UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	
PACIFIC GAS AND ELECTRIC COMPANY	Docket No. 50-275 Docket No. 50-323
Diablo Canyon Nuclear Power Plant Units Nos. 1 and 2	(Full Power Proceedings)

APPLICANT PACIFIC GAS AND ELECTRIC COMPANY'S ANSWERS TO GOVERNOR EDMUND G. BROWN JR's SECOND SET OF INTERROGATORIES

INTERROGATORY NO. 1:

At page 36 of the PG&E Response, PG&E states that it has an agreement with Rogers Helicopter Service to provide a helicopter in the event of an emergency situation.

A. What is the basis for the PG&E statement that "this helicopter will be used to notify persons in the Park if the County requested such assistance"? Describe all tests, analyses, or other documents which relate in any way to use of helicopters for this notification purpose.

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B. Produce all documents constituting or relating to the Rogers Agreement.

ANSWER TO INTERROGATORY NO. 1:

A. PGandE has stated that a helicopter will be used to notify persons in Montana de Oro State Park if assistance is requested based on a contract executed with Rogers Helicopter, Inc. dated 10/3/80.

On August 20, 1981, a test was conducted that successfully demonstrated the ability to utilize a helicopter both over the Diablo Canyon Plant site and Montana de Oro State Park to notify public visitors of an emergency. The test was witnessed by NRC representatives. Transmission of emergency notification information utilizing high power PA systems was successfully demonstrated at altitudes of 500, 1,000, and 1,500 feet.

B. Documents constituting or relating to the Rogers Agreement have been submitted for discovery. Ref. EPNG 0009416-0009420.

INTERROGATORY NO. 2:

At page 40 of the PG&E Response, PG&E states that the onsite meteorological tower is capable of withstanding

winds of 110 miles per hour within normal working stresses and that such winds constitute the equivalent of a seismic loading of 1.2g. Provide all analyses, calculations, and other documents which support or in any way relate to the PG&E conclusion that winds of 100 miles per hour constitute the equivalent of a seismic loading of 1.2g and/or that the tower will, in fact, remain operable in such a situation.

ANSWER TO INTERROGATORY NO. 2:

The meteorological tower is a latticed steel mast, guyed at intervals along its length to resist lateral loads. Due to its relatively light weight, its design is controlled by wind loading rather than by earthquake. In order to find the safe wind loading on the towers, the ultimate capacity of each principal element of the tower was first determined. Then, for each element, the wind force necessary to stress it to no more than two-thirds of its ultimate capacity was determined. Finally, the smallest such wind force thus determined was converted to the corresponding wind velocity; in this case 110 miles per hour. The equivalent seismic coefficient was determined simply by dividing the wind loading per unit length of the mast by the weight per unit lengths of the mast. These computations and reference material will be made available for discovery in San Francisco.

INTERROGATORY NO. 3:

At page 75 of the PG&E Response, PG&E states its intention to construct a permanent EOF.

A. When does PG&E intend to complete construction of a permanent EOF?

B. What is the current status of meeting the foregoing construction completion objective?

C. Describe all documents related to construction of this permanent EOF.

D. Will the permanent EOF be seismically qualified to remain functional in all respects in the event of an earthquake up to and including the SSE on the Hosgri fault and a 7.0-7.5 magnitude earthquake on the Rhinconada fault?

ANSWER TO INTERROGATORY NO. 3:

A. Construction of the EOF, which will meet the requirements of NUREG-0696, is currently scheduled to be completed by October 1, 1982.

B. To date, Central Coast Labs, at PGandE's request, has performed a soil analysis of the area; and PGandE has prepared a topographic map, presented a letter of intent to the San Luis Obispo County Board of Supervisors, and reviewed preliminary floor plans with County officials. PGandE is also assembling the necessary information to file an application for a land

use permit and to prepare the EOF design criteria memorandum. PGandE has received County approval for both the conceptual design and location of the EOF. Equipment is being purchased which conforms to NUREG-0696 requirements, and an estimate of the cost of the permanent EOF is being prepared.

C. Some documents have been generated to assist the design of the permanent EOF, and they are available for discovery in San Francisco. However, to date, no documents have been issued which will be used in the construction of this facility.

D. PGandE does not know if the permanent EOF will be "seismically qualified to remain functional in all respects" because it does not know what the phrase means.

The permanent EOF building will be designed seismically in accordance with the principles of the Uniform Building Code and the Lateral Force Requirements of the Structural Engineers Association of California (the "Blue Book"). In part this states, ". . . structures designed in conformance with the provisions and principles set forth herein should, in general, be able to:

3. Resist major earthquakes, of the intensity of severity of the strongest experienced in

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California, without collapse, but with some structural as well as nonstructural damage. In most structures, it is expected that structural damage, even in a major earthquake, could be limited to repairable damage . . . ."

INTERROGATORY NO. 4:

At page 81 of the PG&E Response, PG&E states that in the event of OBE and SSE accelerations at the Diablo Canyon site, UDAC and its related equipment will remain functional.

A. What accelerations does PG&E assume would occur in the OBE and SSE at the UDAC site? (If the accelerations are those set forth in Table I, p. 84, so state.)

B. What analyses support PG&E's statement that UDAC and its associated equipment will remain functional under such accelerations?

C. Has PG&E performed any analyses to determine whether UDAC and its related equipment will still remain functional in the event of a magnitude 7.0-7.5 earthquake on the Rhinconcada fault located at its closest point to UDAC? If so, please describe such analyses and produce them.

If not, please describe the reason why such analyses have not been performed.

ANSWER TO INTERROGATORY NO. 4:

A. Those set f[illegible] in Table I, page 84, of the PGandE Response.

B. A [illegible]mal analysis to support PGandE's statement that UDAC and its associated equipment will remain functional under postulated seismic accelerations was not required. UDAC primarily contains tables and chairs to provide a work area for technical personnel to perform independent dose assessment tasks. This equipment is not considered essential to maintain the functional objectives of UDAC since these dose assessment tasks can be performed essentially at any location.

C. No. See answer to 4B, above.

INTERROGATORY NO. 5:

At pages 84-89 of the PG&E Response, PG&E presents in tables its predicted accelerations at various onsite and offsite locations in the event of the SSE and the OBE. In these tables, PG&E uses the term "Distance from Hosgri fault." Define that term.

ANSWER TO INTERROGATORY NO. 5:

The term "distance from Hosgri fault" is defined as the shortest distance between the site in question and the surface trace of the Hosgri fault. In applying this definition of distance to the estimation of peak acceleration at each site using Equation 1 of the TERA report (pp. 3-7), two conservative assumptions were made: (1) both the SSE and OBE were assumed to rupture to the surface, and (2) both the SSE and OBE were assumed to rupture that part of the Hosgri fault closest to the site in question.

