2	Section 5 Table 5-1	120	4 / 7 4 / 8	No	No
25.	Watch Commander	Section 5 Table 5-1		N/A	No	No

TABLE 2 - Plant Operations & Safe Shutdown
Analysis Event #10 - Design Basis Threat (DBT)
Minimum Operations Crew (Two Units - One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Manager	Plant Oversight	Ops Training Program
2.	Unit Supervisor	U1 Shift Foreman	Direct CR panel operations	Ops Training Program
3.	Unit Supervisor	U2 Shift Foreman	Direct CR panel operations	Ops Training Program
4.	Shift Technical Advisor	WCSFM	N/A*	N/A
5.	Reactor Operator #1	U1 Control Operator	U1 CR panel operations	Ops Training Program
6.	Reactor Operator #2	U2 Control Operator	U2 CR panel operations	Ops Training Program
7.	Other	U1 BOPCO	U1 CR panel operations	Ops Training Program
8.	Other	U2 BOPCO	U2 CR panel operations	Ops Training Program
9.	Reactor Operator #3	Work Control Lead	N/A*	N/A
10.	Auxiliary Operator #1	U1 Turbine Building Operator	N/A*	N/A
11.	Auxiliary Operator #2	U1 Aux Building Operator	N/A*	N/A
12.	Auxiliary Operator #3	U2 Turbine Building Operator	N/A*	N/A
13.	Other	U2 Aux Building Operator	N/A*	N/A
14.	Other	Intake Watch Operator	N/A*	N/A
15.	Other	Shift Phone Talker	N/A	N/A
		Other (non-Operations) Personnel		
16.	I&C Technician	Shift Control Tech #1	N/A*	N/A
17.	I&C Technician	Shift Control Tech #2	N/A*	N/A

Notes:

- N/A* due to the event, this position was not able to perform response tasks until the threat was cleared.

TABLE 3 - Firefighting
Analysis Event #10 - Design Basis Threat (DBT)

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader	N/A*	N/A
2.	FBT Member #1	N/A*	N/A
3.	FBT Member #2	N/A*	N/A
4.	FBT Member #3	N/A*	N/A
5.	FBT Member #4	N/A*	N/A

Notes:

- N/A* due to the event, this position was not able to perform response tasks until the threat was cleared.

TABLE 4 - Radiation Protection and Chemistry
Analysis Event #10 - Design Basis Threat (DBT)

Line	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)											
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120
1.	In-Plant Survey On-Shift Position: **C&RP Tech #1**						X	X	X	X	X	X	X
2.	On-Site Radiological Survey On-Shift Position: N/A												
3.	Personnel Monitoring On-Shift Position: N/A												
4.	Job Coverage On-Shift Position: N/A												
5.	Offsite Radiological Assessment On-Shift Position: N/A												
6.	Other RP - Describe: On-Shift Position: N/A												
7.	Sampling On-Shift Position: **C&RP Tech #2**						X	X	X	X	X	X	X
8.	Post Rx-Trip Checklist On-Shift Position: **C&RP Tech #2**						X	X	X	X	X	X	X

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 will be analyzed as part of the time motion study.
- Survey and sample actions would not be taken until movement was allowed.
- Post trip checklist tasks only prioritize sampling activities for the Chemistry Technician; they do not constitute an overlap in tasks.

TABLE 5 - Emergency Plan Implementation
Analysis Event #10 - Design Basis Threat (DBT)

Line	Function/Task	On-Shift Position	Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Manager	Ops Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	Shift Manager	EP Drill Program
3.	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill Program
4.	Approve extension to allowable dose limits	N/A	EP Drill Program
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	EP Drill Program
6.	ERO notification	Shift Phone Talker	Ops Training Program EP Drill Program
7.	Abbreviated NRC notification for DBT event	Shift Manager	EP Drill Program
8.	Complete State/local notification form	Shift Manager	EP Drill Program
9.	Perform State/local notifications	Shift Phone Talker	Ops Training Program EP Drill Program
10.	Complete NRC event notification form	Shift Manager	EP Drill Program
11.	Activate ERDS	Shift Manager	EP Drill Program
12.	Offsite radiological assessment	N/A	Ops Training Program EP Drill Program
13.	Perform NRC notifications	**U2 BOPCO**	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	N/A	EP Drill Program

Notes:

- Line #3, #8 and #9 includes initial and follow-up State/local notifications.

7.2.10 Analysis Event #11 - Probable Aircraft Threat (PAT)

Table 1 - On-Shift Positions
Analysis Event #11 - Probable Aircraft Threat (PAT)

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1.	Shift Manager	Section 5 Table 5-1		2 / 1 5 / 1 5 / 3 5 / 5 5 / 8	No	No
2.	U1 Shift Foreman	Section 5 Table 5-1		2 / 2	No	No
3.	U2 Shift Foreman	Section 5 Table 5-1		2 / 3	No	No
4.	WCSFM	Section 5 Table 5-1		2 / 4 5 / 11	No	No
5.	U1 Control Operator	Section 5 Table 5-1		2 / 5	No	No
6.	U2 Control Operator	Section 5 Table 5-1		2 / 6	No	No
7.	U1 BOPCO	Section 5 Table 5-1		2 / 7	No	No
8.	U2 BOPCO	Section 5 Table 5-1		2 / 8	No	No
9.	Work Control Lead	Section 5 Table 5-1		5 / 10 5 / 13	No	No
10.	U1 Turbine Building Operator	Section 5 Table 5-1		2 / 10	No	No
11.	U1 Aux Building Operator	Section 5 Table 5-1		2 / 11	No	No
12.	U2 Turbine Building Operator	Section 5 Table 5-1		N/A	No	No
13.	U2 Aux Building Operator	Section 5 Table 5-1		N/A	No	No
14.	Intake Watch Operator	Section 5 Table 5-1		N/A	No	No
15.	Shift Phone Talker	Section 5 Table 5-1		5 / 6 5 / 9	No	No
16.	Shift Control Tech #1	Section 5 Table 5-1		N/A	No	No
17.	Shift Control Tech #2	Section 5 Table 5-1		N/A	No	No
18.	Fire Brigade Leader	Section 5 Table 5-1		3 / 1	No	No
19.	FBT Member #1	Section 5 Table 5-1		3 / 2	No	No
20.	FBT Member #2	Section 5 Table 5-1		3 / 3	No	No
21.	FBT Member #3	Section 5 Table 5-1		3 / 4	No	No
22.	FBT Member #4	Section 5 Table 5-1		3 / 5	No	No
23.	C&RP Technician #1	Section 5 Table 5-1	120	N/A	No	No
24.	C&RP Technician #2	Section 5 Table 5-1	120	4 / 7 4 / 8	No	No
25.	Watch Commander	Section 5 Table 5-1		5 / 15	No	No

TABLE 2 - Plant Operations & Safe Shutdown
Analysis Event #11 - Probable Aircraft Threat (PAT)
Minimum Operations Crew (Two Units - One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Manager	Plant Oversight	Ops Training Program
2.	Unit Supervisor	U1 Shift Foreman	Direct U1 CR panel operations	Ops Training Program
3.	Unit Supervisor	U2 Shift Foreman	Direct U2 CR panel operations	Ops Training Program
4.	Shift Technical Advisor	WCSFM	STA Tasks	Ops Training Program
5.	Reactor Operator #1	U1 Control Operator	U1 CR panel operations	Ops Training Program
6.	Reactor Operator #2	U2 Control Operator	U2 CR panel operations	Ops Training Program
7.	Other	U1 BOPCO	U1 CR panel operations	Ops Training Program
8.	Other	U2 BOPCO	U2 CR panel operations	Ops Training Program
9.	Reactor Operator #3	Work Control Lead	N/A	N/A
10.	Auxiliary Operator #1	U1 Turbine Building Operator	U1 / U2 In-plant / local operations	Ops Training Program
11.	Auxiliary Operator #2	U1 Aux Building Operator	U1 / U2 In-plant / local operations	Ops Training Program
12.	Auxiliary Operator #3	U2 Turbine Building Operator	N/A*	N/A
13.	Other	U2 Aux Building Operator	N/A*	N/A
14.	Other	Intake Watch Operator	N/A	N/A
15.	Other	Shift Phone Talker	N/A	N/A
		Other (non-Operations) Personnel		
16.	I&C Technician	Shift Control Tech #1	N/A*	N/A
17.	I&C Technician	Shift Control Tech #2	N/A*	N/A

Notes:

- N/A* due to the event, this position was not able to perform response tasks until the threat was cleared.

TABLE 3 - Firefighting
Analysis Event #11 - Probable Aircraft Threat (PAT)

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader	Assemble Fire Brigade	Fire Fighter Training Program
2.	FBT Member #1	Preparations for possible large fires	Fire Fighter Training Program
3.	FBT Member #2	Preparations for possible large fires	Fire Fighter Training Program
4.	FBT Member #3	Preparations for possible large fires	Fire Fighter Training Program
5.	FBT Member #4	Preparations for possible large fires	Fire Fighter Training Program

TABLE 4 - Radiation Protection and Chemistry
Analysis Event #11 - Probable Aircraft Threat (PAT)

Line	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)											
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120
1.	In-Plant Survey On-Shift Position: N/A												
2.	On-Site Radiological Survey On-Shift Position: N/A												
3.	Personnel Monitoring On-Shift Position: N/A												
4.	Job Coverage On-Shift Position: N/A												
5.	Offsite Radiological Assessment On-Shift Position: N/A												
6.	Other RP - Describe: On-Shift Position: N/A												
7.	Sampling On-Shift Position: **C&RP Tech #2**				X	X	X	X	X	X	X	X	X
8.	Post Rx-Trip Checklist On-Shift Position: **C&RP Tech #2**				X	X	X	X	X	X	X	X	X

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 will be analyzed as part of the time motion study.
- Post trip checklist tasks only prioritize sampling activities for the Chemistry Technician; they do not constitute an overlap in tasks.

TABLE 5 - Emergency Plan Implementation
Analysis Event #11 - Probable Aircraft Threat (PAT)

Line	Function/Task	On-Shift Position	Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Manager	Ops Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill Program
4.	Approve extension to allowable dose limits	N/A	EP Drill Program
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	EP Drill Program
6.	ERO notification	Work Control Lead	Ops Training Program EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	EP Drill Program
8.	Complete State/local notification form	Shift Manager	EP Drill Program
9.	Perform State/local notifications	Shift Phone Talker	Ops Training Program EP Drill Program
10.	Complete NRC event notification form	N/A	EP Drill Program
11.	Activate ERDS	WCSFM	EP Drill Program
12.	Offsite radiological assessment	N/A	Ops Training Program EP Drill Program
13.	Perform NRC notifications	Work Control Lead	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	Watch Commander	EP Drill Program

Notes:

- Line #3, #8 and #9 includes initial and follow-up State/local notifications.

7.2.11 Analysis Event #12 - Control Room Evacuation due to Fire

Table 1 - On-Shift Positions
Analysis Event #12 - Control Room Evacuation due to Fire

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1.	Shift Manager	Section 5 Table 5-1		2 / 1.A 2 / 1.B 5 / 1 5 / 3 5 / 5 5 / 8 5 / 10	No	No
2.	U1 Shift Foreman	Section 5 Table 5-1		2 / 2.A 2 / 2.B 2 / 2.C 2 / 2.D	No	No
3.	U2 Shift Foreman	Section 5 Table 5-1		2 / 3.A 2 / 3.B 2 / 3.C 2 / 3.D	No	No
4.	WCSFM	Section 5 Table 5-1		2 / 4 5 / 11 **5 / 13**	No	**Yes**
5.	U1 Control Operator	Section 5 Table 5-1		2 / 5.A 2 / 5.B	No	No
6.	U2 Control Operator	Section 5 Table 5-1		2 / 6.A 2 / 6.B	No	No
7.	U1 BOPCO	Section 5 Table 5-1		2 / 7.A 2 / 7.B	No	No
8.	U2 BOPCO	Section 5 Table 5-1		2 / 8.A 2 / 8.B	No	No
9.	Work Control Lead	Section 5 Table 5-1		2 / 9.A 2 / 9.B	No	No
10.	U1 Turbine Building Operator	Section 5 Table 5-1		2 / 10	No	No
11.	U1 Aux Building Operator	Section 5 Table 5-1		2 / 11	No	No
12.	U2 Turbine Building Operator	Section 5 Table 5-1		2 / 12	No	No
13.	U2 Aux Building Operator	Section 5 Table 5-1		2 / 13	No	No
14.	Intake Watch Operator	Section 5 Table 5-1		2 / 14	No	No
15.	Shift Phone Talker	Section 5 Table 5-1		5 / 6 5 / 9	No	No
16.	Shift Control Tech #1	Section 5 Table 5-1		N/A	No	No
17.	Shift Control Tech #2	Section 5 Table 5-1		N/A	No	No
18.	Fire Brigade Leader	Section 5 Table 5-1		3 / 1	No	No
19.	FBT Member #1	Section 5 Table 5-1		3 / 2	No	No
20.	FBT Member #2	Section 5 Table 5-1		3 / 3	No	No
21.	FBT Member #3	Section 5 Table 5-1		3 / 4	No	No

Table 1 - On-Shift Positions
Analysis Event #12 - Control Room Evacuation due to Fire

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
22.	FBT Member #4	Section 5 Table 5-1		3 / 5	No	No
23.	C&RP Technician #1	Section 5 Table 5-1	120	4 / 4	No	No
24.	C&RP Technician #2	Section 5 Table 5-1	120	4 / 7 4 / 8	No	No
25.	Watch Commander	Section 5 Table 5-1		5 / 15	No	No

TABLE 2 - Plant Operations & Safe Shutdown
Analysis Event #12 - Control Room Evacuation due to Fire
Minimum Operations Crew (Two Units - One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Manager	A. Plant Oversight in CR	Ops Training Program
			B. U1 / U2 SDP Oversight	Ops Training Program
2.	Unit Supervisor	U1 Shift Foreman	A. U1 CR Evacuation Actions	Ops Training Program
			B. Direct U1 CR panel operations	Ops Training Program
			C. Direct U1 In-plant operations	Ops Training Program
			D. Direct U1 SDP operations	Ops Training Program
3.	Unit Supervisor	U2 Shift Foreman	A. U2 CR Evacuation Actions	Ops Training Program
			B. Direct U2 CR panel operations	Ops Training Program
			C. Direct U2 In-plant operations	Ops Training Program
			D. Direct U2 SDP operations	Ops Training Program
4.	Shift Technical Advisor	WCSFM	Perform STA Tasks from TSC	Ops Training Program
5.	Reactor Operator #1	U1 Control Operator	A. U1 CR panel operations	Ops Training Program
			B. U1 SDP operations	Ops Training Program
6.	Reactor Operator #2	U2 Control Operator	A. U2 CR panel operations	Ops Training Program
			B. U2 SDP operations	Ops Training Program
7.	Other	U1 BOPCO	A. U1 CR panel operations	Ops Training Program
			B. U1 SDP operations	Ops Training Program
8.	Other	U2 BOPCO	A. U2 CR panel operations	Ops Training Program
			B. U2 SDP operations	Ops Training Program
9.	Reactor Operator #3	Work Control Lead	A. Perform U1 / U2 CR panel operations	Ops Training Program
			B. Direct U1 / U2 in-plant operations	Ops Training Program
10.	Auxiliary Operator #1	U1 Turbine Building Operator	In-plant / Local operations	Ops Training Program
11.	Auxiliary Operator #2	U1 Aux Building Operator	Local actions at U1 DSDP	Ops Training Program
12.	Auxiliary Operator #3	U2 Turbine Building Operator	In-plant / Local operations	Ops Training Program
13.	Other	U2 Aux Building Operator	Local actions at U2 DSDP	Ops Training Program
14.	Other	Intake Watch Operator	Deploy with FB as Ops Responder	Ops Training Program
15.	Other	Shift Phone Talker	N/A	N/A
		Other (non-Operations) Personnel		
16.	I&C Technician	Shift Control Tech #1	N/A	N/A
17.	I&C Technician	Shift Control Tech #2	N/A	N/A

TABLE 3 - Firefighting
Analysis Event #12 - Control Room Evacuation due to Fire

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader	Supervise firefighting activities	Fire Training Program
2.	FBT Member #1	Perform firefighting activities	Fire Training Program
3.	FBT Member #2	Perform firefighting activities	Fire Training Program
4.	FBT Member #3	Perform firefighting activities	Fire Training Program
5.	FBT Member #4	Perform firefighting activities	Fire Training Program

TABLE 4 - Radiation Protection and Chemistry
Analysis Event #12 - Control Room Evacuation due to Fire

Line	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)											
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120
1.	In-Plant Survey On-Shift Position: N/A												
2.	On-Site Radiological Survey On-Shift Position: N/A												
3.	Personnel Monitoring On-Shift Position: N/A												
4.	Job Coverage On-Shift Position: **C&RP Tech #1**		X	X	X	X	X	X	X	X	X	X	X
5.	Offsite Radiological Assessment On-Shift Position: N/A												
6.	Other RP - Describe: On-Shift Position: N/A												
7.	Sampling On-Shift Position: **C&RP Tech #2**	X	X	X	X	X	X	X	X	X	X	X	X
8.	Post Rx-Trip Checklist On-Shift Position: **C&RP Tech #2**	X	X	X	X	X	X	X	X	X	X	X	X

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 will be analyzed as part of the time motion study.
- Post trip checklist tasks only prioritize sampling activities for the Chemistry Technician; they do not constitute an overlap in tasks.

TABLE 5 - Emergency Plan Implementation
Analysis Event #12 - Control Room Evacuation due to Fire

Line	Function/Task	On-Shift Position	Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Manager	Ops Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill Program
4.	Approve extension to allowable dose limits	N/A	EP Drill Program
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	EP Drill Program
6.	ERO notification	Shift Phone Talker	Ops Training Program EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	EP Drill Program
8.	Complete State/local notification form	Shift Manager	EP Drill Program
9.	Perform State/local notifications	Shift Phone Talker	Ops Training Program EP Drill Program
10.	Complete NRC event notification form	Shift Manager	EP Drill Program
11.	Activate ERDS	WCSFM	EP Drill Program
12.	Offsite radiological assessment	N/A	Ops Training Program EP Drill Program
13.	Perform NRC notifications	**WCSFM**	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Other: Personnel accountability	Watch Commander	EP Drill Program

Notes:

- Line #3, #8 and #9 includes initial and follow-up State/local notifications.

7.2.12 Analysis Event #13 - Station Blackout (SBO)

Table 1 - On-Shift Positions
Analysis Event #13 - Station Blackout (SBO)

Line	On-shift Position	Emergency Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1.	Shift Manager	Section 5 Table 5-1		2 / 1.A 2 / 1.B 5 / 1 5 / 3 5 / 5 5 / 8 5 / 10	No	No
2.	U1 Shift Foreman	Section 5 Table 5-1		2 / 2	No	No
3.	U2 Shift Foreman	Section 5 Table 5-1		2 / 3	No	No
4.	WCSFM	Section 5 Table 5-1		2 / 4 5 / 11 **5 / 13**	No	**Yes**
5.	U1 Control Operator	Section 5 Table 5-1		2 / 5	No	No
6.	U2 Control Operator	Section 5 Table 5-1		2 / 6	No	No
7.	U1 BOPCO	Section 5 Table 5-1		2 / 7	No	No
8.	U2 BOPCO	Section 5 Table 5-1		2 / 8	No	No
9.	Work Control Lead	Section 5 Table 5-1		2 / 9.A 2 / 9.B	No	No
10.	U1 Turbine Building Operator	Section 5 Table 5-1		2 / 10	No	No
11.	U1 Aux Building Operator	Section 5 Table 5-1		2 / 11	No	No
12.	U2 Turbine Building Operator	Section 5 Table 5-1		2 / 12	No	No
13.	U2 Aux Building Operator	Section 5 Table 5-1		2 / 13	No	No
14.	Intake Watch Operator	Section 5 Table 5-1		2 / 14	No	No
15.	Shift Phone Talker	Section 5 Table 5-1		5 / 6 5 / 9	No	No
16.	Shift Control Tech #1	Section 5 Table 5-1		2 / 15	No	No
17.	Shift Control Tech #2	Section 5 Table 5-1		2 / 16	No	No
18.	Fire Brigade Leader	Section 5 Table 5-1		3 / 1.A 3 /1.B	No	No
19.	FBT Member #1	Section 5 Table 5-1		3 / 2	No	No
20.	FBT Member #2	Section 5 Table 5-1		3 / 3	No	No
21.	FBT Member #3	Section 5 Table 5-1		3 / 4	No	No
22.	FBT Member #4	Section 5 Table 5-1		3 / 5	No	No
23.	C&RP Technician #1	Section 5 Table 5-1	120	4 / 4	No	No
24.	C&RP Technician #2	Section 5 Table 5-1	120	4 / 7 4 / 8	No	No
25.	Watch Commander	Section 5 Table 5-1		N/A	No	No

TABLE 2 - Plant Operations & Safe Shutdown
Analysis Event #13 - Station Blackout (SBO)
Minimum Operations Crew (Two Units - One Control Room)

Line	Generic Title/Role	On-Shift Position	Task Description	Controlling Method
1.	Shift Manager	Shift Manager	A. Plant Oversight	Ops Training Program
			B. Respond to §50.54(x)/(y) requests	Ops Training Program
2.	Unit Supervisor	U1 Shift Foreman	Direct U1 CR panel operations	Ops Training Program
3.	Unit Supervisor	U2 Shift Foreman	Direct U2 CR panel operations	Ops Training Program
4.	Shift Technical Advisor	WCSFM	STA Tasks	Ops Training Program
5.	Reactor Operator #1	U1 Control Operator	U1 CR panel operations	Ops Training Program
6.	Reactor Operator #2	U2 Control Operator	U2 CR panel operations	Ops Training Program
7.	Other	U1 BOPCO	U1 CR panel operations	Ops Training Program
8.	Other	U2 BOPCO	U2 CR panel operations	Ops Training Program
9.	Reactor Operator #3	Work Control Lead	A. Perform U1/U2 CR panel operations	Ops Training Program
			B. Direct U1/U2 in-plant operations	Ops Training Program
10.	Auxiliary Operator #1	U1 Turbine Building Operator	In-plant / Local operations	Ops Training Program
11.	Auxiliary Operator #2	U1 Aux Building Operator	In-plant / Local operations	Ops Training Program
12.	Auxiliary Operator #3	U2 Turbine Building Operator	In-plant / Local operations	Ops Training Program
13.	Other	U2 Aux Building Operator	In-plant / Local operations	Ops Training Program
14.	Other	Intake Watch Operator	In-plant / Local operations	Ops Training Program
15.	Other	Shift Phone Talker	N/A	N/A
Other (non-Operations) Personnel				
16.	I&C Technician	Shift Control Tech #1	Support In-plant operations	Maintenance Training Program
17.	I&C Technician	Shift Control Tech #2	Support In-plant operations	Maintenance Training Program

TABLE 3 - Firefighting
Analysis Event #13 - Station Blackout (SBO)

Line	Performed By	Task Description	Controlling Method
1.	Fire Brigade Leader	A. Direct preparation of Firefighting apparatus	Fire Fighter Training Program
		B. Support Operations	Fire Fighter Training Program
2.	FBT Member #1	Prepare apparatus / Support Ops	Fire Fighter Training Program
3.	FBT Member #2	Prepare apparatus / Support Ops	Fire Fighter Training Program
4.	FBT Member #3	Prepare apparatus / Support Ops	Fire Fighter Training Program
5.	FBT Member #4	Prepare apparatus / Support Ops	Fire Fighter Training Program

TABLE 4 - Radiation Protection and Chemistry
Analysis Event #13 - Station Blackout (SBO)

Line	Position Performing Function/Task	Performance Time Period After Emergency Declaration (minutes)											
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120
1.	In-Plant Survey On-Shift Position: N/A												
2.	On-Site Radiological Survey On-Shift Position: N/A												
3.	Personnel Monitoring On-Shift Position: N/A												
4.	Job Coverage On-Shift Position: **C&RP Tech #1**		X	X	X	X	X	X	X	X	X	X	X
5.	Offsite Radiological Assessment On-Shift Position: N/A												
6.	Other RP - Describe: On-Shift Position: N/A												
7.	Sampling On-Shift Position: **C&RP Tech #2**		X	X	X	X	X	X	X	X	X	X	X
8.	Post Rx-Trip Checklist On-Shift Position: **C&RP Tech #2**		X	X	X	X	X	X	X	X	X	X	X

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 will be analyzed as part of the time motion study.
- Post trip checklist tasks only prioritize sampling activities for the Chemistry Technician; they do not constitute an overlap in tasks.

TABLE 5 - Emergency Plan Implementation
Analysis Event #13 - Station Blackout (SBO)

Line	Function/Task	On-Shift Position	Controlling Method
1.	Declare the Emergency Classification Level (ECL)	Shift Manager	Ops Training Program EP Drill Program
2.	Approve Offsite Protective Action Recommendations	N/A	EP Drill Program
3.	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill Program
4.	Approve extension to allowable dose limits	N/A	EP Drill Program
5.	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	EP Drill Program
6.	ERO notification	Shift Phone Talker	Ops Training Program EP Drill Program
7.	Abbreviated NRC notification for DBT event	N/A	EP Drill Program
8.	Complete State/local notification form	Shift Manager	EP Drill Program
9.	Perform State/local notifications	Shift Phone Talker	Ops Training Program EP Drill Program
10.	Complete NRC event notification form	Shift Manager	EP Drill Program
11.	Activate ERDS	WCSFM	EP Drill Program
12.	Offsite radiological assessment	N/A	Ops Training Program EP Drill Program
13.	Perform NRC notifications	**WCSFM**	EP Drill Program
14.	Perform other site-specific event notifications (e.g., INPO, ANI, etc.)	N/A	N/A
15.	Personnel accountability	N/A	EP Drill Program

Notes:

- Line #3, #8 and #9 includes initial and follow-up State/local notifications.

7.2 NEI 10-05 Appendix D/E On-Shift Staffing Analysis Results Tables

7.2.1 Analysis Event #3 - Steam Generator Tube Rupture (SGTR)

Appendix D: Function / Responsibility (Task) Analysis Position: Work Control Shift Foreman Line #: 1-4			
Function	**Responsibility (Task)**	**Action Step**	**Duration**
1. Plant Operations (status monitoring and EOP actions)	1.1 STA tasks (2/4)	1.1.1 OP1.DC10	Thru Event
2. Dose Assessment	2.1 Offsite radiological assessment (5/12)	2.1.1 EP R-2, Step 7.1 (Release Rate Calculation)	3
		2.1.2 EP R-2, Step 7.2 (Offsite Dose Calculation)	4
		2.1.3 EP R-2, Step 7.3 (Report Results)	1

Appendix E: Work Activities Analysis Position: Work Control Shift Foreman Line #: 1-4		
Time	**Plant/equipment/environmental events and conditions applicable to the functions and tasks**	**Task / Action Step description (start & stop)**
07:49	Actions completed in the Control Room. Refer to section 3.4.2.2 for event and conditions description.	STA tasks: Monitor critical safety function parameters and plant status (07:49 - Thru Event)
08:01	Actions completed in the Control Room. Refer to section 3.4.2.2 for event and conditions description.	Offsite radiological assessment: Perform R-2 dose assessment calculation using PC (08:01 - 08:09)

7.2.2 Analysis Event #10 - Design Basis Threat (DBT)

Appendix D: Function / Responsibility (Task) Analysis Position: U2 BOPCO Line #: 1-8			
Function	**Responsibility (Task)**	**Action Step**	**Duration**
1. Plant Operations (status monitoring and EOP actions)	1.1 Perform U2 CR panel operations (2/8)	1.1.1 CP M-15A	4
3. NRC Event Notification	3.1 Perform NRC notifications (5/13)	3.1.1 EP G-2, Att 2 (Comm #1 Checklist)	108

Appendix E: Work Activities Analysis Position: U2 BOPCO Line #: 1-8		
Time	**Plant/equipment/environmental events and conditions applicable to the functions and tasks**	**Task / Action Step description (start & stop)**
07:48	Actions completed in the Control Room. Refer to section 3.4.2.9 for event and conditions description.	Perform U2 CR panel operations: Site Specific Security Threat (07:48 - 08:02)
08:12	Actions completed in the Control Room. Refer to section 3.4.2.9 for event and conditions description.	Perform NRC notifications: Communicate event information (did not have completed NRC Form 361) (08:12 - 08:18)
08:18	Actions completed in the Control Room. Refer to section 3.4.2.9 for event and conditions description.	Perform NRC notifications: Maintain open line (via headset) (08:18 - thru event)

7.2.3 Analysis Event #12 - Control Room Evacuation due to Fire

Appendix D: Function / Responsibility (Task) Analysis Position: Work Control Shift Foreman Line #: 1-4			
Function	**Responsibility (Task)**	**Action Step**	**Duration**
1. Plant Operations (status monitoring and EOP actions)	1.1 STA tasks (2/4)	1.1.1 OP1.DC10	Thru Event
2. NRC Emergency Telecommunications System	2.1 Activate ERDS (5/11)	2.1.1 EP G-2, Att 2, Step 2.a.	1
3. NRC Event Notification	3.1 Perform NRC notifications (5/13)	3.1.1 EP G-2, Att 6.3 (Comm #1 Checklist)	90
4. NRC Event Notification	4.2 Perform NRC notifications (5/13)	4.2.1 EP G-2, Att 6.3 (Comm #1 Checklist)	Thru Event

Appendix E: Work Activities Analysis Position: Work Control Shift Foreman Line #: 1-4		
Time	**Plant/equipment/environmental events and conditions applicable to the functions and tasks**	**Task / Action Step description (start & stop)**
08:52	Actions completed in the Technical Support Center (TSC). Refer to section 3.4.2.11 for event and conditions description.	STA Tasks / Monitor Critical Safety Function Parameters and Plant Status (08:52 - duration of event)
09:14	Actions completed in the Technical Support Center (TSC). Refer to section 3.4.2.11 for event and conditions description.	Activate ERDS (09:14 - 09:15)
09:15	Actions completed in the Technical Support Center (TSC). Refer to section 3.4.2.11 for event and conditions description.	Perform NRC notifications: Maintain open line (via speaker phone) (09:15 - Thru Event)

8. LIST OF ATTACHMENTS

8.1 Attachments listed below may be found in FileNet.

8.1.1 Attachment 1, "NEI 10-05 Table 5 Controlling Method Correlation"

Pacific Gas and Electric Company

Diablo Canyon Power Plant

Summary of the Analysis of Changes

Emergency Plan Appendix G, Revision 4.01

Protective Action Recommendation (PAR) Strategy Bases

Summary of the Analysis for Changes to Emergency Plan, Appendix G, Revision 4.01

Original Content	Content Change	Change Number / Type of Change Reason for Change
E-Plan Appendix G 2.4.2 DCPP Site Specific Bases a. The SLO County OES Emergency Response Plan and Standard Operating Procedures (SOPs) provide the ORO Emergency Services Director with the authority and ability to determine and direct precautionary actions for the public prior to the declaration of a General Emergency.	E-Plan Appendix G 2.4.2 DCPP Site Specific Bases a. The SLO County/Cities Nuclear Power Plant Emergency Response Plan and Standard Operating Procedures (SOPs) provide the ORO Emergency Services Director with the authority and ability to determine and direct precautionary actions for the public prior to the declaration of a General Emergency.	Editorial change with no change of intent. Annual E-Plan review, SAPN 50621760, found an inaccuracy in the name of San Luis Obispo (SLO) County/Cities Nuclear Emergency Response Plan. This change is being made so appropriate reference is utilized This change does not alter the scope or intent of Appendix G.
E-Plan Appendix G 2.7.2 DCPP Site Specific Bases a. The DCPP plume exposure EPZ was established by the State of California and SLO County OES.	E-Plan Appendix G 2.7.2 DCPP Site Specific Bases a. The DCPP plume exposure EPZ was established by the State of California and SLO County.	Editorial change with no change of intent. Annual E-Plan review, SAPN 50621760, found inaccuracies in referring to County Office of Emergency Services (OES) versus SLO County. County OES is the lead Offsite Response Organization but in the context of these changes, SLO County is the accurate reference. This change is being made so appropriate reference is utilized. This change does not alter the scope or intent of Appendix G.
E-Plan Appendix G 3. 3.BASIS OF THE DCPP PLUME EXPOSURE PATHWAY EMERGENCY PLANNING ZONE (EPZ) The original plume exposure EPZ boundary for DCPP provided in the SLO County OES Nuclear Power Plant Emergency Response Plan (Attachment I.5-3) is shown below. The DCPP EPZ currently defined by the State OES and County OES is consistent with the overall guidance given in NUREG-0654 Supplement	E-Plan Appendix G 3. 3.BASIS OF THE DCPP PLUME EXPOSURE PATHWAY EMERGENCY PLANNING ZONE (EPZ) The original plume exposure EPZ boundary for DCPP provided in the SLO County/Cities Nuclear Power Plant Emergency Response Plan (Attachment I.5-3) is shown below. (Pg. 21) The DCPP EPZ currently defined by the State OES and SLO County is consistent with the overall guidance	Editorial change with no change of intent. Annual E-Plan review, SAPN 50621760, found inaccuracies in referring to County OES versus SLO County. County OES is the lead Offsite Response Organization but in the context of these changes, SLO County is the accurate reference. This change is being made so appropriate reference is utilized. In addition the review found an inaccuracy in the name of SLO County/Cities Nuclear Emergency Response Plan. This change does not alter the scope or intent of Appendix G.

Original Content	Content Change	Change Number / Type of Change Reason for Change
3 for the generic 10 mile EPZ (Basic EPZ) and provides definition and structured planning to the risk areas beyond 10 miles (Extended EPZ).	given in NUREG-0654 Supplement 3 for the generic 10 mile EPZ (Basic EPZ) and provides definition and structured planning to the risk areas beyond 10 miles (Extended EPZ). (pg. 28)	
E-Plan Appendix G 5.1.5 Block D: Impediments to Evacuation Decision Point B .DCPP Site Specific Bases 3. The responsible OROs determined that DCPP PAR procedures do not need to consider adverse weather or other impediments. The County Office of Emergency Services concluded the information from DCPP should provide recommendations based solely upon the plant and radiological conditions. County OES provides the adjustment to recommendations in their Protective Action Decision process based on impediments to evacuation or other unknown factors DCPP is not aware of.	E-Plan Appendix G 5.1.5 Block D: Impediments to Evacuation Decision Point B .DCPP Site Specific Bases 3. The responsible OROs determined that DCPP PAR procedures do not need to consider adverse weather or other impediments. SLO County concluded the information from DCPP should provide recommendations based solely upon the plant and radiological conditions. SLO County provides the adjustment to recommendations in their Protective Action Decision process based on impediments to evacuation or other unknown factors DCPP is not aware of.	Editorial change with no change of intent. Annual E-Plan review, SAPN 50621760, found inaccuracies in referring to County OES versus SLO County. County OES is the lead Offsite Response Organization but in the context of these changes, SLO County is the accurate reference. This change is being made so appropriate reference is utilized. This change does not alter the scope or intent of Appendix G.
E-Plan Appendix G 5.1.6 Block E: With Impediments Minimum Plant Based PAR b. DCPP Site Specific Bases The DCPP site specific PAR flowchart does not contain an equivalent for Block E. DCPP does not recommend the protective action to shelter due to impediments to evacuation in response to the County OES request discussed above in section 5.1.5.b.	E-Plan Appendix G 5.1.6 Block E: With Impediments Minimum Plant Based PAR b. DCPP Site Specific Bases The DCPP site specific PAR flowchart does not contain an equivalent for Block E. DCPP does not recommend the protective action to shelter due to impediments to evacuation in response to SLO County request discussed above in section 5.1.5.b.	Editorial change with no change of intent. Annual E-Plan review, SAPN 50621760, found inaccuracies in referring to County OES versus SLO County. County OES is the lead Offsite Response Organization but in the context of these changes, SLO County is the accurate reference. This change is being made so appropriate reference is utilized. This change does not alter the scope or intent of Appendix G.