INTERROGATORY NO. 6:

A. With reference to the tables beginning at page 84 of the PG&E Response, what was the rationale for using accelerations less than those postulated for the SSE in the Diablo Canyon seismic proceeding? For example, the onsite meterological towers are located at the Diabl Canyon facility. During the seismic proceeding a free field acceleration for the SSE was postulated at 0.75g for that location. Why was a lesser acceleration, namely 0.48g, postulated in Table 1 and also in the Tera Report?

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B. At page 66 of the PG&E Response, the following statement is made:

> The postulated magnitude 7.5 earthquake on the Hosgri fault was chosen because of its use as the seismic design basis for the Diablo Canyon Power Plant and its dominant seismic hazard to the plant.

Explain why an acceleration of 0.75g was not also assumed at the plant site for this magnitude 7.5 earthquake since: (i) this was the free field acceleration used in the seismic design basis for the Diablo Canyon plant; and (ii) a 0.75g SSE acceleration is specifically set forth in the Diablo Canyon Emergency Plan (Table 4.1-1, p. 15.)

ANSWER TO INTERROGATORY NO. 6:

A. The peak acceleration values provided in response to Interrogatory 34 of the first set of Governor Brown's interrogatories represent those "expected" to occur during the SSE and OBE and were computed as median estimates of acceleration using Equation 1 of the TERA report. By definition, the median estimate is one for which 50 percent of the values are larger and 50 percent of the values are smaller. The postulated 0.75g SSE for the Diablo Canyon facility represents a design acceleration which incorporates a margin of safety larger than a median or

"expected" value of acceleration. In this context, the value of peak acceleration expected for the SSE at the Diablo Canyon facility is 0.48g.

B. As explained in Part A of this response, the 0.75g SSE used as the seismic design basis for the Diablo Canyon facility represents an acceleration that is larger than would be expected at the facility during an M_S 7.5 earthquake on the Hosgri fault, and includes a margin of safety in addition to that incorporated in the selection of the design basis earthquake. Use of an M_S 7.5 earthquake on the Hosgri fault for emergency planning purposes does not necessarily imply 0.75g as the value of acceleration expected at the site during such an earthquake. In fact, as stated above, the value of peak acceleration expected at the Diablo Canyon facility for this earthquake is 0.48g. For planning purposes, expected values of peak acceleration were used so that realistic damage scenarios would be considered. Scenarios incorporating greater and lesser damage were also considered to account for uncertainty associated with this assessment of expected damages.

INTERROGATORY NO. 7:

With reference to the tables beginning at page 84 of the PG&E Response, are the peak accelerations listed mean peak accelerations or medians and what is the assumed standard deviation?

ANSWER TO INTERROGATORY NO. 7:

The acceleration parameter used to represent peak acceleration in the response to Interrogatory 34 of the first set of interrogatories is defined as the mean of the two peak values scaled from the horizontal components of an accelerogram. The estimate of this parameter, as listed in Tables I, II, and III, is the median value or that value expected to occur at the site during the specified earthquake. The standard deviation associated with this estimate is 0.405 for the natural logarithm of peak acceleration, representing a multiplicative factor of 1.50 on the estimate of acceleration.

INTERROGATORY NO. 8:

At page 5 of the PG&E Response, lines 14-16, PG&E states that "the dose reduction benefit of sheltering versus evacuation and being overtaken by the passing plume will be evaluated on a case-by-case basis." What criteria will be

utilized in this case-by-case determination? What training is being and/or has been provided to PG&E personnel on application of these criteria?

ANSWER TO INTERROGATORY NO. 8:

As required by NUREG-0654/FEMA-REP-1, criteria for plume exposure pathway protective action recommendations for the general public are based on the "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents" (EPA-520/1-75-001). In order to determine the most effective protective action, the dose reduction factor for whole body dose and thyroid dose would be determined for sheltering and evacuation. The dose reduction factor depends upon composition of plume, magnitude of plume, plume arrival time, duration of release (duration of plume exposure), projected evacuation time, and plume transit time. The protective action which has the greatest dose reduction factor would be the protective action recommended. In cases where the dose reduction benefits are nearly equal, sheltering would be initiated with evaluation of advantages gained by subsequent evacuation. With sheltering followed by evacuation, advantages increase as degree of protection by shelter decrease and plume exposure period increases.

PGandE personnel have been trained and will continue to be trained on the applicable emergency procedures. In addition, PGandE personnel have attended

radiological accident assessment courses sponsored by the State of California and the NRC/FEMA in which instruction was provided by experts in the areas of protective action application.

INTERROGATORY NO. 9:

At page 7 of the PG&E Reponse, reference is made to the media center at Cuesta College. What is the seismic qualification of that media center?

ANSWER TO INTERROGATORY NO. 9:

The seismic qualification of the media center at Cuesta College is unknown.

INTERROGATORY NO. 10:

At pages 15-19 of the PG&E Response, PG&E has described many elements of its public information program. Has this information been produced in response to Governor Brown's prior document production requests? If not, the Governor requests that all documents described at pages 15-19 and drafts of documents not in complete form be produced.

ANSWER TO INTERROGATORY NO. 10:

To the best of its knowledge, all documents and drafts of documents listed in pages 15-19 of the PGandE Response have been made available for discovery.

INTERROGATORY NO. 11:

At page 27 of the PG&E Response, seven documents are described related to emergency planning drills. Have these documents been produced in response to Governor Brown's document production requests? If not, produce these documents.

ANSWER TO INTERROGATORY NO. 11:

The documents described on page 27 of the PGandE Response were not produced in response to Governor Brown's Document Production request because of their irrelevancy. However, with the exception of the Drill Logs, which were unsigned and dated August 13 and 17, 1981, respectively, all other documents will be produced.

INTERROGATORY NO. 12:

At page 32 of the PG&E Response, PG&E describes various documents. Documents Nos. 13 and 14, to our knowledge, have not yet been produced by PG&E in response to the Governor's document production requests. Produce these documents.

ANSWER TO INTERROGATORY NO. 12:

The requested documents (Nos. 13 and 14) are attached.

INTERROGATORY NO. 13:

In Interrogatory 9 of Governor Brown's first set of Interrogatories to PG&E, the Governor asked PG&E, inter alia, to identify and describe any tests or analyses which have been performed either by PG&E or others on the qualifications, characteristics, and response features of the real-time monitors and the equipment at the environmental monitoring stations. PG&E omitted any response to this Interrogatory in its earlier answers. Please provide a response at this time.