Pacific Gas and Electric Company

Diablo Canyon Power Plant

Emergency Plan Appendix G, Revision 4.01

Protective Action Recommendation (PAR) Strategy Bases

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1. INTRODUCTION

In November 2011 the Nuclear Regulatory Commission (NRC) issued Supplement 3 to NUREG-0654/FEMA-REP-1 Rev. 1, Guidance for Protective Action Strategies (here-after referred to as Supplement 3). Supplement 3 was revised using recent technical information to provide an acceptable method to comply with 10 CFR 50 Appendix E Section IV, paragraph 3 in the use of evacuation time estimates (ETEs) in the formulation of Protective Action Recommendations (PARs) for the plume exposure Emergency Planning Zone (EPZ). Supplement 3 also provides guidance for the provisions of §50.47(b)(10) in the development of a range of PARs.

This appendix contains the considerations and bases for the site specific protective action methodology used within the plume exposure EPZ by Diablo Canyon Power Plant (DCPP). It was developed using the guidance in Supplement 3. The Nuclear Energy Institutes (NEI) 12-10, Appendix A – PAR Strategy Development/Evaluation, was used as a standardized means for documenting the development and bases of the protective action methodology described in this appendix.

As specified by the NRC, licensees may develop and implement alternative methods of compliance with the regulatory guidance in Supplement 3 provided sufficient justification is given to the NRC staff that the proposed alternatives demonstrate compliance with applicable NRC regulations. The site specific protective action methodology for DCPP was developed to comply with the applicable NRC regulations and the intent of the Supplement 3 guidance. Rationale for DCPP site specific considerations and alternate methods to the regulatory guidance in Supplement 3 are documented in applicable sections within this appendix.

As stated in Supplement 3, licensees should develop their site specific strategies, decision tools, and procedures in collaboration with the Offsite Response Organizations (ORO) responsible for protective action decision making. For DCPP, the OROs involved in the development of the PAR methodology described in this appendix included San Luis Obispo County and the State of California. During an event, the full protective action methodology is designed such that the ORO decision makers consider utility issued PARs based on technical data related to plant and radiological conditions. The OROs will also use additional offsite factors, such as impediments, in their determination of a final Protective Action Decision (PAD) for the general public.

Section 4 of this appendix contains the site specific protective action methodology flowchart developed in accordance with the guidance of Supplement 3 and modified to support the unique characteristics of the local DCPP EPZ geography, EPZ population, State regulations and ORO commitments. Section 4 also provides a correlation between the Supplement 3 flowchart blocks (as indexed in NEI 12-10) with the site specific PAR development bases for DCPP.

2. NUREG-0654 SUPPLEMENT 3 GUIDANCE AND DCPP SITE SPECIFIC PAR DEVELOPMENT BASES

2.1 Development of DCPP Site Specific PAR Methodology and Decision Logic

2.1.1 Federal Guidance

10 CFR 50 Appendix E Section IV.D.3 requires licensees to have the capability to notify OROs within 15 minutes of the declaration of an emergency. Additionally, §50.47(b)(5) requires licensees to establish notification procedures to State and local response organizations that includes the content of initial and follow-up messages and a means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone. In order to meet the above regulation, NUREG-0654 Part II Section E.3 states:

> The licensee in conjunction with State and local organizations shall establish the contents of the initial emergency messages to be sent from the plant. These measures shall contain information about the class of emergency, whether a release is taking place, potentially affected population and areas, and whether protective measures may be necessary.

In accordance with Supplement 3, licensees are responsible for making timely PARs in accordance with regulations, Federal guidance, and plant conditions. Licensees are also responsible for providing PARs to OROs to allow them to make timely and well-informed PADs.

Supplement 3 (Section 2.1) contains the following guidance for development of the site specific PAR and decision logic:

a. The Emergency Plan implementing procedures (EPIPs) used by the ERO include a site specific PAR development tool.

b. A different tool may be used by the augmented ERO, which may have more resources than the shift organization.

c. The PAR must be made rapidly (within 15 minutes), in accordance with approved procedures.

d. EPIPs are expected to include a site specific PAR development tool that enables rapid use by the ERO without the initial need to confer with the ORO personnel (in no case does the NRC intend that licensees delay the PAR in order to confer with OROs at the time of a General Emergency declaration).

e. EPIPs are developed in partnership with the ORO(s) responsible for protective action decision-making (FEMA and the NRC expect licensees to develop PAR procedures that include ORO input for various decision points).

    1. The approved PAR EPIPs constitute the licensee's commitment to OROs to provide PARs immediately upon the declaration of a General Emergency in a manner mutually agreed upon.

2. In case a responsible ORO chooses not to participate in the development of a site specific PAR development tool consistent with the Supplement 3 guidance, the licensee may use FEMA approved ORO emergency plans and implementing procedures as a basis to develop the necessary decision points.

3. Efforts to achieve licensee and ORO agreement on protective action strategy decision criteria should be documented in a manner that makes the information available for review by the NRC and FEMA.

2.1.2 DCPP Site Specific Bases

The Supplement 3 (Section 2.1) guidance is addressed by the DCPP site specific PAR bases as follows:

a. The DCPP site specific PAR determination methodology and PAR development tool (referred to hereafter as flowchart) are contained in Emergency Plan implementing procedure EP RB-10.

b. The DCPP site specific PAR methodology does not provide different flowcharts for use by the on-shift ERO and the augmented ERO. A single flowchart is used by the on-shift ERO and the augmented ERO.

c. The DCPP site specific PAR methodology and flowchart incorporated in EP RB-10 have been designed to provide the capability to rapidly (within 15 minutes) determine the appropriate PAR.

d. The DCPP site specific PAR methodology and flowchart incorporated in EP RB-10 have been designed to provide the capability to determine the appropriate PAR without the initial need to confer with ORO personnel at the time of General Emergency declaration.

e. The DCPP site specific PAR methodology and flowchart have been developed in partnership with the San Luis Obispo County Office of Emergency Services (SLO OES) and the State of California Office of Emergency Services (Cal OES).

1. DCPP's commitment to provide PARs immediately upon the declaration of a General Emergency in a manner mutually agreed upon is documented in this appendix to the DCPP Emergency Plan. This appendix was reviewed and approved by the responsible OROs. EP RB-10 is the procedure that implements this commitment.

2. The responsible OROs associated with DCPP participated in the development of this site specific PAR determination methodology consistent with Supplement 3 guidance.

3. Licensee and ORO agreement on the DCPP site specific PAR determination methodology is documented on official DCPP correspondence letters, which are available for review by the NRC and FEMA upon request.

2.2 Notification of PARs at a General Emergency

2.2.1 Federal Guidance

Supplement 3 (Section 2.2) contains the following guidance for the notification of PARs at a General Emergency classification level:

a. Licensees are required to be able to provide immediate notification (i.e., within 15 minutes) to OROs upon the declaration of a General Emergency. (Reference: 10 CFR 50 Part 50 Appendix E Section IV.D.3)

b. The General Emergency notification is expected to include a PAR. (Reference: 10 CFR 50.47(b)(5), as detailed in NUREG-0654 Part II Section E.3 and NUREG-0654 Appendix 1)

c. The PAR must be developed in accordance with the approved Emergency Plan.

d. The PAR procedure should be coordinated with OROs.

2.2.2 DCPP Site Specific Bases

The Supplement 3 (Section 2.2) guidance for the development of the notification of PARs at a General Emergency classification level is addressed by this DCPP site specific PAR bases as follows:

a. The site specific method by which DCPP meets this regulatory requirement for 15-minute ORO event notification is contained in Section 4 of the Emergency Plan. EPIP EP G-3 contains the procedure steps that implement the DCPP Emergency Plan requirement for 15-minute ORO notification.

b. The site specific method by which DCPP meets this regulatory requirement is to include a PAR in the notification of a General Emergency as contained in Section 6 of the Emergency Plan. EPIP EP G-3 implements the DCPP Emergency Plan requirement for PAR notification at the General Emergency classification level.

c. The SER approved DCPP Emergency Plan is Revision 3, Change 3 dated 03/31/83. Section 3 of this appendix provides the approved DCPP PAR determination methodology that included the concepts of plant-based and dose-based PARs.

   1. The approved DCPP Emergency Plan dose-based PAR lower exposure threshold for whole body was based on a value derived from the California statute for annual exposure (0.5 rem whole body), which was half the EPA-520 Protective action Guide (PAG) threshold. Since the time of NRC approval of the DCPP Emergency Plan Revision 3, Change 3, the

EPA PAGs have been revised (EPA/520/1-75-001 was superseded by EPA 400-R-92-001 in October 1991). The current exposure threshold used for dose-based PARs is now appropriately taken directly from the EPA 400-R-92-001 PAG. EPA 400-R-92-001 PAG further states in Section 5.4 (Dose Projection), "The PAGs set forth in Chapter 2 are specified in terms of the effective dose equivalent. This dose includes that due to external gamma exposure of the whole body, as well as the committed effective dose equivalent from inhaled radionuclides." This is referring to the total effective dose equivalent (TEDE), and the thyroid committed dose equivalent (Thyroid CDE). DCPP's PAR based on EPA 400-R-92-001 is 1000 mrem TEDE.

2. The approved DCPP Emergency Plan dose-based PAR lower exposure threshold for thyroid was based on the EPA-520 Protective action Guide (PAG) threshold for child thyroid.

   Since the time of NRC approval of the DCPP Emergency Plan Revision 3, Change 3, the EPA PAGs have been revised (EPA/520/1-75-001 was superseded by EPA 400-R-92-001 in October 1991). The current exposure threshold used for dose-based PARs is now appropriately taken directly from the EPA 400-R-92-001. DCPP's PAR based on EPA 400-R-92-001 is 5000 mrem Thyroid CDE.

3. The approved SER DCPP Emergency Plan plant-based PARs were based on a range of protective actions within the Low Population Zone (LPZ) predicated on evaluation of engineered safety features and other plant conditions tied to the NUREG-0654 emergency action level (EAL) scheme. Protective action zones (PAZs) 1 and 2 make up the LPZ.

   Since the time of NRC approval of the DCPP Emergency Plan Revision 3, Change 3, the EAL scheme was revised, submitted and approved by the NRC. Plant-based PARs developed in this site specific PAR bases are consistent with the fission product barrier and plant condition terminology provided in the NRC approved DCPP NEI 99-01 EAL scheme.

The DCPP site specific PAR methodology is fundamentally based upon the guidance of Supplement 3 and the methods of the approved Emergency Plan with regard to plant and dose-based evaluation. Plant and dose-based thresholds have been updated to current PAG value units and EAL fission product barrier terminology.

d. Refer to Section 2.1.2.e for information regarding PAR coordination with the OROs.

2.3 Termination of Protective Actions

2.3.1 Federal Guidance

Supplement 3 (Section 2.3) contains the following guidance for the termination of protective actions:

a. Licensees are responsible for declaring a General Emergency and issuing a PAR.

b. The licensee is responsible for downgrading or terminating the General Emergency; however, this action should not be taken without wide consultation. Downgrading an emergency may take time to ensure plant conditions will remain safe and to confer with authorities.

c. OROs are responsible for terminating offsite protective actions. The licensee provides input on plant status to ORO decision makers.

2.3.2 DCPP Site Specific Bases

The Supplement 3 (Section 2.3) guidance for the termination of protective actions is addressed by the DCPP site specific PAR bases as follows:

a. Refer to Section 2.2.2.b for information regarding PAR issuance at the General Emergency classification level.

b. Event downgrade or termination is not included in the DCPP site specific PAR methodology. Emergency Plan Sections 9 and EPIP EP OR-3, Emergency Recovery, require the Emergency Director to obtain concurrence from County, State and NRC authorities prior to terminating from an event at an Alert or higher emergency classification level. DCPP may terminate from the Unusual Event classification level without ORO consultation.

c. Supplement 3 guidance does not require the licensee to downgrade PARs. It specifically states that the, "OROs are responsible for termination of offsite protective actions." The DCPP site specific PAR methodology does not include the rescission (or termination) of a PAR once it has been given to the County. This applies both during the declared emergency and the recovery phase of the event.

2.4 Precautionary Protective Actions at the Site Area Emergency Classification Level

2.4.1 Federal Guidance

Supplement 3 (Section 2.4) contains the following guidance for precautionary protective actions at Site Area Emergency classification level:

a. In some cases, a licensee or ORO may have committed to site specific precautionary actions during the Site Area Emergency, such as the evacuation of beaches or other recreational areas. Licensees should not

interpret Supplement 3 guidance as countermanding any such commitments in licensing-basis documents or in State, Tribal, and local offsite emergency plans and implementing procedures.

2.4.2 DCPP Site Specific Bases

The Supplement 3 (Section 2.4) guidance for precautionary actions at the Site Area Emergency classification level is addressed by the DCPP site specific PAR bases as follows:

a. The SLO County/Cities Nuclear Power Plant Emergency Response Plan and Standard Operating Procedures (SOPs) provide the ORO Emergency Services Director with the authority and ability to determine and direct precautionary actions for the public prior to the declaration of a General Emergency.

The SER approved Emergency Plan and current Emergency Plan discuss that consideration of precautionary actions may be appropriate for an Alert or Site Area Emergency classification. Specific actions are not provided for either of those classifications.

Actions considered for an Alert is as follows in the SER approved Emergency Plan and the current Emergency Plan: "Releases at this level would ordinarily not require near-term protective measures, (such as evacuation) beyond the site boundary, although some action within the LPZ (PAZs 1 and 2) might be taken as a precautionary measure if a release near the Technical Specification maximum was actually expected and the potential existed for a release of extended duration or for escalation to a more severe classification."

Actions considered for a Site Area Emergency is as follows in the SER approved Emergency Plan and the current Emergency Plan: "Events in which projected dose assessment results of ≥100 mRem TEDE or ≥500 mRem Thyroid CDE at or beyond the site boundary are indicated, for actual or expected releases, would lead to a SITE AREA EMERGENCY classification. Such a release would almost certainly require that protective measures be taken in the vicinity of the site and may require some precautionary measures to be taken in the downwind LPZ sectors (PAZs 1 and 2). The appropriate near-term response for such an occurrence is to make an assessment of conditions as they actually exist and take action based on this assessment."

Actions considered for a General Emergency is as follows in the SER approved Emergency Plan and the current Emergency Plan: "Lack of available shelter for many of the persons in this area (agricultural workers, visitors to Montana de Oro State Park) makes precautionary evacuation of the LPZ the appropriate response following a declaration of GENERAL EMERGENCY. For areas beyond the LPZ, directing transient to return to their homes, sheltering of permanent residents, and deployment of law enforcement agencies in preparation for possible evacuation are the appropriate responses while actual conditions are assessed."

Discussion with SLO County and the State of California conducted during the development of the DCPP site specific PAR methodology contained within this appendix, determined that PARs that were issued by DCPP prior to the declaration of a General Emergency were not warranted or desired. The OROs expect DCPP to issue PARs based on a technical evaluation of plant and dose-based considerations that meet the definition of the General Emergency classification level.

2.5 Wind Persistence Issues

2.5.1 Federal Guidance

Supplement 3 (Section 2.5) contains the following guidance for wind persistence issues:

a. It may be appropriate for licensees to perform a wind persistence analysis (the updated final safety analysis may be used) to determine appropriate modifications to a protective action strategy. The modifications may be appropriate for areas where the typical site meteorology includes wind direction shifts on a timescale that is shorter than the ETE for downwind sectors in the 2 to 5-mile radius. This could result in OROs expanding protective actions while an evacuation is in progress as a result of changes in wind direction. Multiple changes in protective action direction may undermine credibility and increase shadow evacuations and thereby increase evacuation times. In such cases, it may be appropriate to include more than three downwind sectors in an expanded evacuation.

2.5.2 DCPP Site Specific Bases

The Supplement 3 (Section 2.5) guidance for wind persistence issues is addressed by the DCPP site specific PAR bases as follows:

a. A wind persistence study was performed for the DCPP EPZ and is documented in Section 2.2.2 of the Cal OES report titled "Emergency Planning Zones for Serious Nuclear Power Plant Accidents." Applicable wind persistence information includes the following:

> The data suggest wind directions approximately parallel to the shoreline have the highest probability for extended continuous periods in which the wind blows in the same direction. For example, there is a 15% probability if the wind blows from the NW, it will continue to blow in that direction (toward the SE) for eight hours or more. In fact, there is a 1% probability when the wind blows from the NW it will blow continuously in that direction for 25 hours or more. On about four days out of the year the wind can be expected to blow steadily toward the SE for 25 continuous hours or more.
>
> Only the ESE sector approaches the NW sector with respect to the probability of continuous winds for 25 hours or more. However, the

probability of the wind blowing constantly from the ESE (toward the WNW) is lower initially than the probability of the wind blowing for one hour or more from the NW. Moreover, the probability of extended periods of continuous wind from the ESE falls off more rapidly than the corresponding extended periods of continuous winds from the NW. It can be seen that the probability of the wind blowing from the ESE for more than eight hours is less than 1%. It should also be observed that when the wind blows toward the WNW, it is simply blowing out to sea.

In most sectors, there is less than a 1% chance that the wind will blow continuously for more than three hours in the indicated direction. Thus, with the exception of the NW sector, the probability of the wind blowing constantly in any given direction in the vicinity of Diablo Canyon for extensive periods (of the order of one day) is very small.

Refer to Section 3 for information regarding the origin and licensing basis of the DCPP site specific EPZ boundary and the Protective Action Zones (PAZ) within the EPZ.

Although a wind persistence study for the DCPP EPZ was done, this is not applicable for use in PAR methodology described in this appendix. DCPP does not use map sectors to make PARs, but uses PAZs. PAZs 1 and 2 encompass the areas 0 to 6 miles surrounding DCPP. PAZs 1 and 2 represent the land area within the generic 5-mile EPZ area. PAZ 1 is equivalent to the land area within the 2-mile generic EPZ and PAZ 2 is equivalent to the land area within the 2 to 5-mile generic EPZ (approximately 6 miles for DCPP).

ETE values are taken from KLD TR-498 Table 7.1, Time to Clear the Indicated Area of 90 Percent of the Affected Population. In accordance with Supplement 3, ETE values for special events and roadway impact are not included. The longest ETE for PAZs 1 and 2 (90% population scenario 10: Winter, All Week, Evening, Good Weather) is 1 hour 20 minutes. Using a maximum wind persistence assumption of 3 hours and the longest ETE for the combination of PAZ 1 and PAZ 2 of 1 hour 20 minutes, a modification to the protective action strategy to include additional downwind PAZs in an expanded evacuation would not be warranted for DCPP.

PAZ 1 permanent and transient populations are 0. PAZ 2 permanent population is 168 and the transient population is 333 (ETE Report Tables 3.1 and 3.4 – reference 6.7). Based on the remote geography and limited population of PAZs 1 and 2, these areas are always recommended to evacuate or shelter simultaneously. Even if the ETE were to exceed the maximum wind persistence assumption of 3 hours the DCPP site specific PAZ equivalent to the 2-5 mile area (PAZ 2) is not divided into multiple geographic areas, therefore wind persistence is not applicable in the 2-5 mile area for DCPP.

2.6 Expansion of Initial Protective Action Recommendations

2.6.1 Federal Guidance

Supplement 3 (Section 2.6) contains the following guidance for expansion of initial PARs:

a. The emergency action level scheme used at nuclear power plants is designed to be anticipatory. A General Emergency is expected to be declared, based on plant conditions, before a radiological release could potentially begin.

b. Licensees will perform radiological assessments throughout the emergency and will recommend to OROs the need to take or expand protective actions if dose projections show that protective action criteria could be exceeded.

c. Dose projections based on effluent monitor data and verified by field monitoring data would provide the strongest basis for a PAR; however, effluent monitor data alone can be sufficient if other data (e.g., plant conditions, area or process monitors) verify the occurrence of a radiological release. Although verification of dose projection data is desirable, the licensee should not delay PARs unduly while waiting for field monitoring data or sample analysis.

d. A more difficult case for dose assessment is a scenario with a large radiological source term in containment and a leak rate at or near the design basis. This is clearly a General Emergency and an initial PAR is expected. As subsequent PARs are implemented, the issue of expansion of protective actions beyond the 5-mile downwind sectors can arise. When expansion of a PAR is considered under this scenario, the condition of containment must be assessed.

e. Changes in wind direction may indicate that if a release begins, it would affect different downwind sectors. If the licensee believes containment may fail, it should pursue the expansion of PARs.

f. If a radiological assessment shows an ongoing release or containment source term is not sufficient to cause exposures in excess of EPA PAGs, licensees should not expand PARs based only on changes in wind direction.

2.6.2 DCPP Site Specific Bases

The Supplement 3 (Section 2.6) guidance for expansion of initial PARs is addressed by the DCPP site specific PAR bases as follows:

a. Event declaration and PAR determination are separate planning standards and processes at DCPP. The approved DCPP EAL scheme is based on the industry standard template of NEI 99-01 and contains both plant condition and radiological release EAL thresholds at the General Emergency classification level, which can be met concurrently.

b. The DCPP site specific PAR methodology includes consideration of radiological release dose assessment results based upon exceeding EPA-400 PAG threshold values. The DCPP dose assessment process provides for continuous monitoring of a radiological release throughout an event. The need to make or expand a PAR for a particular PAZ based on dose assessment or field results indicating a PAG could be exceeded is part of the DCPP site specific PAR methodology.

c. The DCPP site specific PAR methodology uses dose projections based upon effluent monitor data that is verified by field monitoring data, but does not delay PAR determination while waiting for field monitoring data or sample results. However, when field monitoring data or sample analysis results are available, dose assessment personnel compare the available information to the dose projections to check for alignment.

d. The DCPP site specific PAR methodology has a continuation loop that progresses through both plant and dose-based evaluations when determining whether expansion of PARs is necessary (additional PARs for the PAZs from 6 miles out to the EPZ boundary). The plant-based evaluation includes thresholds for condition of containment.

e. The DCPP site specific PAR methodology includes plant-based thresholds for condition of containment that when met, indicate a loss or potential loss of containment integrity. Changes in wind direction are evaluated in conjunction with condition of containment thresholds such that expansion of PARs based upon an imminent or actual containment failure would be based on known plant conditions.

f. The DCPP site specific PAR methodology does not include an expansion of PARs based only on changes in wind direction. Only when plant condition or dose assessment thresholds indicate the potential for exceeding an EPA PAG in a new PAZ is an expansion of PARs considered.

NRC EP FAQ 2013-004, Question 6 addresses complexities that may arise for decision-makers regarding wind direction and potential containment failure; shelter-in –place and staged evacuation considerations. Most of these considerations are not applicable to the DCPP site specific PAR methodology. The process for expanding PARs conforms to the guidance in the EP FAQ in that the DCPP protective action strategy minimizes demands upon on-shift decision-makers and eliminates unnecessary PARs.

NRC EP FAQ 2013-004, Question 7 states if there is a wind shift when the control room has command and control, then plant conditions can be used as a basis for expanding the PAR to a new sector. The DCPP PAR methodology maintains the initial PAR of evacuation of PAZ 1 and PAZ 2 (to 6-miles in radius), evacuation of the ocean for a 5 nautical mile radius, administration of KI per the County plan, and monitor and prepare for all other PAZs. This recommendation will remain in effect until results from dose assessment or field monitoring indicate a new PAZ, or areas over the ocean, exceeding EPA PAGs.

NRC EP FAQ 2013-004, Question 8 addresses diurnal (variation within the course of a day) wind shifts or passage of storm fronts resulting in extreme wind shifts. The NRC response to Question 8 states, "... this consideration need not be included in the control room protective action strategy because the combination of the General Emergency and the extreme weather is unlikely." The DCPP PAR methodology maintains dose assessment capability in the control room and augmented emergency response organization throughout the course of the emergency to include current weather conditions and wind direction. The DCPP PAR methodology includes consideration for PAR expansion based upon the dose assessment and field monitoring results.

2.7 Strategy for Rapidly Progressing Scenarios

2.7.1 Federal Guidance

Supplement 3 (Section 2.7) contains the following guidance for rapidly progressing scenarios:

a. The emergency preparedness planning basis includes rapidly progressing scenarios that have a significant radioactive release in about 1 hour.

   1. For sites at which the 90-percent ETE for the general public of the full EPZ is less than approximately 3 hours, results showed that, for the rapidly progressing scenario, evacuation is the most appropriate protective action.

   2. For sites where this is not the case, the protective actions listed in the table below are most beneficial, unless impediments exist to their implementation.

   3. Where evacuation cannot be accomplished in the time specified, a recommendation for shelter in place (SIP) until the plume has passed is more beneficial.

Zone	Protective Action
0 to 2 mile	If the 90-percent ETE for this area is 2 hours or less, immediately evacuate.
2 to 5 mile	If the 90-percent ETE for this area is 3 hours or less, immediately evacuate.
5 to 10 mile	SIP, then evacuate when it is safe to do so.

b. The evacuation tail generally represents the last 10 percent of the population and describes the population that takes a disproportionately longer time to evacuate than the remaining public. Planning is in place to evacuate 100 percent of the public; however, PARs and decisions should be based on the 90-percent ETE values.

c. Licensees may perform a site specific analysis to determine whether other criteria are more appropriate.

d. Extreme weather conditions, such as inversion, significant precipitation, or no wind, can change the efficacy of SIP and make evacuation the preferred protective action.

2.7.2 DCPP Site Specific Bases

The Supplement 3 (Section 2.7) guidance for rapidly progressing scenarios is addressed by the DCPP site specific PAR bases as follows:

Refer to Section 3 for information regarding the origin and licensing basis of the DCPP site specific EPZ boundary and the PAZs within the EPZ.

a. The DCPP plume exposure EPZ was established by the State of California and SLO County. The DCPP EPZ was originally divided into two sub-zones, the Basic EPZ (from 0 to approximately 10 miles) and the Extended EPZ (from approximately 10 to 22 miles). For the DCPP site specific EPZ:
   - The 0 – 2 mile land area is covered entirely by PAZ 1.
   - The 2 – 6 mile land area is covered entirely by PAZ 2.
   - The 6 – 10 mile land area is divided into three PAZs (3, 4 and 5).
   - The 10 – 22 mile land area is divided into seven PAZs (6, 7, 8, 9, 10, 11 and 12).
   - The ocean area associated with the DCPP PAR methodology is divided into three regions: 5 nautical miles radius, 10 nautical mile radius, and beyond 10 nautical miles. The distance appropriate to the PAR is based upon wind direction or projected offsite dose projections, in the case of areas beyond the EPZ.

   ETE values are taken from KLD TR-498 Table 7.1, Time to Clear the Indicated Area of 90 Percent of the Affected Population. In accordance with Supplement 3, ETE values for special events and roadway impact are not included.

   1. The longest 90% ETE for evacuation of the Basic EPZ (PAZs 1 – 5), which is the area out to approximately 10 miles, is 3 hours 05 minutes.

      The longest 90% ETE for evacuation of the entire EPZ (PAZs 1 – 12), which is the area out to approximately 22 miles, is 9 hours 10 minutes.

      The Basic EPZ (PAZs 1-5) is very close to the 3-hour guidance with a worst case time of 3 hours 05 minutes. Nine out of the ten 90% ETE scenario times shown in the tables below for the Basic EPZ are 3 hours or less. Therefore, evacuation is selected as the more appropriate protective action for a rapidly progressing scenario.

      PARs for areas beyond 10 miles are based upon dose assessment or field survey results.

2. The DCPP site specific ETEs fit closest to this section of the Supplement 3 guidance for rapidly progressing scenarios.

   0 to 2 mile Zone

   PAZ 1 is equivalent to the land area within the 2 mile generic EPZ. The 90% ETE for PAZ 1 is 1 hour for all scenarios.

   Since the 90% ETE for this area is less than 2 hours the appropriate PAR is to evacuate PAZ 1.

   2 to 5 mile Zone

   PAZ 2 is equivalent to the land area within the 2 to 5 mile generic EPZ. However, PAZs 1 and 2 are always recommended to evacuate simultaneously (Refer to Section 2.5.2.a).

   The longest 90% ETE for PAZs 1 and 2 is 1 hour 20 minutes.

   Since the 90% ETE for PAZs 1 and 2 is less than 3 hours the appropriate PAR is to evacuate PAZs 1 and 2.

   5 to 10 mile Zone

   Supplement 3 provides generic guidance to initially SIP the 5 to 10 mile areas and then evacuate them when it is safe to do so. Staged evacuations of the DCPP PAZ combinations in the 6 mile radius and 10 miles downwind take longer than a simultaneous evacuation of those PAZs for the 90% ETE population in each of the applicable scenarios. The differences are relatively short being within about one half hour.

   Thus, the benefits of the Supplement 3 guidance to SIP the downwind PAZs in the 6 to 10 mile area prior to a staged evacuation are not greater than the plant uncertainties for such an event, the complication of implementing the action for the public or the potential dose avoided. The appropriate DCPP site specific PAR in this case is to evacuate the downwind PAZs in the 6 to 10 mile area. This is supported by the 90% ETE with a "worst case" evacuation time of 3 hours and 10 minutes.

Scenario / Region	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
R05	2:55	3:10	2:50	3:05	2:45	2:55	3:10	2:45	3:05	2:45
R22	3:20	3:55	3:20	3:35	3:20	3:20	3:35	3:20	3:35	3:20
Difference	0:25	0:45	0:30	0:30	0:35	0:25	0:25	0:35	0:30	0:35
									Average	**0:31**
R05 represents the simultaneous evacuation of PAZ 1, 2, 5 R22 represents the staged evacuation of PAZ 1 & 2 first followed by 5										

Scenario / Region	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
R06	2:55	3:15	2:55	3:10	2:50	2:55	3:10	2:50	3:05	2:50
R23	3:20	3:35	3:25	3:40	3:25	3:20	3:40	3:20	3:35	3:20
Difference	0:25	0:20	0:30	0:30	0:35	0:25	0:30	0:30	0:30	0:30
									Average	**0:28**
R06 represents the simultaneous evacuation of PAZ 1, 2, 4, 5 R23 represents the staged evacuation of PAZ 1 & 2 first followed by 4 & 5										

Scenario / Region	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
R03	2:45	3:00	2:45	3:00	2:50	2:50	3:05	2:45	2:55	2:45
R24	3:15	3:30	3:15	3:30	3:20	3:20	3:30	3:15	3:30	3:20
Difference	0:30	0:30	0:30	0:30	0:30	0:30	0:25	0:30	0:35	0:35
									Average	**0:30**
R03 represents the simultaneous evacuation of PAZ 1, 2, 3, 4, 5 R24 represents the staged evacuation of PAZ 1 & 2 first followed by 3, 4 & 5										

Scenario / Region	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
R07	1:35	1:45	1:25	1:40	1:35	1:35	1:40	1:25	1:40	1:40
R25	1:50	1:55	1:50	1:55	2:15	1:55	1:55	1:55	1:55	2:15
Difference	0:15	0:10	0:25	0:15	0:40	0:20	0:15	0:30	0:15	0:35
									Average	**0:22**
R07 represents the simultaneous evacuation of PAZ 1, 2, 3, 4 R25 represents the staged evacuation of PAZ 1 & 2 first followed by 3 & 4										

Scenario / Region	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
R08	1:40	1:45	1:25	1:35	1:30	1:35	1:40	1:25	1:30	1:35
R26	1:45	1:55	1:50	1:50	2:10	1:45	1:45	1:50	1:50	2:10
Difference	0:05	0:10	0:25	0:15	0:40	0:10	0:05	0:25	0:20	0:35
									Average	**0:19**
R08 represents the simultaneous evacuation of PAZ 1, 2, 3 R26 represents the staged evacuation of PAZ 1 & 2 first followed by 3										

Ocean

Due to the potential radiological consequences of the rapidly progressing scenario, the uncertainty for further degradation of plant conditions and the urgency of the incident, the evacuation of watercraft and people from the ocean is recommended to the distance of 5 or 10 nautical miles depending on wind direction.

Impediment Considerations during a Rapidly Progressing Scenario

Due to the potential radiological consequences of the rapidly progressing scenario, the uncertainty for further degradation of plant conditions and the urgency of the incident, the DCPP site specific PAR methodology

does not take impediments into consideration for this type of event. The OROs may independently consider the impact of impediments during the PAD process.

3. Since the DCPP site specific evacuation can be accomplished in the time specified, a recommendation to SIP the affected areas within 0 to 10 miles until the plume has passed is not determined to be more beneficial.

b. The ETEs used in the development of the DCPP site specific PAR methodology are based on the 90% population values, excluding the infrequent special event and US-101 road closure scenarios.

c. Refer to Section 2.7.2.a.2 above regarding the site specific analysis used as the basis and justification for not initially recommending SIP followed by a staged evacuation of the DCPP PAZs in the 5 to 10 mile area during a rapidly progressing scenario.

d. Since SIP of the PAZs in the 0 to 10 mile area is not part of the DCPP site specific PAR methodology, consideration of extreme weather conditions that would warrant evacuation over SIP are not necessary. The County of SLO and DCPP have made an agreement that the County of SLO will be responsible for making determinations concerning impediments to evacuation. Based on this agreement, DCPP doesn't consider impediments prior to determining a PAR.

NRC EP FAQ 2013-004, Question 1 and NRC final response regarding the definition of "rapidly progressing severe accident" does not affect DCPP bases addressing Supplement 3, Section 2.7. The DCPP protective action strategy bases are aligned with the NRC final response to Question 1.

3. BASIS OF THE DCPP PLUME EXPOSURE PATHWAY EMERGENCY PLANNING ZONE (EPZ)

California State legislation, Section 8610.5 of the Government Code (SB-1183), required a study be conducted by the State Office of Emergency Services (OES) to analyze the consequences of hypothetical serious nuclear power plant accidents.

The study was conducted and subsequent report issued in accordance with the State legislative regulation and contained recommended site specific EPZ boundaries for the nuclear power stations in California. The plume exposure EPZ was defined by two major sub-zones in Section 4.1.3 of the report as follows:

> The direct or plume exposure zone has been divided into two sub-zones with somewhat different planning and emergency preparedness requirements -- the Basic EPZ and the Extended EPZ. Within the Basic EPZ, a circular zone of approximately 10 mile radius, the principal objective would be to avoid public exposure to very large radiation doses and planning for a full range of protective actions, including the capability for total evacuation, should time permit, is necessary. As will be shown

> subsequently, a radius of about 10 miles will provide protection against early deaths for all but the most extreme of the major containment failure accidents. Moreover, protective measures taken within the approximately ten mile Basic EPZ would provide protection against any significant exposure to the public within the zone for the most probable serious nuclear accidents. For accidents of this classification, a 99% (or greater) probability exists that exposures will not exceed 0.5 rem beyond the 10 mile zone perimeter. Thus essentially no protection would be needed beyond the Basic EPZ for accidents in the Melt-through classification. For such accidents, evacuation and/or sheltering and relocation would be used to reduce population risks to nominal levels within this zone.
>
> ..... because the consequences of the more severe accidents (PWR 1-5) could be so great, OES believes it is prudent to develop specific plans beyond the Basic EPZ. Directions with higher than average wind probabilities must be given special consideration. Therefore, Extended EPZs have been established in these directions for protection of the public downwind from the plants. Within the Extended EPZs plans will be developed for a range of protective actions to include evacuation and/or shelter followed by relocation of the population from any contaminated areas after an accident. As part of the planning process, State and local officials will work together to determine the most appropriate protective actions and warning systems for each area and segment of the population within the Extended EPZ.
>
> The California EPZ characteristics are similar in principal to those of the NRC. However, the current NRC requirements call for specific planning efforts only within a zone approximately equivalent to the Basic EPZ California is now requiring. Beyond this distance, the NRC has suggested that for more serious accidents protective actions should be implemented on an ad hoc basis in accordance with the real time requirements of a given accident. The principal difference between the California and the NRC requirements is that the OES believes that specific advance planning should also be done to take into account the possible effects of the more serious accidents -- effects which could extend beyond the Basic EPZ. The more serious accidents make up about 10% to 20% of all core-melt accidents. The OES feels that this relative probability is too large to be dealt with in an entirely impromptu fashion. Thus, the OES requires plans be prepared in advance for responding to such accidents, though the criteria for response are not identical to those of the less severe, but more probable accidents.