ANSWER TO INTERROGATORY NO. 13:

No analyses or tests have been performed by PGandE or others on the qualifications, characteristics, and response features of the real-time monitors and the equipment at the environmental monitoring stations.

INTERROGATORY NO. 14:

At page 40 of the PG&E Response, PG&E referenced that the Federal Signal Company has recently completed some seismic work on the largest siren. PG&E also stated that this information was being forwarded to PG&E and will be used to supplement PG&E's earlier response when available. Has this information yet been provided to PG&E? When does PG&E anticipate supplementing its earlier responses?

ANSWER TO INTERROGATORY NO. 14:

PGandE received the information concerning the seismic testing of the Model 1000 siren from the Federal Signal Company in mid-September. The actual testing was performed by Wyle Laboratory for the Federal Signal Company. The document is available for discovery in the PGandE office in San Francisco.

INTERROGATORY NO. 15:

At page 42, lines 19-21, of the PG&E Response, reference is made to the compressor and the compressor platform related to the siren system. Have any seismic analyses been performed regarding the compressor and/or the associated platform? If so, describe and provide these analyses.

ANSWER TO INTERROGATORY NO. 15:

No.

INTERROGATORY NO. 16:

At page 56 of the PG&E Response, it is stated that the standard operating procedures for the San Luis Obispo County Emergency Plan would be described in PG&E's responses to requests for production. Our review of PG&E's production responses discloses that these procedures were not so dsecribed. Accordingly, describe each of those operating procedures or, in the alternative, produce them for inspection and copying.

ANSWER TO INTERROGATORY NO. 16:

Standard Operating Procedures for the upgraded County Emergency Plan are not yet finalized and approved by

cognizant county authorities. Requests for copies of County documents must be directed to the county.

INTERROGATORY NO. 17:

At page 66 of the PG&E Response, the following statement is made:

> A large variability of off-site damage would be expected to result from the Hosgri earthquake. This diversity of damage comprehensively challenges emergency plans and requires them to be extremely flexible. The variety of damage scenarios considered largely envelopes the expected effects of both smaller and larger earthquakes that might occur within San Luis Obispo County. The main difference being the relative likelihood of specific scenarios.

A. In what way do the damage scenarios considered not envelope the expected effects of both large and smaller earthquakes that might occur within San Luis Obispo County?

B. Describe all analyses or other documents which support the statement quote above.

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ANSWER TO INTERROGATORY NO. 17:

A. PGandE does not believe an enveloping of expected earthquake effects is particularly useful for emergency planning. By evaluating a spectrum of potential damage levels and the effects of these damage levels on evacuation time estimates, the appropriate emergency response can be determined for a wide range of earthquakes, both large and small.

B. Supporting analyses and documents are provided in the TERA report on Earthquake Emergency Planning at Diablo Canyon, copies of which have been furnished to all parties.

INTERROGATORY NO. 18:

On page 72 of the PG&E Response, PG&E states that it believes all applicable emergency plans will be in compliance with all applicable regulations prior to commercial operation of the Diablo Canyon facility.

A. As of September 15, 1981, the date of the PG&E Response, (or, if PG&E prefers, on the date PG&E responds to these Interrogatories) what were (are) the items of noncompliance with applicable regulations for the PG&E, the County, and the State emergency response plans?

B. What schedule for resolution of these items of noncompliance did PG&E assume when it made the foregoing statement on page 72?

ANSWER TO INTERROGATORY NO. 18:

A. As stated previously, it is PGandE's position that all applicable emergency plans will be in compliance with all applicable regulations prior to commercial operation of the Diablo Canyon nuclear power plant in order to assure that adequate protective measures can and will be taken in the event of a radiological emergency.

This opinion is based on the individual and collective judgment of Applicant's staff who have been intimately involved in emergency response planning for the past several years as well as the opinions of various federal, state and county emergency response planners and evaluators. In addition, Applicant has retained consultants who have reviewed the various plans and applicable regulations and have formed similar opinions. Finally, the joint full field exercise conducted on August 19, 1981 demonstrated a capability to respond to a radiological emergency at Diablo Canyon.

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B. These items will be resolved prior to commercial operation.

INTERROGATORY NO. 19:

Describe all human factors or other analyses which have been performed or are to be performed on PG&E's implementing procedures for the PG&E Emergency Response Plan, Revision 3.

ANSWER TO INTERROGATORY NO. 19:

To date, no human factors or other related analyses have been performed on the implementing procedures associated with the PGandE Emergency Response Plan, Revision 3. At the present time, there are no requirements for the performance of human factors analyses on nuclear power plant emergency response plans. PGandE will consider appropriate future actions or analyses when definitive standards or criteria are established.

INTERROGATORY NO. 20:

At page 76 of the PG&E Response, PG&E objected as irrelevant and outside of the scope of discovery to Governor

Brown's request that PG&E describe human factors or other analyses which have been performed on PG&E's emergency operating procedures. Emergency operating procedures are relevant, however, since the Emergency Plan (e.g., pp. 6-8, et. seq.) specifically addresses assessment activities covered by such procedures. Further, in Joint Intervenors' Statement of Clarified Contentions dated June 30, 1981, emergency operating procedures were specifically included. The Board restated Joint Intervenors' contention, but it expressed no disagremeent [sic] that emergency operating procedures were part of that contention. Accordingly, Governor Brown requests PG&E to respond to the Governor's original Interrogatory No. 30 which requests as follows:

> Describe all human factors or other analyses which have been performed on or are proposed to be performed on PG&E's Emergency Operating Procedures. When and by whom was each analysis performed?

ANSWER TO INTERROGATORY NO. 20:

Objected to as irrelevant and outside the scope of discovery. Emergency operating procedures are not the subject of the contention before this Board, but rather emergency planning under 10 C.F.R. §§ 50.33(g), 50.47 and Appendix E to Part 50.

INTERROGATORY NO. 21:

At page 82 of the PG&E Response, PG&E identifies a Tera Corporation report entitled, "Evaluation of Peak Horizontal Ground Acceleration Associated with the Hosgri Fault at the Diablo Canyon Nuclear Power Plant," dated August 1980.

A. Has this document been produced by PG&E?

B. If not, produce this document.

ANSWER TO INTERROGATORY NO. 21:

Yes. This document is Exhibit 1 to PGandE's prefiled testimony for the ASLAB seismic hearings.