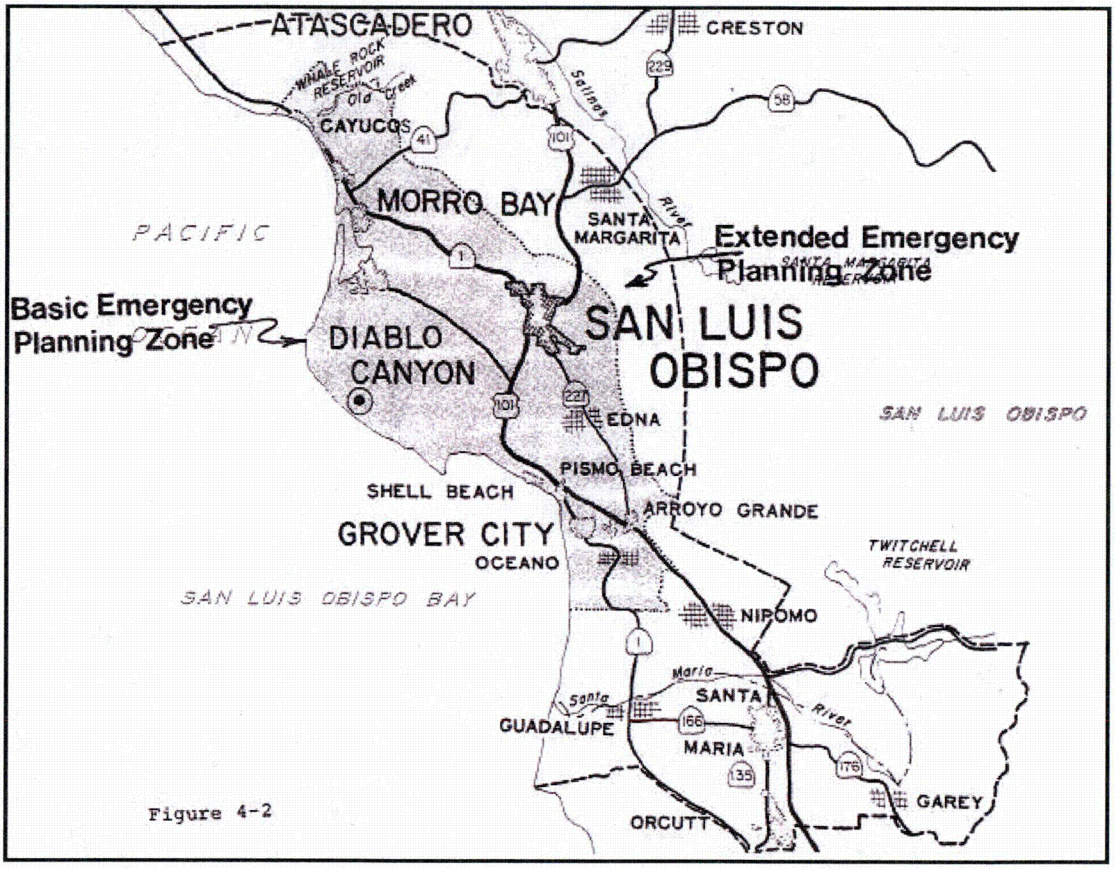
The report developed the site specific EPZ boundaries in consultation with the State Department of Health Services and the counties in the vicinities of the reactors which were shown to be affected by the hypothesized accidents. From Section 4.2.1:

> To simplify control of areas within the zones and notification of the public via the Emergency Broadcast System should it ever become necessary, where possible, specific landmarks, e.g., roads, rivers and lakes, city limits and County boundaries, were used as zone boundaries. Based on the technical dose-distance, dose contour and meteorological data, specific recommendations from the counties determined which landmarks were used to bound the EPZs. Recognizing the uncertainties in the technical data and year-to-year and seasonal variations in meteorology, a reasonable amount of leeway was allowed in the boundary choices.

For PWR's, the Basic EPZ has a minimum radius of 10 miles and specific boundaries as recommended by the affected counties. Extended EPZ's have minimum radii of approximately 18 to 20 miles -- a distance corresponding to the 25 rem downwind distance for a penetration leakage accident at the reactor sites.

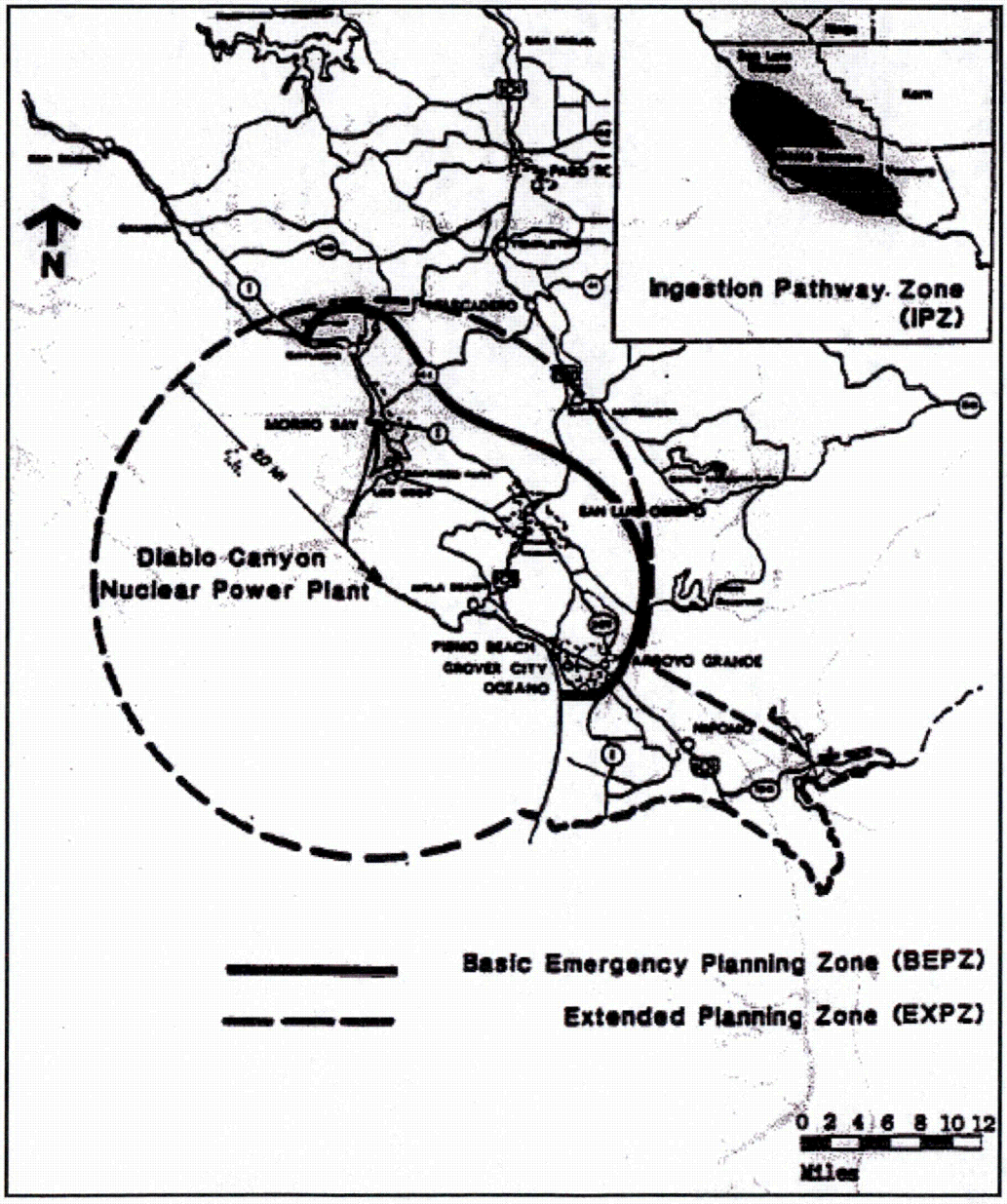
Consideration was given to wind directional probabilities, wind persistence, and to "worst-case trajectories" encompassing those wind directions and meteorological conditions that would carry a radioactive cloud over large population centers and result in high radiation doses if a major release occurred.

The original plume exposure EPZ boundary for DCPP provided in the Cal OES report (Figure 4-2) and State Emergency Response Plan is shown below.



Original Cal OES Plume Exposure EPZ for DCPP

California is a home rule State where the final EPZ boundary determination resides at the local agency level, which for DCPP is the SLO County OES. The original plume exposure EPZ boundary for DCPP provided in the SLO County/Cities Nuclear Power Plant Emergency Response Plan (Attachment I.5-3) is shown below.



Original SLO OES Plume Exposure EPZ for DCPP

The current State of California Nuclear Power Plant Emergency Response Plan (dated 2008) provides the following basis for the DCPP EPZ and PAZ boundaries:

Emergency Planning Zones (EPZs)

The federal Nuclear Regulatory Commission (NRC) has established requirements for evacuation planning for a 10 mile radius around each nuclear power plant, referred to as the Emergency Planning Zone (EPZ). The NRC also required planning to approximately 50 miles from the plants to prevent ingestion of contaminated food in the event of a release from a nuclear power plant, referred to as the Ingestion Pathway Zone (IPZ). The State has expanded the EPZ beyond the federal requirements for each nuclear power plant in California.

In addition to the NRC-required zones, the State has established a Public Education Zone (PEZ), which extends from the EPZ boundary to a range of 20 to 35 miles around each plant. The PEZ ensures that residents outside the EPZ are advised of planned emergency activities within the EPZ.

These zones are discussed in the Science Applications, Inc., June 23, 1980, report, "A Study of Postulated Accidents at California Nuclear Power Plants" and the State of California report, November 1980, "Emergency Planning Zones for Serious Nuclear Power Plant Accidents."

Diablo Canyon Power Plant (DCPP) EPZ

The State expanded the DCPP EPZ so that it is much larger than the EPZ defined by the federal government. The expanded EPZ defined by the State is divided into twelve smaller Protective Action Zones (PAZs). PAZs 1 through 5 correspond to the ten-mile area where FEMA has primary oversight responsibilities for emergency planning. The State has primary oversight responsibilities for PAZs 6 through 12, outside of the ten-mile area. Residents in PAZs 1 through 12 may be asked to take protective actions, such as take shelter in their homes or evacuate if there is a major emergency.

Surrounding the twelve PAZs are three zones known as Public Education Zones (PEZs). Resident in these areas are not likely to be affected by an emergency at the power plant. However, since residents in the PEZs (zones 13 through 15) are next to the EPZ, general information about DCPP is provided to those residents.

The Emergency Planning Zone at DCPP (Figure 1.4.2) includes the cities of Morro Bay, San Luis Obispo; the "five cities area" (Grover Beach, Pismo Beach, Shell Beach, Oceano, and Arroyo Grande); and the communities of Baywood / Los Osos. The PEZ (Figure 1.4.3) extends approximately 35 miles southeast (the predominant wind direction from the plant). The Ingestion Pathway Zone around the Diablo Canyon Power Plant is approximately 50 miles and includes portions of San Luis Obispo, Santa Barbara and Monterey Counties, as shown in Figure 1.4.4.

The current plume exposure EPZ boundary for DCPP provided in the State of California Nuclear Power Plant Emergency Response Plan (Figure 1.4.2) is shown as Figure 2-3 below.

Current Cal OES Plume Exposure EPZ for DCPP

Section 3.1 of the current SLO County/Cities Nuclear Power Plant Emergency Response Plan (2014) provides the following basis for the DCPP EPZ and PAZ boundaries:

> Emergency Planning Zones
>
> Technical experts and government agencies have worked to develop nuclear power plant emergency response plans for all of the nuclear power plants in the United States. As part of this planning, the areas around the plants are divided into planning zones. The Nuclear Regulatory Commission and Environmental Protection Agency have determined that a federally defined Emergency Planning Zone (EPZ) for the plume exposure pathway should be an area that is roughly a 10 mile circle around the nuclear power plant and an approximate 50 mile radius limit for the Ingestion Pathway Zone (IPZ). The Federal Emergency Management Agency (FEMA) has oversight responsibilities for San Luis Obispo County's emergency plans within this approximate 10 mile area. FEMA also has oversight responsibilities for the California Department of Public Health emergency plans within the 50 mile IPZ radius.
>
> The State of California adopted San Luis Obispo County's recommendations to expand the Diablo Canyon Emergency Planning Zone so that it is much larger than the 10 mile radius EPZ defined by the federal government. The State of California's Office of Emergency Services has oversight responsibilities for the expanded EPZ beyond the 10 mile area.
>
> Federal Emergency Planning Zones
>
> NRC/FEMA have established a 10 mile radius limit for the plume exposure pathway EPZ and an approximate 50 mile radius limit for the IPZ. Figure 3.1.1 illustrates the NRC/FEMA 10 mile EPZ boundary and Figure 3-1.2 illustrates the defined 50 mile IPZ boundary in 22.5 –degree sectors.
>
> State Emergency Planning Zones
>
> Based upon an extensive study [A Study of Postulated Accidents of California Nuclear Power Plants, Prepared for the State of California, OES by Science Applications, Inc., July, 1980], the State designated two zones associated with the Diablo Canyon Power Plant, the EPZ and the Public Education Zone (PEZ). Both are illustrated in Figure 3-2. The PEZ continues across the county boundary to include an area of northern Santa Barbara County.
>
> As described earlier, Figure 3.1.2 illustrates the 50 mile radius IPZ, which includes four total counties (San Luis Obispo, Santa Barbara, Monterey and Kern Counties). A summary description of the State study and process of selection of emergency planning zones is given in "Emergency Planning Zones for Serious Nuclear Power Plant Accidents," State of California Office of Emergency Services, November, 1980.

County Planning

As noted above, the State planning zones form a basis for County planning. The expanded EPZ defined by the State is divided into 12 Protective Action Zones.

- PAZs 1 – 5 correspond to the approximate ten mile Federal emergency planning area.
- PAZs 6 – 12 are outside the ten mile area.

Having 12 PAZs improve the managing of detailed planning and implementing the protective measures in areas smaller than the entire EPZ.

Surrounding the 12 PAZs are three zones known as Public Education Zones (PEZs).

- Residents in these areas (zones 13 – 15) are outside but immediately adjacent to the EPZ. The PEZ was established to ensure general information about Diablo Canyon is provided to residents and businesses surrounding the PAZs.

PAZs and PEZs are described in Table 3.1 (sheet 1 and 2), and shown in Figure 3.2.

The PAZs may be arranged into four groups of generally increasing distance from the plant.

- PAZ 1: 2-mile radius
- PAZ 2: 6-mile radius
- PAZs 3-5: Approximately 9 to 10 mile radius – Primary federal oversight areas of PAZs 1-5
- PAZs 6-12: Balance of State Basic Emergency Planning Zones – State primary oversight
- PEZs 13-15: Public Education Zone - Area where public education materials are provided. Any emergency protective actions would be on an ad hoc basis.

The current NRC-defined plume exposure EPZ boundary for DCPP provided in the SLO County/Cities Nuclear Power Plant Emergency Response Plan (Figure 3.1.1) is shown below.

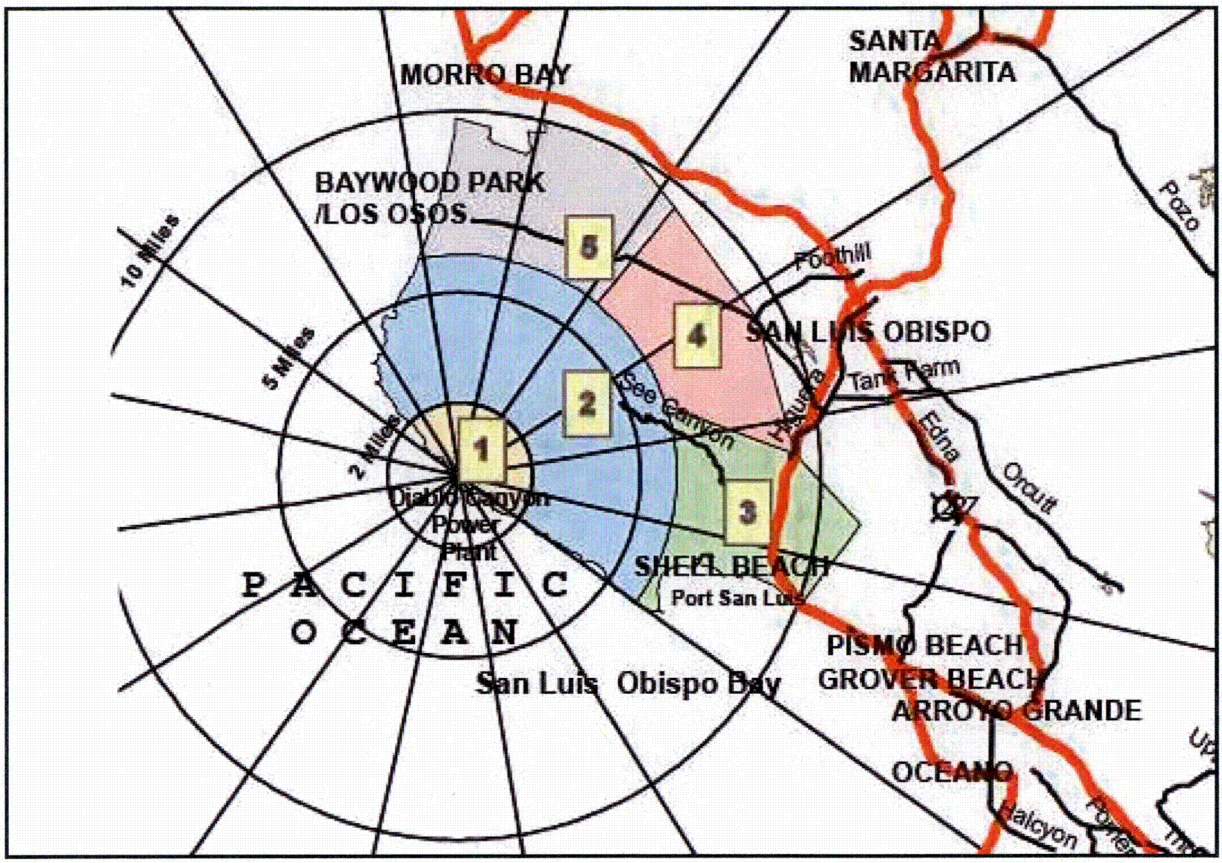
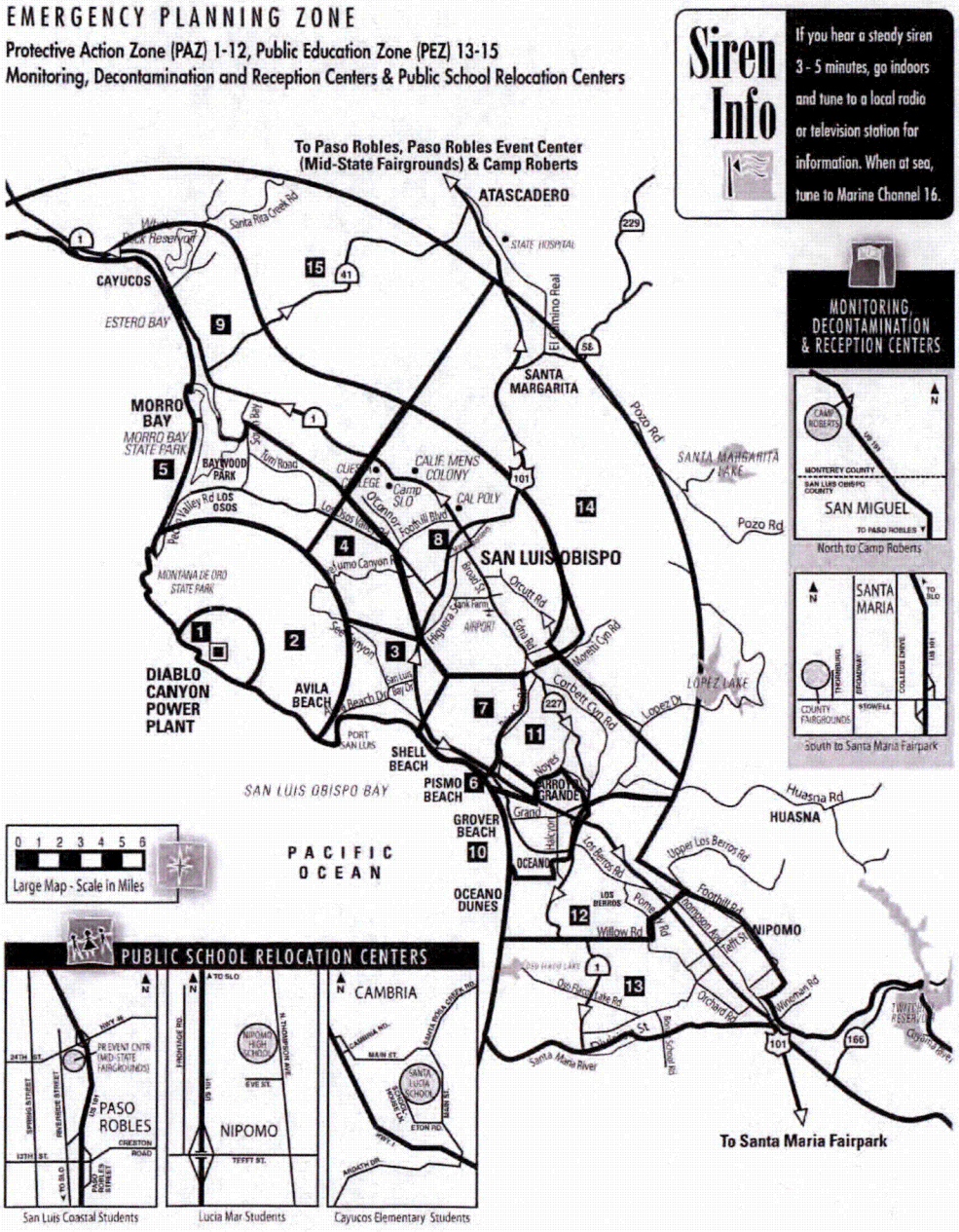


Figure 3.1-1, Current SLO OES NRC Equivalent Plume Exposure EPZ for DCPP

The current agency-defined plume exposure EPZ boundary for DCPP provided in the SLO County/Cities Nuclear Power Plant Emergency Response Plan (Figure 3.2) is shown below.



Current SLO OES Plume Exposure EPZ for DCPP

The DCPP EPZ currently defined by the State OES and SLO County is consistent with the overall guidance given in NUREG-0654 Supplement 3 for the generic 10 mile EPZ (Basic EPZ) and provides definition and structured planning to the risk areas beyond 10 miles (Extended EPZ).

4. APPROVED DCPP EMERGENCY PLAN PAR DETERMINATION METHODOLOGY

The DCPP SER Emergency Plan Rev 3, Change 3 established that the Site Emergency Coordinator developed the applicable protective actions based on the following criteria (Section 6.3.4.2):

4.1 Criteria Based Upon Nature of Emergency (Plant-Based PARs)

During a LOCA, evacuation of some or all of the persons within the LPZ may be recommended for any General Emergency situation regardless of whether or not any radioactive materials have been released from the plant.

Specific plant conditions with associated PARs were provided in Section 6.2.1 as follows:

Loss of Engineered Safety Feature (ESF) (Section 6.2.1.1)

- If there is a failure of ESF with no signs of inadequate core cooling, then evacuate the transient population in the LPZ (PAZs 1 and 2), shelter the permanent population in the LPZ and shelter the remainder of the basic EPZ.
- If there is a failure of ESF coupled with any signs of inadequate core cooling or loss of containment integrity, then evacuate the LPZ (PAZs 1 and 2) with preferential action taken in the downwind direction, and shelter the remainder of the basic EPZ.

Loss of Containment Isolation (Section 6.2.1.2)

- If there is a failure of containment isolation with no signs of inadequate core cooling, then evacuate the transient population in the LPZ (PAZs 1 and 2) and shelter the remainder of the basic EPZ.
- If there is a failure of containment isolation coupled with any signs of inadequate core cooling or loss of containment integrity, then evacuate the LPZ (PAZs 1 and 2).

Containment Pressure above Design Pressure (Section 6.2.1.3)

- If containment pressure exceeds maximum allowable containment pressure as a function of earthquake strength curve, then evacuate the transient population in the LPZ (PAZs 1 and 2) and shelter the remainder of the basic EPZ.

Containment Radiation Levels (Refer to Section 6.2.1.4)

- If containment radiation level exceeds the 100% gap release curve, then evacuate the LPZ (PAZs 1 and 2) and shelter the remainder of the basic EPZ.

Inadequate Core Cooling (Refer to Section 6.2.1.5)

- If inadequate core cooling conditions exist, then evacuate the LPZ (PAZs 1 and 2) and shelter the remainder of the basic EPZ.

4.2 Criteria Based Upon Public Exposure (Dose-Based PARs)

Insofar as possible, evacuation of members of the general population should be carried out to prevent persons from receiving doses in excess of those listed in Table 6.3-2. Specific dose conditions with associated PARs were provided in Table 6.3-2 as follows:

- If the projected whole body dose is 0.5 to 5 rem or thyroid dose is 5 to 25 rem, then consider evacuation unless constraints make it impractical (shelter as a minimum).
- If the projected whole body dose is $\geq$ 5 rem or thyroid dose is $\geq$ 25 rem, then conduct mandatory evacuation (shelter is an alternative if evacuation cannot be promptly accomplished).

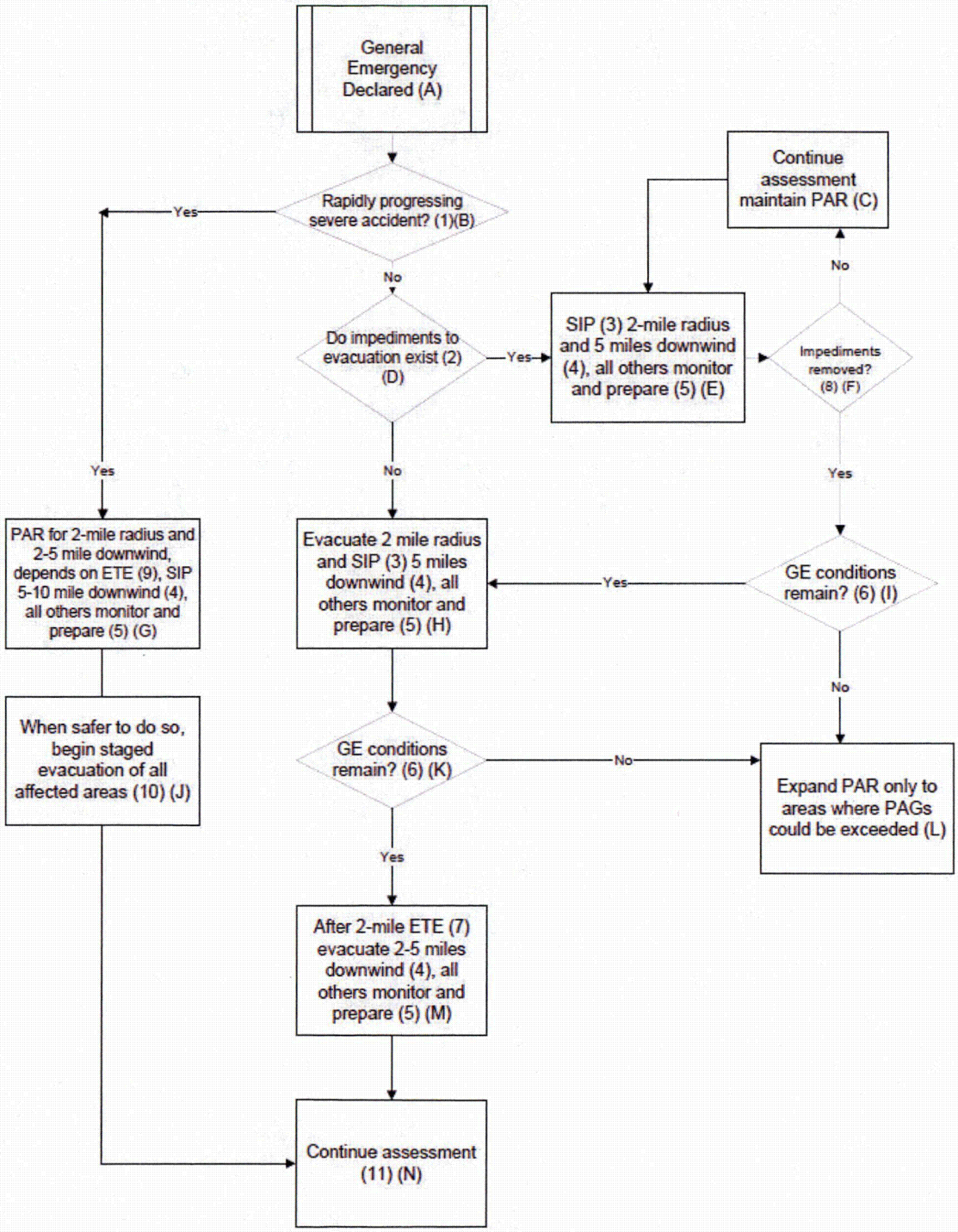
The lower action threshold of 0.5 rem deviated from the NRC prescribed EPA-520 guidance. The DCPP SER approved Emergency Plan justification for this deviation identified it as being based upon guidance from the State of California. The SLO County Emergency Response Plan provides the following additional basis information:

> Both California and the Federal government have established standards for radiation exposure. California standards are typically more stringent. The limits adopted in this section generally follow the more restrictive State statutes contained in the California Administrative Code, Title 17, Health and are taken from the State Plan.

The DCPP SER approved Emergency Plan did not include criteria describing how it was determined whether constraints were applicable.

5. DCPP SITE SPECIFIC PAR METHODOLOGY FLOWCHART BASES

5.1 NUREG-0654 Supplement 3 / NEI 12-10 PAR Methodology Flowchart Block Key



5.1.1 Block A: PAR Determination Methodology Entry Point

a. Supplement 3 Development Guidance (No Supplement 3 Attachment A Note for this block)

Entry point for PAR determination (no modification is needed unless site specific PARs are required prior to a General Emergency).

b. DCPP Site Specific Bases

The DCPP site specific PAR methodology entry point is the declaration of a General Emergency classification level (Refer to Section 2.4).

5.1.2 Block B: Rapidly Progressing Severe Accident Scenario Decision Point

a. Supplement 3 Development Guidance (Supplement 3 Attachment A Note 1; NRC EP FAQ 2013-004 Question 1)

A rapidly progressing severe accident is a General Emergency with rapid loss of containment integrity (emergency action levels indicate containment barrier loss) and loss of ability to cool the core. This path is used for scenarios in which containment integrity can be determined as bypassed or immediately lost during a GE with core damage. If this scenario cannot be immediately confirmed, assume it is not taking place and answer "no" to this decision block.

Supplement 3 Section 2.7 states "The emergency preparedness planning basis includes rapidly progressing scenarios that have a significant radioactive release in about 1 hour."

b. DCPP Site specific Bases

The DCPP site specific definition of a Rapidly Progressing Severe Accident is as follows:

1. A General Emergency has been declared and it is the initial PAR with:
   - Any Containment Loss EAL AND
   - Radiation Monitor 30/31 > 80 R/Hour OR
   - EAL RG.1.1 met for any Table R-1 GE value

   The selection of the DCPP site specific thresholds representing a rapidly progressing severe accident are based on indications readily available to operators and consistent with established EAL thresholds for simultaneous loss of containment, core cooling and fuel clad. Radiation Monitor 30/31 value of > 80 R/hour is indicative of a loss of fuel clad and also indicates loss of the reactor coolant system (RCS) boundary in the fission product barrier matrix. The EAL RG-1.1 threshold for any Table R-1 GE value with a Containment Loss criterion from the Fission Product Barrier Matrix is included to address a condition that bypasses

containment. The ERO is trained and qualified to assess these EAL threshold values.

A second decision block was added to determine whether the PAR is the Initial PAR for a General Emergency consistent with clarification from NRC EP FAQ 2013-004, response to Question 1. The response states in part: "This protective action recommendation is the first after a General Emergency has been declared...."

5.1.3 Block G: Rapidly Progressing Severe Accident Scenario PAR Determination

a. Supplement 3 Development Guidance (Supplement 3 Attachment A Notes 4, 5 and 9)

1. The licensee should issue an evacuation PAR in scenarios for which the time to evacuate 90% of the population within a 2-mile radius is 2 hours or less. If the ETE is longer, the licensee should recommend SIP (applies to Note 9).

2. The licensee should consider T_D for a daytime ETE and T_N for a nighttime ETE (applies to Note 9).

3. The licensee should issue an evacuation PAR in scenarios for which the 2- to 5-mile downwind sector evacuation time for 90% completion is 3 hours or less. If the ETE is longer, the licensee should recommend SIP (applies to Note 9).

4. For all cases, the licensee should recommend SIP for the 5- to 10-mile downwind sectors. Licensees may perform an analysis to determine site specific ETE criteria instead of using this generic guidance (applies to Note 9).

5. To the extent practical and recognizing the urgency of the incident, impediments may be considered. The existence of impediments could change the most effective PAR from evacuation to SIP (applies to Note 9).

6. The ETE values should be representative for the site and should not include special events (applies to Note 9).

7. Extreme weather conditions, such as inversion, significant precipitation, or no wind, can change the efficacy of SIP and make evacuation the preferred protective action (applies to Note 9).

8. Downwind sectors include a downwind 22.5-degree compass sector(s) and adjacent sectors. Generally, the downwind sectors involve three or four sectors and include all the emergency response planning areas impacted in that area (applies to Note 4).

9. Site specific wind persistence information may indicate the need to include additional sectors with the initial recommendation. However, the licensee should discuss this element with responsible OROs to determine whether expanded initial protective actions are appropriate or desirable. The size of emergency response planning areas may determine whether there is a site specific need for this contingency (applies to Note 4).

10. The instruction to monitor and prepare is intended to engage the population within the plume exposure pathway Emergency Planning Zone, inform them of the emergency, and advise them that they should monitor the situation and prepare for the possibility of evacuation, SIP, or other protective actions (applies to Note 5).

b. DCPP Site Specific Bases

The DCPP site specific PAR for Block G is to:

- Evacuate PAZs 1 and 2 and all downwind PAZs to 10 miles
- Administer KI per SLO County Plan
- Evacuate the Ocean to 5 or 10 nautical miles depending on direction of the wind (Per Wind Table)
- All other PAZs monitor and prepare.

See discussion in Section 4.2 of this appendix for more information about Ocean PARs.

1. PAZ 1 is equivalent to the land area within the 2 mile generic EPZ. Since the 90% ETE for PAZ 1 is less than 2 hours the appropriate PAR is to evacuate PAZ 1 (refer to Section 2.7.2).

2. The ETE scenarios used to determine the appropriate actions for a rapidly progressing severe accident scenario included daytime and nighttime periods (refer to Section 2.7.2).