INTERROGATORY NO. 22:

At page 17 of the PG&E J.I. Response, PG&E states that the Tera Report will be evaluated and appropriate changes to the Emergency Plans and Procedures will be made as required.

A. Has PG&E conducted analyses of the Tera Report to identify any changes in plans and procedures which will be required?

B. If the answer to the foregoing is yes, describe all these analyses and changes and produce them.

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C. If such analsyes have not been performed, when will they be performed?

ANSWER TO INTERROGATORY NO. 22:

A. PGandE is continuing its review of the TERA report. Currently, changes to the PGandE plan do not appear warranted since Section 6 of that report provides an augmented plan for earthquake effects.

B. Not applicable.

C. If changes to the Emergency Plans are warranted after review of the TERA report by federal, state, and local planning officials is complete, PGandE will include these in its annual review and update.

INTERROGATORY NO. 23:

At page 18 of PG&E's J.I. Response PG&E states that it understands that the forthcoming Tera eport would be applicable to earthquakes greater than the M 7.5 SSE. Subsequent to PG&E's answers, PG&E has received the Tera Report. Does PG&E contend that this report is applicable to earthquakes greater than the SSE? If so, identify what portions, in PG&E's opinion, address earthquakes greater than the SSE.

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ANSWER TO INTERROGATORY NO. 23:

Earthquakes greater than the M_s 7.5 SSE were not explicitly considered in the TERA report; rather, the methodology for developing damage scenarios implicitly considers larger earthquakes. For instance, the scenario that considered damage greater than that expected from the SSE also represents damage that is expected from an earthquake of M_s greater than 7.5.

INTERROGATORY NO. 24:

At pages 41 and 42 of PG&E's J.I. Response, PG&E identifies four land routes, in addition to the north and south land routes, which might be utilized by vehicles or foot traffic to leave Diablo Canyon. The second route (lines 18-22 on page 41) is identified as perhaps not being available to ordinary vehicles. Are routes 1, 3 and 4 available to ordinary vehicles? If the answer is affirmative, describe any analyses performed by or for PG&E to document that ordinary vehicles can use these other three routes.

ANSWER TO INTERROGATORY NO. 24:

Route No. 1 can be utilized by ordinary vehicles. During previous public demonstrations at the Diablo Canyon

Power Plant, this route was utilized as an access road by plant personnel. Routes Nos. 3 and 4 can be utilized by high-chassis vehicles (e.g., pick-up trucks). However, to the best of our knowledge, passage over these routes by ordinary vehicles has not been demonstrated.

INTERROGATORY NO. 25:

In document EPNG0005395, produced by PG&E in response to Governor Brown's document production requests, PG&E states that all "critical equipment" is securely braced and anchored to prevent sliding, overturning, or striking other equipment or the building. How does PG&E define critical equipment? Does such critical equipment include the onsite and offsite real-time monitors, environmental monitoring equipment, and public notification system sirens?

ANSWER TO INTERROGATORY NO. 25:

Document EPNG0005395 discussed the seismic resistance of the Diablo Canyon Power Plant communication system. The term "critical equipment" was used in the subject document to describe equipment specific to the communications system (i.e., equipment and battery racks, antennae and supports). "Critical equipment" has no relationship to the onsite and offsite real-time monitors,

environmental monitoring equipment, and public notification system sirens.

INTERROGATORY NO. 26:

At pages EPNG0010795-96 of the documents produced by PG&E in discovery (Tera proposal TR-81-1247), Tera states that it proposes to analyze "other earthquake effects."

A. Has Tera performed such an analysis? If so, provide such analysis.

B. If Tera has not yet performed such analysis, is it in the process of performing such analysis, and if so, when will it be performed? Provide such analysis when it has been performed.

ANSWER TO INTERROGATORY NO. 26:

This study was performed at the request of counsel and is a privileged communication not subject to discovery.

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INTERROGATORY NO. 27:

In the event of a major earthquake on the Hosgri fault up to and including the SSE, does PG&E expect that there would be sufficient damage to homes and residences in San Luis Obispo County (or any part of it) such that sheltering, at least in areas of greatest earthquake damage, no longer will be a viable protective action alternative?

A. Describe the bases for your response.

B. Identify any documents which relate in any way to this matter.

ANSWER TO INTERROGATORY NO. 27:

Based upon experience from other large earthquakes, one might anticipate some damage to homes and residences in the area nearby the earthquake rupture. While instances of damage to specific buildings sufficient to preclude sheltering in those buildings may occur, there should be other structures without such major damage to allow sheltering as a viable protective action.

INTERROGATORY NO. 28:

A page 8 of Tera Corporation's April 8, 1981 "Proposal for Earthquake Emergency Planning" (page EPNG0017126 of documents produced by PG&E), personnel from

Tera Corporation who propose to work on the Tera Corporation's study are identified.

A. Are these the persons from Tera Corporation who did, in fact, work on and prepare the Tera Corporation report submitted in September 1981?

B. Describe for each individual what his or her role was in preparation of said report.

C. Identify, with reference to specific sections of the Tera Report and its appendices, the persons primarily responsible for the analyses, calculations, and technical portions of that report.

ANSWER TO INTERROGATORY NO. 28:

A. Yes, except for Mr. Joseph A. Fischer and Mr. G. Smith, who were not actively involved in the study.

B. Mr. Robert L. Cudlin acted as Project Manager and directed the emergency planning effort. Dr. R. Winslow and Mr. Brian Davis assisted Mr. Cudlin in the evacuation studies. Dr. K. Campbell directed the ground motion effort. Dr. C. Mortgat directed the assessment of damage to structures and roadways. Messrs. L. Wright and D. Davis were responsible for corporate and division management.

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C. Main Report

1.0	Introduction and Executive Summary	Mr. R. Cudlin Mr. D. Davis
2.0	Study Areas	Mr. R. Cudlin
3.0	Earthquake Effects	
3.1	General Earthquake Effects	Dr. K. Campbell
3.2	Earthquake Effects on Transportation	Dr. C. Mortgat
4.0	Evacuation Time Estimates	Mr. B. Davis Dr. R. Winslow
5.0	Communications	Dr. C. Mortgat
6.0	Diablo Canyon Earthquake Response Plan	Mr. R. Cudlin

Appendix: Ground Failure

1.0	Overview of Critical Routes	Mr. M. Payne 34071 Pequito Dr. Dana Point, CA 92629
2.0	Landslide Potential	Dr. J. Chameau, Professor School of Engineering Grisson Hall Purdue University West Lafayette, IN 47907

Appendix: Bridges and Evacuation

1.0	Guideline for Evaluating the Probable Seismic Damage to Highway Bridges in the San Luis Obispo Area	Mr. R. Nutt 5311 Dredger Way Orangevale, CA 95662
2.0	Testing of Bridge Evaluation Guidelines	Mr. R. Nutt
3.0	Seismic Evaluation of Bridge Columns	Mr. R. Nutt

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4.0 Summary of Bridges Surveyed	Mr. R. Nutt
5.0 Evacuation Network	Dr. R. Winslow 3301 Ginger Tree Ct. Fairfax, VA 22030

INTERROGATORY NO. 29:

In the document production responses of PG&E, a number of documents constituting minutes of the PG&E Emergency Planning Task Force were provided. Have all minutes up to the current time been provided? If not, which minutes have not been provided? Provide all those not previously provided. In that regard, at page EPNP0047862 (minutes of February 4, 1981 Emergency Planning Task Force Meeting, there is a statement that the Task Force will meet bi-weekly until the field exercises are concluded. We do not have bi-weekly minutes up through August 19, 1981.