3. PAZ 2 is more than equivalent to the land area within the 2 to 5 mile generic EPZ. PAZ 2 goes out to 6 miles. PAZs 1 and 2 are always recommended to evacuate simultaneously. Since the 90% ETE for PAZs 1 and 2 is less than 3 hours the appropriate PAR is to evacuate PAZs 1 and 2 (refer to Section 2.7.2).

   NRC EP FAQ 2013-004, Question 3 and NRC final response does not affect how the DCPP site specific PAR methodology addresses Supplement 3, Note 9. The question pertains to evacuation time considerations for the 0 – 2 mile (PAZ 1) and 0 – 6 mile (PAZ 2) zones. PAZs 1 and 2 are evacuated during a rapidly progressing severe accident; consequently the variation of wind direction is not applicable to the DCPP protective action strategy.

4. Analysis of the DCPP ETE's indicates it is faster to simultaneously evacuate PAZs 1 through 5 than to implement a staged evacuation. In the majority of the ETE scenarios, the simultaneous evacuation times did not exceed 3 hours. The worst case scenarios for a simultaneous evacuation resulted in an ETE of 3 hours and 10 minutes. This time difference of approximately 10 minutes (3 hours versus 3 hours 10 minutes) does not warrant the additional complication involved in a staged evacuation for a rapidly progressing severe accident scenario. Thus, the appropriate DCPP site specific PAR in this event is to evacuate the downwind PAZs in the 6 to 10 mile area (Refer to Section 2.7.2).

   NRC EP FAQ 2013-004, Question 4 and NRC final response does not affect how the DCPP site specific PAR methodology addresses Supplement 3, Note 9 "Evacuate 2 mile radius and SIP 5 miles downwind, all others monitor and prepare" (staged evacuation). The DCPP protective action strategy does not employ staged evacuation; therefore, this response does not affect the DCPP site specific bases.

5. Due to the potential radiological consequences of the rapidly progressing severe accident scenario, the uncertainty for further degradation of plant conditions and the urgency of the incident, the DCPP site specific PAR methodology does not take impediments into consideration. This evaluation is performed by the County as agreed upon with County officials during the development of this appendix.

6. The ETE values used to determine the appropriate actions for a rapidly progressing severe accident scenario were taken from KLD TR-498 Table 7.1, Time to Clear the Indicated Area of 90 Percent of the Affected Population. ETE values for special events and roadway impacts are not included (Refer to Section 2.7.2).

7. Since SIP of the PAZs in the 6 to 10 mile area is not part of the DCPP site specific PAR methodology, consideration of extreme weather conditions that would warrant evacuation over SIP are not necessary (Refer to Section 2.7.2).

   The County of SLO and DCPP, in advance, have made an agreement that the County of SLO will be responsible for making determinations concerning impediments to evacuation; including the impact of adverse weather. DCPP PARs will be issued to the County based on this agreement.

8. The determination of the affected PAZs related to downwind sectors is based upon the information provided in Table 6.1 of the ETE Report. A PAZ is considered affected if any portion of it falls within the affected sector or the adjacent sectors.

The DCPP EPZ in the 6-10 mile area is divided into three PAZs (3, 4, & 5).

Ocean PARs are dependent upon wind direction. The 5 nautical mile (NM) PAR is based upon wind that is from the ocean and directed in-land. Extending the PAR further into the ocean under these conditions is not required. The PAR distance of 10 NM is established in cases where wind direction would be sending the plume out to sea.

Wind From (Degrees)	Wind From (Sector)	Ocean PAR	0-6 Mile PAZs	6-10 Mile PAZs
349° – 146°	N, NNE, NE, ENE, E, ESE, SE	10 NM	1, 2	N/A
146° – 191°	SSE, S	10 NM	1, 2	5
191° – 214°	SSW	5 NM	1, 2	4, 5
214° – 236°	SW	5 NM	1, 2	4, 5
236° – 259°	WSW	5 NM	1, 2	3, 4, 5
259° – 281°	W	5 NM	1, 2	3, 4
281° – 304°	WNW	10 NM	1, 2	3, 4
304° – 349°	NW, NNW	10 NM	1, 2	3

9. The ETE Report determines whether a PAZ is affected based upon whether its boundary is within the associated or adjacent sectors. This methodology is inherently conservative and thus does not support additional PAZs being specified as affected based on wind persistence (refer to Section 2.5.2). DCPP discussed this element with the responsible OROs and determined that expanded initial protective actions are not appropriate or desirable.

10. "Monitor and prepare" is included for the other PAZs as part of the DCPP PAR.

5.1.4 Block J: Evacuation Timing for Rapidly Progressing Severe Accident Scenarios

a. Supplement 3 Development Guidance (Supplement 3 Attachment A Note 10)

Evacuation after the SIP period is critical for reducing public exposure. Licensees should discuss the evacuation of the sheltered population with OROs.

b. DCPP Site Specific Bases

The DCPP site specific PAR flowchart does not have an equivalent for Block J.

SIP with a subsequent staged evacuation is not performed in the 6 to 10 mile downwind PAZs for the rapidly progressing severe accident scenario at DCPP. ETE results indicate no advantage to implementing staged evacuation. A PAR of evacuate is issued for the 6 to 10 mile downwind PAZs (refer to 5.1.3.b).

5.1.5 Block D: Impediments to Evacuation Decision Point

a. Supplement 3 Development Guidance (Supplement 3 Attachment A Note 2)

1. Evacuation Support (e.g., Traffic Control) – In this situation, the GE is the initial notification, or if a previous notification was made, the GE notification occurs before preparations to support an evacuation are complete.

   Many sites have a low population density within 2 miles, and lack of traffic control may not be considered an impediment. The licensee and OROs should discuss this element and reach an agreement.

   Otherwise, the licensee and OROs should agree, in advance, on an expected time for evacuation support to be put in place after notification of an emergency classification. The site specific PAR procedure for those sites at which a delay of an initial staged evacuation is necessary, pending support setup, should include this time. The licensee would base procedures on the agreement and would not confer with OROs before making the initial PAR notification.

2. Hostile-Action-Based General Emergency (armed attack) – OROs may determine that an initial recommendation to shelter in place (SIP) rather than evacuation is the preferred path for a hostile action event. The licensee would discuss this element with OROs and reach an agreement during the development process. The licensee would base procedures on the agreement and would not confer with OROs before making the initial PAR notification.

3. Adverse Weather / Hazardous Conditions – Licensees are not responsible for soliciting information or for making a determination that adverse weather or other impediments for safe public evacuation (e.g., an earthquake or wildfire) exist at the time of the emergency. However, the licensee will consider an impediment to exist if OROs have previously notified it of such an impediment (e.g., roadways are closed because of deep snow). During the planning process, OROs may determine that the licensee does not need to consider adverse weather in its plant PAR procedures.

b. DCPP Site Specific Bases

The DCPP site specific PAR flowchart does not contain an equivalent to Block D concerning considerations of impediments for evacuation.

PAZs 1 and 2 represent all of the land area within the generic 5 mile EPZ area. PAZ 1 is equivalent to the land area within the 2 mile generic EPZ and PAZ 2 is equivalent to the land area within the 2 to 5 mile generic EPZ (approximately 6 miles for DCPP). Based on the remote geography and limited population of PAZs 1 and 2, these areas are always recommended to evacuate simultaneously (Refer to Section 2.5.2).

1. DCPP has a low population density within PAZs 1 and 2 (6 miles) which results in favorable evacuation times. The longest 90% ETE for PAZs 1 and 2 is only 80 minutes. The DCPP site specific PAR methodology does not take impediments into consideration. This evaluation is performed by the County as agreed upon with County officials during the development of this appendix.

2. DCPP has a low population density within PAZs 1 and 2 (6 miles) which results in favorable evacuation times. The longest 90% ETE for PAZs 1 and 2 is only 80 minutes. Therefore the PAR to evacuate PAZs 1 and 2 rather than shelter in place (SIP) was determined to be the preferred path for a hostile action event. This basis was agreed to by the responsible OROs.

3. The responsible OROs determined that DCPP PAR procedures do not need to consider adverse weather or other impediments. SLO County concluded the information from DCPP should provide recommendations based solely upon the plant and radiological conditions. SLO County provides the adjustment to recommendations in their Protective Action Decision process based on impediments to evacuation or other unknown factors DCPP is not aware of.

5.1.6 Block E: With Impediments Minimum Plant Based PAR

a. Supplement 3 Development Guidance (Supplement 3 Attachment A Notes 3, 4 and 5)

1. SIP means that instructions are given to members of the public to remain indoors, turn off heating or air conditioning (as appropriate for the region and season), close windows, monitor communications channels, and prepare to evacuate. The instructions should specify that SIP is safer than evacuation at this time, or that, alternatively, SIP is being implemented in order to keep roadways clear to allow others to evacuate rapidly. The intent of SIP is for members of the public to remain where they currently are or to seek shelter close by, but they should not return home to shelter when more immediate options for sheltering are available (applies to Note 3).

2. Downwind sectors include a downwind 22.5-degree compass sector(s) and adjacent sectors. Generally, the downwind sectors involve three or four sectors and include all the emergency response planning areas impacted in that area (applies to Note 3).

3. Site specific wind persistence information may indicate the need to include additional sectors with the initial recommendation. However, the licensee should discuss this element with responsible OROs to determine whether expanded initial protective actions are appropriate or desirable. The size of emergency response planning areas may determine whether there is a site specific need for this contingency (applies to Note 4).

4. The instruction to monitor and prepare is intended to engage the population within the plume exposure pathway Emergency Planning Zone, inform them of the emergency, and advise them that they should monitor the situation and prepare for the possibility of evacuation, SIP, or other protective actions (applies to Note 5).

b. DCPP Site Specific Bases

The DCPP site specific PAR flowchart does not contain an equivalent for Block E. DCPP does not recommend the protective action to shelter due to impediments to evacuation in response to SLO County request discussed above in section 5.1.5.b. PAZs 1 and 2 go out to 6 miles and have an ETE of less than 2 hours to evacuate 90% of the population. Evacuation of PAZs 1 and 2 rather than SIP was determined to be the more effective method of protection at the declaration of a General Emergency. Remaining PAZs will be recommended for evacuation based on field measurements or dose assessment calculations that show EPA-400 PAGs could be exceeded.

5.1.7 Block F: Impediments Removed

a. Supplement 3 Development Guidance (Supplement 3 Attachment A Note 8)

1. Removal of evacuation impediments involves the following:
   - Evacuation Support. If the OROs identified this contingency as necessary during the planning effort, the licensee should notify OROs with an evacuation PAR when the agreed upon time (e.g., 1 hour from the GE notification) has elapsed. The licensee shift staff is not expected to confer with OROs before changing the PAR, but if the augmenting ERO is activated they may do so.
   - Hostile Action (Armed Attack). OROs may identify this contingency as necessary during the planning effort. It may be appropriate to set up a timeframe for the licensee to notify OROs with an evacuation PAR. The licensee shift staff is not expected to confer with OROs before changing the PAR, but if the augmenting ERO is activated they may do so.
   - Adverse Weather. If weather or some other roadway disruption caused the impediment, OROs will determine when it is appropriate to change the protective action. Licensees have no responsibility for PAR modification unless a PAR change is necessary because of plant conditions or radiological assessment. OROs determine when it is safe for the public to evacuate.

b. DCPP Site Specific Bases

The DCPP site specific PAR flowchart does not have an equivalent for Block F. DCPP does not recommend sheltering in place (SIP) due to impediments to evacuation. This evaluation is performed by the County as agreed upon with County officials during the development of this appendix.

5.1.8 Block H: No Impediments Minimum Plant Based PAR

a. Supplement 3 Development Guidance (Supplement 3 Attachment A Notes 3, 4 and 5)

1. SIP means that instructions are given to members of the public to remain indoors, turn off heating or air conditioning (as appropriate for the region and season), close windows, monitor communications channels, and prepare to evacuate. The instructions should specify that SIP is safer than evacuation at this time, or that, alternatively, SIP is being implemented in order to keep roadways clear to allow others to evacuate rapidly. The intent of SIP is for members of the public to remain where they currently are or to seek shelter close by, but they should not return home to shelter when more immediate options for sheltering are available (applies to Note 3).

2. Downwind sectors include a downwind 22.5-degree compass sector(s) and adjacent sectors. Generally, the downwind sectors involve three or four sectors and include all the emergency response planning areas impacted in that area (applies to Note 4).

3. Site specific wind persistence information may indicate the need to include additional sectors with the initial recommendation. However, the licensee should discuss this element with responsible OROs to determine whether expanded initial protective actions are appropriate or desirable. The size of emergency response planning areas may determine whether there is a site specific need for this contingency (applies to Note 4).

4. The instruction to monitor and prepare is intended to engage the population within the plume exposure pathway Emergency Planning Zone, inform them of the emergency, and advise them that they should monitor the situation and prepare for the possibility of evacuation, SIP, or other protective actions (applies to Note 5).

b. DCPP Site Specific Bases

The DCPP site specific PAR for Block H is to:

- Evacuate PAZs 1 and 2
- Evacuate the ocean to 5 nautical miles
- Administer KI in accordance with the County plan
- All other PAZs monitor and prepare

1. The PAZ 1 and PAZ 2 permanent and transient populations are very small in number (Refer to ETE Report Tables 3-1 and 3-4). Staged evacuation of PAZs 1 and 2 takes longer than a simultaneous evacuation of PAZs 1 and 2 for the 90% population in each of the applicable scenarios (refer to ETE report Table 7.1).

Scenario / Region	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
R02	1:10	1:10	1:10	1:10	1:15	1:10	1:10	1:15	1:15	1:20
R21	1:15	1:15	1:35	1:35	1:45	1:15	1:20	1:45	1:45	1:50
Difference	0:05	0:05	0:25	0:25	0:30	0:05	0:10	0:30	0:30	0:30
									Average:	**0:19**
R02 represents the simultaneous evacuation of PAZ 1 & 2 R21 represents the staged evacuation of PAZ 1 & 2										

There is no benefit to staged evacuation for these areas. Therefore, PAZs 1 and 2 are always recommended to evacuate simultaneously. SIP for PAZ 2 is not appropriate for the DCPP site specific PAR for this block.

2. The DCPP site specific PAZ equivalent to the 2-5 mile area (PAZ 2) is not divided into multiple geographic areas. Thus there are no downwind areas within this PAZ.

3. The DCPP site specific PAZ equivalent to the 2-5 mile area (PAZ 2) is not divided into multiple geographic areas. Thus wind persistence has no affect for this PAZ. Also, the ocean area is recommended for evacuation from 0 to 5 nautical miles as part of the radial evacuation area completing the 360-degree protective action recommendation.

4. The DCPP PAR methodology includes the provision for the balance of the PAZs to "monitor and prepare" as provided for in the SER approved Emergency Plan.

5. An addition to the DCPP PAR methodology is the administration of KI for the general public in accordance with the SLO County Emergency Response Plan. This provision was implemented to be consistent with Federal guidance for licensee recommendations in jurisdictions that opt to provide KI to the public.

5.1.9 Block M: Evacuation Timing for Downwind Sectors

a. <u>Supplement 3 Development Guidance (Supplement 3 Attachment A Notes 7, 4 and 5)</u>

1. Implementation of this element should occur at the time of the site specific 2-mile evacuation time estimate (ETE) for 90-percent evacuation (e.g., T hours (use site specific time) after OROs were notified of the initial PAR to evacuate downwind sectors) (applies to Note 7).

2. Downwind sectors include a downwind 22.5-degree compass sector(s) and adjacent sectors. Generally, the downwind sectors involve three or four sectors and include all the emergency response planning areas impacted in that area (applies to Note 4).

3. Site specific wind persistence information may indicate the need to include additional sectors with the initial recommendation. However, the licensee should discuss this element with responsible OROs to determine

4. whether expanded initial protective actions are appropriate or desirable. The size of emergency response planning areas may determine whether there is a site specific need for this contingency (applies to Note 4).

5. The instruction to monitor and prepare is intended to engage the population within the plume exposure pathway Emergency Planning Zone, inform them of the emergency, and advise them that they should monitor the situation and prepare for the possibility of evacuation, SIP, or other protective actions (applies to Note 5).

b. DCPP Site Specific Bases

1. Initial evacuation is for PAZs 1 and 2 which covers the 0 to 6-mile area. PAZ 1 (0 to 2-mile radius) has a permanent and transient population of 0; therefore, does not have any impact to evacuation. Evacuation of the downwind areas follows or is coincident with evacuation of PAZs 1 and 2 based upon dose assessment or field team data. ETE Report Section 7.6 provides comparison of the evacuation times for staged evacuation and simultaneous evacuation of the respective areas. It concludes there is no benefit of staged evacuation for either the 2-mile or 6-mile regions by adopting a SIP protective action as described in Block H.

2. DCPP and the responsible OROs have taken the emergency response planning areas (ERPAs) and made them into Protective Action Zones. DCPP uses these PAZs to make PARs to the County. The County then can use DCPP's PAR, along with other factors, to make a PAD. This helps to shorten the PAR to PAD process. This process is different from Supplement 3, but meets the intent to make PARs in a timely manner.

   The determination of the affected PAZs related to downwind sectors is based upon the information provided in Table 6-1 of the ETE Report. A PAZ is considered affected if any portion of it falls within that or the adjacent sectors.

   The DCPP EPZ in the 10-22 mile area is divided into seven PAZs (PAZ 6 – 12). The following Table includes the PAZs for the full EPZ.

Wind From (Degrees)	Wind From (Sector)	Ocean PAR	0-6 Mile PAZs	6-10 Mile PAZs	10-22 Mile PAZs
326° – 146°	NNW, N, NNE, NE, ENE, E, ESE, SE	10 NM	1, 2		12
146° – 191°	SSE, S	10 NM	1, 2	5	9
191° – 214°	SSW	5 NM	1, 2	4, 5	8, 9
214° – 236°	SW	5 NM	1, 2	4, 5	8, 9
236° – 259°	WSW	5 NM	1, 2	3, 4, 5	7, 8, 9, 11
259° – 281°	W	5 NM	1, 2	3, 4	6, 7, 8, 10, 11, 12
281° – 304°	WNW	10 NM	1, 2	3, 4	6, 7, 8, 10, 11, 12
304° – 326°	NW	10 NM	1, 2	3	6, 7, 10, 11, 12

3. The ETE Report provides evacuation times for combination of PAZs that would be affected by specific wind direction. This methodology is inherently conservative and thus does not support additional PAZs being specified as affected based on wind persistence. Refer to Section 2.5.2.