ANSWER TO INTERROGATORY NO. 29:

Records provided to date include all minutes for the Emergency Planning Task Force. The Emergency Planning Task Force ceased to exist upon reorganization of the Personnel and Environmental Safety Section in the month of April, 1981.

INTERROGATORY NO. 30:

Three Tera Corporation references (pp. 7-1 and 7-2) are not publicly available. These are:

Applied Technology Council, 1981, "Guidelines for the Evaluation of Highway Bridges, ATC-b, Final Draft Report," Applied Tecnnology Council, Berkeley, California.

Campbell, K. W., 1980, "Attenuation of Peak Horizontal Acceleration within the Near-Source Region of Moderate to Large Earthquakes," TERA Corporation, Technical Report 80-1, Berkeley, California.

Campbell, K. W., 1981, "Near-Source Attenuation of Peak Horizontal Accleration," Bulletin of the Seismological Society of AMerica, Vol. 71 (in press).

Produce these documents.

ANSWER TO INTERROGATORY NO. 30:

The three documents listed in Interrogatory 30 of the second set of interrogatories are available for inspection at the PGandE office in San Francisco.

INTERROGATORY NO. 31:

At page 6-8 of the PG&E Emergency Plan, the following statement appears:

> In the case of the LOCA with inadequate core cooling, the major release would not be expected for at least two hours

and probably much longer, due to the time required to melt a large fraction of the core and the expected time before any containment failure would be likely.

A. What analyses have been performed to support the foregoing statement?

B. Describe all documents which relate in any way to the foregoing statement.

ANSWER TO INTERROGATORY NO. 31:

A. No analysis is required for the statement in the context in which it was used in the paragraph. This text provides a general background for a reader on the significance of the postulated event.

B. Not applicable.

INTERROGATORY NO. 32:

At page 6-17 of the PG&E Emergency Plan, it is stated that "the real-time monitors would be automatically interrogated throughout the course of the accident and any environmental assessment."

A. Does the capability exist at this time to automatically interrogate from the plant all onsite and offsite real-time monitors?

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B. If the answer is affirmative, when was this capability established and please describe its technical basis.

C. If not, does PG&E intend to establish such automatic interrogation capability and if so, when?

ANSWER TO INTERROGATORY NO. 32

A. Yes.

B. This capability was established on a conceptual basis in the Fall of 1979, and installation of this equipment occurred during the Spring and Summer of this year.

The technical basis for the automatic interrogation capability is the desire of radiological assessment personnel to obtain as much radiation dose rate information in the environs of Diablo Canyon Power Plant as possible. This information provided by the real-time monitors is supplementary to radiological information obtained from other sources such as field teams. The automatic interrogation capability provides a radiological data source which would normally not require the dispatch of personnel to each monitor location to retrieve data.

C. Not applicable.

INTERROGATORY NO. 33:

In the event the EOF and UDAC are not functional, what communication and assessment capabilities are available at the County's EOC?

ANSWER TO INTERROGATORY NO. 33:

1. Communication Capabilities

In the event the UDAC and EOF are not functional, the County EOC presently has or is in the process of obtaining the following communications capabilities:

1. Ten Pacific Telephone business lines.
2. A Private-Line Selective Signaling Circuit connecting the EOC to the OES headquarters, EOF, NRC office in the EOC, Diablo Canyon Power Plant Control Rooms Unit 1 and Unit 2 and Technical Support Center.
3. An NRC ENS Hot-Line to the NRC Bethesda, Maryland, Headquarters.
4. An NRC Health Physics Region V network hot-line.
5. A Public Information Private-Line Selective Signaling Circuit connecting the EOC-P10 to the EOF-P10, PGandE Media Center at Questa College, and the PGandE San Luis Obispo Office P10.

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6. A Hot-Line telephone circuit connecting the EOC-Sheriff's dispatch center to Diablo Canyon Power Plant Control Room and Technical Support Center.

7. A UHF Radio Link connecting the EOC-Sheriff's dispatch center to Diablo Canyon Power Plant Control Room and Technical Support Center.

8. Eleven Pacific Telephone Co. business lines serving the following offices in the EOC:

   2 lines - FEMA Office

   2 lines - DOE/EPA Office

   3 lines - NRC Office

   3 lines - State of California Office

   1 line - PGandE Office

9. A private intercom link connecting the County P10, UDAC, and EOF.

10. (Under Investigation.) A Private-Line Selective Signaling Circuit connecting the EOC to the following nearby cities:

   (a) Morro Bay

   (b) Paso Robles

   (c) Atascadero

   (d) San Luis Obispo

   (e) South Bay

   (f) Pismo Beach

   (g) Arroyo Grande

(h) Grover City

(i) CAL POLY University

2. Assessment Capabilities

Dose Assessment capabilities will not be significantly affected if the EOF and UDAC are not functional since dose assessment tasks can be performed manually at virtually any location.

INTERROGATORY NO. 34:

At page 7-25 of the PG&E Emergency Plan, PG&E states that the County Emergency Plan will provide for special notification arrangements in the wilderness area near the plant, particularly the State Park.

A. What are these special notification arrangements?

B. Have these arrangements ever been practiced? If so, describe the practice sessions.

ANSWER TO INTERROGATORY NO. 34:

A. All of the land around the Diablo Canyon facility is either a part of the Montana de Oro State Park or privately owned. There is no additional "wilderness" area. See PGandE's response to Interrogatory 8 of the Governor's First Set of Interrogatories.

B. The only notification process tested to date has been the October 20, 1981, demonstration utilizing the Roger's Helicopter Service as described in Interrogatory No. 1.

INTERROGATORY NO. 35:

At page 7-25 of the PG&E Emergency Plan, PG&E explains that the early warning notification sirens are activated by a microwave signal from the Sheriff's office to three transmitter stations at Cuesta Peak, Rocky Butte, and Davis Peak.

A. What are the seismic qualifications of the Sheriff's microwave equipment and the three transmitter stations noted above? Describe all documents which relate to the seismic qualification of this equipment.

B. In the event the Sheriff's microwave equipment fails, three backup encoders, located at County fire stations, can be used to activate the early warning notification sirens.

(1) What procedures exist for use of these alternate activation systems?

(2) What are the seismic qualifications of these backup encoders?

(3) At which County fire stations are these encoders located?

ANSWER TO INTERROGATORY NO. 35:

A. The transmitter equipment that is being purchased for this application is not seismically qualified. All other structures and equipment are not owned or maintained by PGandE and information relating to their seismic design is unknown.

B. (1) The County Emergency Plan SOP for the San Luis County Sheriff's Department includes the procedure for activation of the early warning system and the method for contacting the backup locations. Final operating procedures, based on the instruction sheet for encoder operation, will be written for each location when the backup system is completed.

(2) The backup encoders have not been seismically tested. These encoders are desk-top models, about the size of a telephone.

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(3) The equipment for backup activation has not been installed. The original fire department locations did not have 24-hour dispatch capabilities and the activation sites have therefore been moved to the local sheriff's departments.

INTERROGATORY NO. 36:

At page 7-35 of th PG&E Emergency Plan, PG&E states that "the central computer sub-system is the heart of the emergency dose assessment and response system."

A. Has the central computer system referred to above been classified as safety-grade equipment?

B. If the answer is no, explain the rationale for this decision.

C. If the answer is yes, describe all analyses which document that the computer meets safety-grade requirements.

ANSWER TO INTERROGATORY NO. 36:

A. No.

B. Regulatory requirements state the need for the ability of the licensee to promptly determine the extent of any potential or actual accidental release of

radioactive materials from the plant, assess the potential or actual consequences that may result from the accidental release of radioactive materials on the public health and safety, and to distribute such information and assessments to the various emergency response centers. The central computer in the EARS system is only one of several means to determine, assess, and distribute radiological information. Other means in the form of personnel actions (manual sample collection, calculation, etc.) and backup computers, data and voice communications links provide the capability to determine, assess and distribute radiological information in emergency situations. On this basis, and on the fact that the central EARS computer is not involved with nuclear safety related activities, the central EARS computer is not considered to be safety related.

C. Not applicable.

INTERROGATORY NO. 37:

(a) Describe the power source configuration for the Diablo Canyon pressurizer heaters. (b) What other power source configurations were evaluated by PG&E to supply power to the pressurizer heaters? (c) What is PG&E's

rationale for its choice of configuration? (d) If the heaters were classified as safety-grade, what configuration would be utilized?

ANSWER TO INTERROGATORY NO. 37:

(a) The power source configuration for the pressurizer heaters at Diablo Canyon Power Plant has been described in PGandE's submittal to the NRC dated January 26, 1981, responding to the requirements of Item II.E.3.1 of NUREG-0737, copies of which were served on all parties. In addition, the power source configuration was discussed in detail, including a point by point evaluation of the pressurizer heater power supply design with the requirements of NUREG-0737, in PGandE's answer to Joint Intervenors' interrogatories (pp. 45-67) relating to Joint Intervenors' Contention 11 for low power test proceedings. This information was served on all parties March 16, 1981.

(b) None.

(c) PGandE chose the power source configuration for the pressurizer heaters to comply with the requirements of Item II.E.3.1 of NUREG-0737.

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(d) If the pressurizer heaters were classified as safety-grade, the power source configuration would be the same as the present design.

INTERROGATORY NO. 38:

What is the reliability of the power sources for the Diablo Canyon pressurizer heaters? Describe all documents which relate in any way to the reliability of these power sources.

ANSWER TO INTERROGATORY NO. 38:

PGandE objects to this interrogatory as being beyond the scope of Joint Intervenors' Contention 10. There are no safety grade requirements that define an acceptable level of reliability of "components important to safety."

In addition, the interrogatory lacks specificity in that reliability is not defined, the power sources of interest are not identified, the conditions related to reliability aspects are not identified, etc.

INTERROGATORY NO. 39:

What is the worst case loading on the busses supplying power to the pressurizer heaters at Diablo Canyon? Include in your answer a description of the types of loads, whether they are starting or transient loads, and the time they are likely to occur.

ANSWER TO INTERROGATORY NO. 39:

PGandE objects to this interrogatory as being beyond the scope of Joint Intervenors' Contention 10. The loading on the busses to the pressurizer heaters, whether being the worst case or the nominal case, is not related to how the components are classified with respect to "importance to safety."

INTERROGATORY NO. 40:

For what seismic and environmental conditions have the Diablo Canyon pressurizer heaters and related structures, instruments, controls and power sources been qualified? Include in your answer a description of all analyses and other documents which relate in any way to qualification of these heaters.

ANSWER TO INTERROGATORY NO. 40:

The pressurizer heaters and associated controls are not required by NRC regulations to be classified as "important to safety" and therefore are not required to meet all safety grade design criteria. Therefore, the pressurizer heaters have not been qualified for any specific seismic event. However, their design does ensure that the pressure boundary of the pressurizer is not jeopardized by penetrations in the pressurizer vessel for the external electrical connections to the heaters.

To comply with item II.E.3.1 of NUREG-0737, certain controls and power sources for the pressurizer heaters have been designed to withstand the postulated Hosgri seismic event. These include:

1. The emergency diesel generator
2. 4KV vital switchgear
3. 480V vital circuit breaker
4. 480V vital load center/motor control center

which are required to provide protection to the emergency bus supplying power to the pressurizer heaters.

None of the instruments or controls associated with the pressurizer heaters are subjected to a harsh environment and therefore they have not been qualified to specific environmental conditions.

The pressurizer heaters were manufactured to Westinghouse Equipment Specification 676440, Rev. 4 and

Addendum 677231, Rev. 0. The following tests as required by the Westinghouse specification were per' med by the supplier of the pressurizer heaters:

1. Continuity test
2. High potential test
3. Radiography - full length examination in two planes 90 degrees apart
4. Megger resistance test

INTERROGATORY NO. 41:

What accident or off-normal conditions at Diablo Canyon would require the pressurizer heaters to operate?