   This basis for not including additional PAZs to the list of affected downwind PAZs due to wind persistence has been reviewed and agreed to by the responsible OROs.

   Ocean PARs are expanded from 5 nautical miles to 10 nautical miles in cases where wind direction is from the land towards the ocean. Ocean PAR expansion is also based on dose assessment results that show areas over the ocean that could exceed EPA-400 PAGs. This expansion completes the radial evacuation for areas comparable to the land areas that would be evacuated based upon wind direction.

4. The DCPP PAR methodology includes the provision for the balance of the PAZs to "monitor and prepare" as provided for in the SER approved Emergency Plan.

5. An addition to the DCPP PAR methodology is the administration of KI for the general public in accordance with the SLO County Emergency Response Plan. This provision was implemented to be consistent with Federal guidance for licensee recommendations in jurisdictions that opt to provide KI to the public.

5.1.10 Blocks C and N: Continue Assessment

a. Supplement 3 Development Guidance (Supplement 3 Attachment A Note 11)

   Radiological and meteorological assessments should be continued and evacuation considered for any areas where dose projections or field measurements indicate that PAGs may be exceeded.

b. DCPP Site Specific Bases

   The DCPP site specific PAR methodology for continuation of assessment is provided throughout the PAR evaluation decision process.

   The DCPP site specific PAR methodology has provisions for continuous PAR assessment from each decision branch throughout the event.

   The Supplement 3 Block N flowchart dead-ends without providing instruction where the continued assessment should enter back into the flowchart. Thus, the DCPP site specific PAR methodology corrects the dead-end error in the guidance flow-chart by providing specific instruction on where to re-enter.

5.1.11 Blocks I and K: General Emergency Conditions Remain

a. Supplement 3 Development Guidance (Supplement 3 Attachment A Note 6)

1. If the plant has mitigated the conditions that caused the GE declaration (i.e., core cooling is restored), expanding the PAR to evacuate downwind sectors upon completion of the initial staged evacuation may not be necessary. However, if GE emergency action levels are still met, expansion of the PAR to the downwind sectors may be appropriate.

2. If the plant restores core cooling, it must still perform a radiological assessment to identify the extent of contamination, if any.

3. If surveys or dose projections reveal areas under no protective action direction where protective action guidelines (PAGs) could be exceeded, the members of the public in those areas should be evacuated or sheltered, as appropriate.

b. DCPP Site Specific Bases

The DCPP site specific PAR methodology evaluates whether a General Emergency is still in effect prior to the development of new PARs while in the "continue assessment" loop.

1. If the emergency classification level is no longer a General Emergency, then additional PARs will not be developed. If the emergency classification level remains at a General Emergency, then exceeding PAGs in areas not already recommended for evacuation will result in additional PARs.

2. If the restoration of core cooling results in the exiting of the General Emergency classification level, then additional PARs will not be developed. If the restoration of core cooling does not result in the exiting of the General Emergency classification level, then continuous assessment to determine the need for additional PARs will continue. In either case, field team activities involving radiological assessment to identify the extent of contamination will continue.

3. Field surveys or dose projections that reveal areas where PAGs could be exceeded are thresholds for the General Emergency classification level and result in the development of PARs for those areas in the DCPP site specific PAR methodology.

5.1.12 Block L: PAR Expansion Only When Protective Action Guidelines (PAGs) Exceeded

a. Supplement 3 Development Guidance (No Supplement 3 Attachment A Note for this block)

The "Expand PAR only to areas where PAGs could be exceeded" is the end point in the Supplement 3 guidance flow-chart when General Emergency conditions are no longer met.

b. DCPP Site Specific Bases

The DCPP site specific PAR flowchart provides a series of decision blocks for a methodology to determine appropriate PAR expansion with provisions for beyond the EPZ including the ocean.

The DCPP site specific PAR methodology includes continuous assessment while in a General Emergency classification level that includes the expansion of PARs to areas where PAGs could be exceeded.

If the site is no longer in a General Emergency classification level then additional PARs are not warranted (if a PAG could be exceeded then a General Emergency condition still exists).

5.2 Additional Protective Action Recommendation 1: Ocean PAR

5.2.1 DCPP Site Specific Bases

The DCPP site specific PAR flowchart includes ocean evacuation recommendations for 5 nautical miles or 10 nautical miles depending upon prevailing wind conditions and/or dose assessment results that indicate EPA-400 PAGs could be exceeded on areas over the ocean.

The DCPP Emergency Plan requires a protective action recommendation for the ocean. DCPP 50.54(q) Effectiveness Evaluation (2014-02) includes the basis used for initial and subsequent expansion of PARs for the ocean. An excerpt of the compliance section of that evaluation explaining the basis for ocean PARs is as follows:

> The DCPP procedure that implemented the PAR determination methodology of the SER approved Emergency Plan contained the method that the NRC accepted as compliant with the regulations. The method incorporated by that procedure identified affected areas by sector and by Protective Action Zone (PAZ) within the Emergency Planning Zone (EPZ). Although not explicitly stated, the procedure implied that an evacuation PAR was to be issued for the ocean when an affected or adjacent sector involved the ocean. Subsequent implementing procedure changes included a table that explicitly translated the 16 wind rose sectors into affected PAZs, including the ocean.

The current DCPP PAR methodology does not utilize sectors, but rather directly identifies affected areas by PAZ in order to be consistent with the site specific geographic zones utilized by the offsite agencies. Restoration of the ocean PAR determination methodology has been adapted to use the site specific PAZ methodology for DCPP areas within the EPZ. Restoration of the DCPP ocean PAR methodology resulted in a revision to EP RB-10 that includes three progressively escalating conditions:

a. Consistent with current and historical protective actions for the ocean implemented by the United States Coast Guard (USCG) and the County at the General Emergency classification level, DCPP will recommend evacuation of the ocean out to 5 nautical miles (NM) as a minimum PAR.

b. Consistent with current and historical protective actions for the ocean implemented by the USCG and the County, if an EPA PAG (1000 mrem TEDE or 5000 mrem Thyroid CDE) is exceeded in any area over the ocean beyond 5 miles, DCPP will recommend evacuation of the ocean out to 10 NM.

c. If an EPA PAG (1000 mrem TEDE or 5000 mrem Thyroid COE) is exceeded in any area over the ocean beyond 10 miles, DCPP will recommend evacuation of the ocean for specific areas developed under the same methodology used to develop PARs for land areas beyond the EPZ boundary.

The first two conditions for ocean PAR determination described above are consistent with the original methodology that implemented the SER approved Emergency Plan, without calling for the translation to geographic zones (PAZs) from generic sectors. Current methodology and terminology for the 12 land based PAZs used by the response agencies and the general public do not use sectors as a means of geographic distinction for the DCPP EPZ. The PAZs were originally developed by California Office of Emergency Services (OES) and SLO County in order to provide for detailed planning and implementation of protective measures in site specific geographic areas within the Basic and Extended EPZs.

The third ocean PAR determination described above was not part of the original methodology that implemented the SER approved Emergency Plan, but is included for consistency with NRC guidance regarding actions beyond the defined EPZ boundary.

Sheltering was dismissed in the 50.54(q) effectiveness evaluation 2014-02. There is no benefit to the use of sheltering for an ocean PAR as boats do not provide a sheltering factor and are by nature mobile; therefore, evacuation is the appropriate protective action used for the Ocean PAR.

5.3 Additional Protective Action Recommendation 2: Short Term Release

NRC EP FAQ – Question 2 and final NRC response is provided in part below:

"...Controlled venting could affect an area beyond initial evacuation orders (e.g., five to ten miles downwind). It is difficult to identify scenarios, other than controlled venting, that would include a short term release of known duration. In any case, augmented ERO radiological staff and decision makers should be aware of the possibility. A decision could be made in such cases to SIP for a short duration release, but such considerations would not be appropriate for Control Room guidance.

Finally, the NEI guidance endorsed by RIS 2005-08 notes the use of advisory messaging to direct the public to monitor. This measure has been emphasized in Supplement 3 as direction to "monitor and prepare." SIP is not the same measure as "monitor and prepare." An SIP order that is not necessary prevents families from reuniting when it would be beneficial for evacuation readiness. Automatic SIP for areas not affected by an actual or potential radiological release should not be recommended nor implemented as it has the potential to detract from public health and safety."

5.3.1 DCPP Site Specific Bases

The DCPP site specific PAR flowchart provides a shelter PAR for PAZs 1 and 2 if there is a short term, controlled release that will be less than 60 minutes. If the release continues for 60 minutes or longer, then dose assessment results will be used to determine if evacuation is necessary based on the EPA PAGs.

Discussions with Region IV EP and NRC headquarters EP representatives resulted in agreement that a sheltering PAR can be included for a short term release though it is developed with a separate basis from NUREG-0654, Supplement 3. Additional dialogue concerning this aspect of the PAR methodology is contained in the 50.54(q) effectiveness evaluation (2014-75).

The DCPP PAR methodology retains the action to recommend sheltering for short term, controlled releases (less than 1 hour in duration). The control room or the augmented ERO can make a shelter PAR. The control room is most cognizant of a controlled evolution, for example containment vent, such that there is a greater assurance of maintaining the release for less than 1 hour. A shelter PAR recommendation is provided since the evacuation time for PAZs 1 and 2 (up to 6 miles) is greater than the 60 minute release time.

5.4 Additional Protective Action Recommendation 3: Administer Potassium Iodine (KI) In Accordance With the County Plan.

Licensees are required to provide a recommendation if the respective jurisdictions in the EPZ has elected to include distribution of KI to the general public. (Ref. 10 CFR 50.47(b)(10) planning standard function. See also, discussion in Inspection Manual Chapter 0609, Appendix B for 10 CFR 50.47(b)(10)).

5.4.1 DCPP Site Specific Bases

The DCPP site specific PAR flowchart provides for recommending KI be administered per SLO County Plan.

The SLO County Health Officer has the authority and responsibility for directing the general public in San Luis Obispo County to ingest potassium iodide (KI). The County Health Officer and County Emergency Services Director will make the final determination that ingestion of KI is to be implemented.

5.5 Additional Protective Action Recommendation 4: Plume exposure beyond the EPZ.

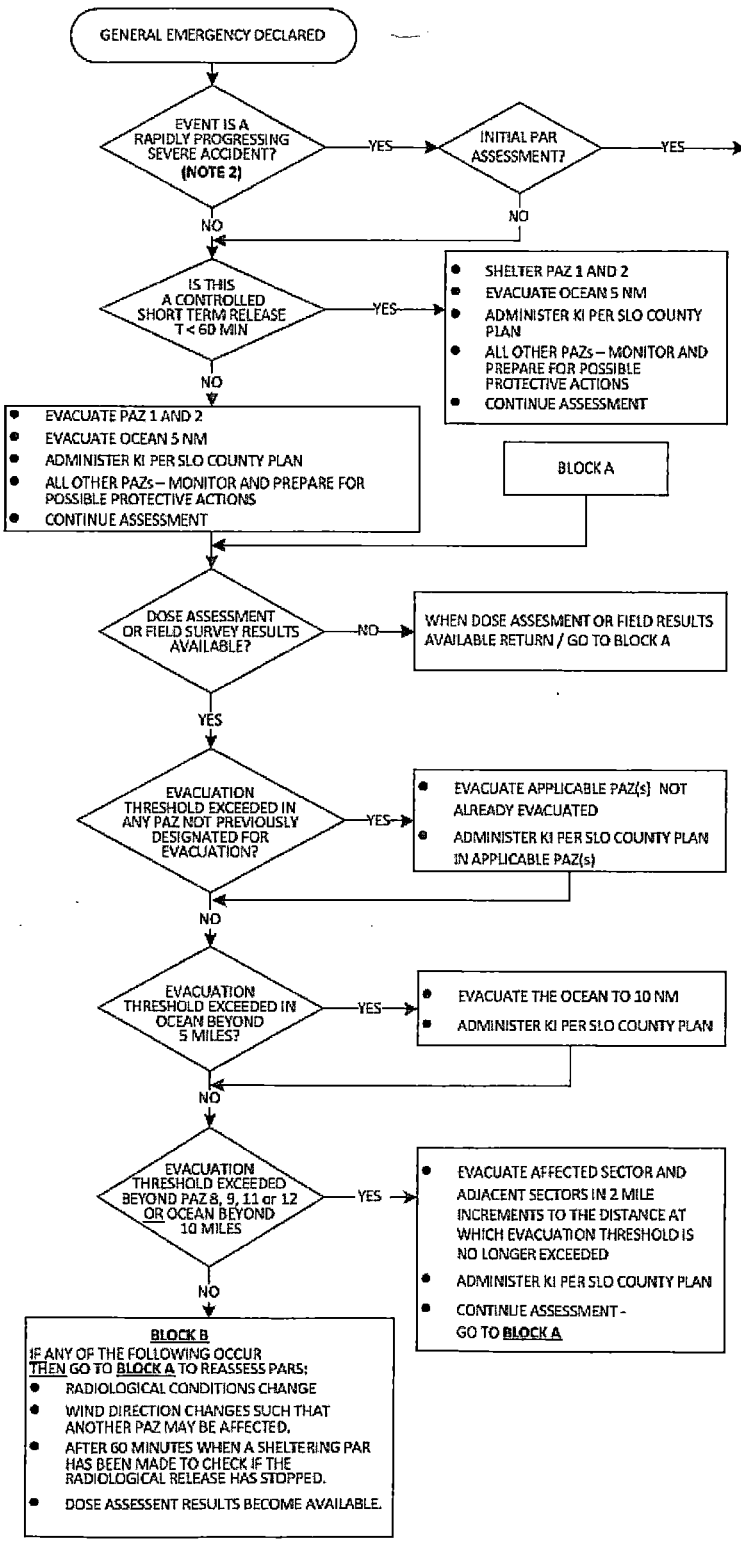
The licensee is obligated to have the capability to develop protective action recommendations beyond the EPZ. The actions can be ad-hoc in nature.

5.5.1 DCPP Site Specific Bases

The DCPP site specific PAR flowchart provides for incremental evacuation at 2-mile segments should EPA PAGs be exceeded in areas beyond PAZs 8, 9, 11, or 12 (EPZ boundary on land) or areas beyond 10 miles over the ocean (EPZ boundary over the ocean).

DCPP methodology evacuates the affected sector and adjacent sectors in two-mile increments, out to a distance where the projected offsite dose is less than 1000 mrem TEDE and 5000 mrem Thyroid CDE

6. DCPP SITE SPECIFIC PAR FLOWCHART



EVACUATION AREAS BASED ON WIND DIRECTION

WIND DIRECTION		EVAC PAZ	EVAC OCEAN
349° to 360° & 0° to < 146°	N, NNE, NE, ENE, E, ESE, SE	1 & 2	10 NM
146° to < 191°	SSE, S	1, 2, & 5	10 NM
191° to < 214°	SSW	1, 2, 4, & 5	10 NM
214° to < 236°	SW	1, 2, 4, & 5	5 NM
236° to < 259°	WSW	1 thru 5	5 NM
259° to < 281°	W	1 thru 4	5 NM
281° to < 304°	WNW	1 thru 4	10 NM
304° to < 349°	NW, NNW	1 thru 3	10 NM

NOTES

1. IF flowchart decision block conditions are unknown THEN answer "NO".
2. A Rapidly Progressing Severe Accident is occurring if ALL of the following are present:
   - A General Emergency was declared

   AND
   - Initial PAR

   AND
   - Any Containment Loss EAL applicable

   AND
   - RM 30/31 > 80R/hr OR EAL RG 1.1 met for any Table R-1 GE value.
3. EVACUATION thresholds are based on dose assessment OR field team results that are either:
   - GREATER THAN 1000 mrem TEDE

     OR
   - GREATER THAN 5000 mrem Thyroid CDE
4. IF the plant has mitigated the conditions that caused the GE declaration (i.e., core cooling restored, containment integrity restored, etc.), THEN expanding the PAR MAY NOT be appropriate.
5. IF there is no longer a risk to the public because the GE conditions are not currently present, THEN no new PAR should be issued.
6. Once a PAR is communicated to SLO County, the PAR stays in effect for the event duration.
7. DO NOT issue a SHELTER PAR for a PAZ that was previously issued an EVACUATION PAR.
8. Dose assessment results are required once a release starts and continue until the emergency event is terminated.

7. REFERENCES

7.1 NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Rev. 1

7.2 NUREG-0654 Rev 1, Supplement 3, Guidance for Protective Action Strategies

7.3 NRC EP FAQ 2013-004 NRC Responses to 8 questions regarding Supplement 3, Rev. 1

7.4 EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, 1991

7.5 NEI 12-10, Guideline for Developing a Licensee Protective Action Recommendation Procedure Using NUREG-0654 Supplement 3, Rev. 0

7.6 Emergency Planning Zones for Serious Nuclear Power Plant Accidents, State of California, Office of Emergency Services, November 1980

7.7 KLD TR-498, Diablo Canyon Power Plant Development of Evacuation Time Estimates, Revision 1

7.8 State of California Nuclear Power Plant Emergency Response Plan (2008)

7.9 San Luis Obispo County/Cities Nuclear Power Plant Emergency Response Plan (2014)

7.10 DCPP 50.54(q) Effectiveness Evaluation 2014-02

7.11 DCPP 50.54(q) Effectiveness Evaluation 2014-75

7.12 EP RB-10, Protective Action Recommendations

7.13 EP G-3, Emergency Notification of Off Site Agencies

7.14 EP OR-3, Emergency Recovery