ANSWER TO INTERROGATORY NO. 41:

Although alternative methods of reactor coolant system (RCS) pressure control are available, procedures for the Diablo Canyon Power Plant indicate the pressurizer heaters could be used:

1. After a postulated loss of offsite power;
2. Following design basis accidents in which the safety injection system is manually or automatically initiated; and

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3. Following anticipated events in which reactor trip is manually or automatically initiated.

INTERROGATORY NO. 42:

(a) Are the pressurizer heaters anticipated to be utilized at Diablo Canyon when natural circulation needs to be established? (b) If so, which emergency operating procedure(s) would be involved? (c) What action or actions would be planned in the event that natural circulation needs to be achieved at Diablo Canyon and the pressurizer heaters and/or the power sources thereto are not operative?

ANSWER TO INTERROGATORY NO. 42:

(a) Yes.

(b) EP OP-0, REACTOR TRIP WITH SAFETY INJECTION
EP OP-1, LOSS OF COOLANT ACCIDENT
EP OP-2, LOSS OF SECONDARY COOLANT
EP OP-3A, STEAM GENERATOR TUBE RUPTURE
EP OP-4, LOSS OF ELECTRICAL POWER
EP OP-8, CONTROL ROOM INACCESSIBILITY
EP OP-13, MALFUNCTION OF REACTOR PRESSURE CONTROL SYSTEM
EP OP-23, NATURAL CIRCULATION OF REACTOR COOLANT
EP OP-44, GASEOUS VOIDS IN THE RCS.

(c) If the pressurizer heaters are not available, the operator can use either the normal charging and letdown system or the high head safety injection system to maintain or restore RCS pressure at the nominal value. Adoption of one of the two pressure control modes in conjunction with maintaining an effective heat sink in the secondary of the steam generator via the auxiliary feedwater system will ensure that the system can be stabilized following a postulated accident.

If there is a loss of offsite power, the pressurizer heaters would obtain power from the onsite emergency power supplies.

INTERROGATORY NO. 43:

What rationale is utilized by PG&E to justify classification of the pressurizer heaters and related instruments, controls, structures and power sources as non-safety grade? Provide all documents, analyses, or other materials which relate in any way to this rationale.

ANSWER TO INTERROGATORY NO. 43:

It is PGandE's position that the pressurizer heaters and associated controls are not required to be classified as safety grade components and therefore are not

required to meet all safety grade design criteria. However, the pressurizer heater design associated with the capability of obtaining power from the onsite emergency power supply meets GDC 10, 14, 15, 17 and 20 of Appendix A to 10 CFR 50. Therefore, PGandE believes the method that has been used to connect the pressurizer heaters to the onsite emergency power supply is fully adequate.

PGandE's position is based on the fact that the design of the pressurizer heaters meets the NRC regulatory requirements including those arising from post TMI lessons learned, specifically NUREG-0737.

The plant design, including operational practice (training, procedures, etc.) provides alternative and reliable methods of maintaining pressure control, and therefore maintaining natural circulation, which use systems and components designed to safety grade requirements. Therefore, the pressurizer heaters and associated controls are not classified as safety grade. Further, there are no NRC regulations or requirements that require the pressurizer heaters and their associated controls to be classified safety grade. The NRC Staff, on page A-2, NUREG-0578, states ". . . there is a need to consider the upgrading of those pressurizer heaters and associated controls . . . to a safety grade classification. . . ." The NRC Staff further states, on page A-2 of NUREG-0878, "in the short term, designs should be upgraded to provide the operator with the

capability to maintain natural circulation at hot standby through the use of pressurizer heaters when offsite power is not available." This last statement has become a requirement as identified in item II.E.3.1 of NUREG-0737.

Pressurizer heaters and associated controls meet both the requirements of item II.E.3.1 and GDC 17 in terms of emergency on-site power supplies for the pressurizer heaters. Item II.E.3.1 does not require the pressurizer heaters or associated controls to be designed to safety grade requirements. In fact item II.E.3.1 states, "Being non-Class IE loads, the pressurizer heaters must be automatically shed from the emergency power sources. . . ."

The NRC Staff's characterization of the pressurizer heaters as non-Class IE loads, by definition, precludes them from being classed as safety grade components.

INTERROGATORY NO. 44:

What is the status of the EPRI tests on block and power operated relief valves of the kinds utilized at Diablo Canyon?

ANSWER TO INTERROGATORY NO. 44:

PGandE objects to this interrogatory on the basis of relevancy. The EPRI valve performance testing program is clearly outside the scope of Joint Intervenors' Contention 12, which concerns only classification of relief valves, block valves and associated circuity, and compliance with design criteria.

INTERROGATORY NO. 45:

Have the structures, instruments, control systems, and power sources supporting and/or relating to the block and relief valves at Diablo Canyon been analyzed and qualified for all potential operating and accident conditions?

A. If so, describe these analyses and all other documents relating thereto.

B. If not, why have these analyses not been carried out?

ANSWER TO INTERROGATORY NO. 45:

The instruments, control systems and backup power sources supporting and/or relating to the safety-related block and relief valves at Diablo Canyon have been analyzed and qualified for the conditions to which they may be

subjected, whether during normal operation or an accident. Analyses and qualification of structures for these valves are outside the scope of Joint Intervenors' Contention 12 and this portion of the interrogatory is objected to on that basis.

A. The conditions to which these instruments, control systems, and backup power sources may be subjected have been described in the FSAR. The analysis and qualification of such instruments, control systems, and backup power sources to those potential conditions have been accepted by the Staff, as indicated in SER Supplement 15.

B. Not applicable.

INTERROGATORY NO. 46:

Does the EPRI test program for relief and block valves cover structures, instruments, control systems, and power sources of the type(s) utilized at Diablo Canyon? Provide the bases for your response.

ANSWER TO INTERROGATORY NO. 46:

PGandE objects to thi interrogatory on the basis of relevancy. See the answer to interrogatory 44.

INTERROGATORY NO. 47:

Has PG&E seismically and environmentally qualified the instrumentation, controls, structures and power sources for its block and relief valves?

ANSWER TO INTERROGATORY NO. 47:

PGandE objects to this interrogatory. Environmental qualification of equipment is the subject of another contention, which is being considered separately by the Board. Furthermore, the seismic issue has already been litigated and ruled upon by both the Licensing Board and the Atomic Safety and Licensing Appeal Board.

INTERROGATORY NO. 48:

The power operated relief valves and block valves at Diablo Canyon are not classified as safety grade. What is the rationale for failing to classify these items as safety grade and what analyses, if any, have been conducted to support such classifiction as non-safety grade? Describe all such analyses and all other documents relating to the question of the classification of block and relief valves.

ANSWER TO INTERROGATORY NO. 48:

The assertion made in the interrogatory is erroneous.

All of the block valves have been classified as components important to safety and meet all safety-grade design criteria. Two of the three relief valves at Diablo Canyon have been classified as safety grade components and meet all applicable safety-grade design criteria. The remaining valve, which does not meet safety-grade design criteria, was installed to provide 100 percent load rejection without tripping the reactor. It provides no safety-related function. The following materials have been identified as relating to the classification of block and relief valves:

FSAR Sections:

3.1 Conformance with AEC General Design Criterai
3.2 Classification of Structures, Components and Systems
3.6 Criteria for Protection Against Dynamic Effects Associated with a Postulated Rupture of Piping
3.9 Mechanical Systems and Compo ents
5.2 Integrity of the Reactor Coolant System Boundary
15.1 Condition I-Normal Operation and Operational Transients

INTERROGATORY NO. 49:

Does PG&E intend to rely on block and/or relief valves during an emergency situation such as a loss-of-coolant accident? Provide the bases for your response, including identification of all emergency operating procedures related thereto.

ANSWER TO INTERROGATORY NO. 49:

PGandE is prepared to utilize block and/or relief valves during an emergency situation such as a loss-of-coolant accident. Postulated transients have been analyzed which would result in conditions that necessitate the operation of relief or block valves. The following DCPP Emergency Operating Procedures specify the use of relief or block valves:

EP OP-0, REACTOR TRIP WITH SAFETY INJECTION

EP OP-1, LOSS OF COOLANT ACCIDENT

EP OP-2, LOSS OF SECONDARY COOLANT

EP OP-3A, STEAM GENERATOR TUBE RUPTURE

EP OP-4, LOSS OF ELECTRICAL POWER

EP OP-5, REACTOR TRIP WITHOUT SAFETY INJECTION

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EP OP-13, MALFUNCTION OF REACTOR PRESSURE CONTROL SYSTEM

EP OP-22, EMERGENCY SHUTDOWN

EP OP-38, ANTICIPATED TRANSIENT WITHOUT TRIP

Respectfully submitted,

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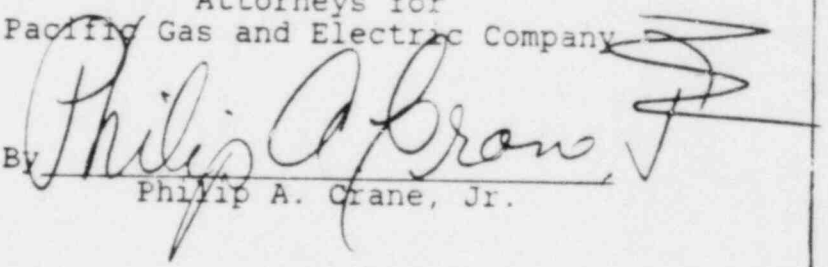
By 
Philip A. Crane, Jr.

DATED: November 3, 1981.

PACIFIC GAS AND ELECTRIC COMPANY
DEPARTMENT OF NUCLEAR PLANT OPERATIONS
DIABLO CANYON POWER PLANT UNIT NOS. 1 and 2

19

TITLE: RADIOLOGICAL EMERGENCY PLAN AND R-PROCEDURES EXAM

1. In the event of a Radiological Emergency, which of the following will initially assume the position of emergency coordinator:

   a. Security Supervisor
   b. Shift Foreman
   c. Security Shift Supervisor
   d. CAS Operator.

2. The Site Emergency Signal:

   a. Chirps
   b. Is a steady siren
   c. Has a characteristic sound which is a rapid rise in pitch followed by a slower drop.
   d. Is a bell.

3. If you are escorting someone in the plant protected area when the emergency signal sounds, where do you take them?

   a. The Administration Building
   b. Radiation Access Control
   c. Security Building
   d. Control Room

4. If you are in the containment when the containment evacuation signal sounds, you would immediately leave and go to:

   a. The Control Room
   b. Radiation Access Control
   c. CAS
   D. Auxiliary operator's office 85' elevation

5. The fire signal:

   a. Chirps
   b. Is a monotone siren followed by a two-digit bell code call
   c. Is a warbler siren followed by a two-digit bell code call
   d. Is a bell.

6. When the rotating amber light is on in areas equipped with the Cardox fire suppression system, this indicates the system has been turned off:

   a. True
   b. False

7. If you are in a room and a radiation area monitor alarms you should:

   a. Immediately call the shift foreman if there is a phone in the room.
   b. Immediately leave and proceed to radiation access control and report the alarm to a radiation protection monitor.
   c. Immediately notify the Security officer on duty
   d. Notify the County Sheriff.

8. If you are in the fuel handling building when the criticality monitor alarms, you should immediately leave and go to:

   a. The Control Room
   b. Radiation access control
   c. CAS
   d. Auxiliary operator's office 85' elevation.

9. If someone receives a serious injury on the radiation controlled side of the plant, first aid measures should take precedence over contamination control measures:

   a. True
   b. False

10. There is a possibility of a chlorine release from the intake structure.

   a. True
   b. False

11. Which of these can order a site evacuation:

   a. Security Supervisor
   b. Radiation Protection Monitor
   c. Site Emergency Coordinator
   d. Maintenance Supervisor

12. Following initial reporting of an emergency, who assumes the roll of Site Emergency Coordinator:

   a. Plant Superintendent
   b. Plant Manager
   c. Technical Assistant to the Plant Manager
   d. Power Plant Engineer
   e. Any of the above

13. One of the following organizations does not recieve initial notification of an emergency from the plant site:

   a. San Luis Obispo County
   b. State of California
   c. Federal Emergency Management Agency
   d. Nuclear Regulatory Commission

14. Which agency is notified by the plant first in the event of an emergency situation:

    a. NRC
    b. FEMA
    c. State of California
    d. San Luis Obispo County

15. If a site evacuation is ordered, where do personnel go:

    a. Home
    b. San Luis Obispo PG&E Service Center
    c. Designated off-site assembly area for monitoring prior to release
    d. San Luis Obispo County Sheriff's Office.

16. If called in for response to an emergency situation where do you report:

    a. Visitors Center
    b. Administration Building
    c. Technical Support Center
    d. Operational Support Center (Security Building lunch room).

17. Following sounding of the site emergency signal you are the person in charge of your assembly area. Where will instructions come from:

    a. Security Shift Supervisor
    b. Site Emergency Coordinator
    c. Plant Manager
    d. From b through a.

18. At 10:00pm one of two mechanical maintenance personnel working on a radwaste concentrator is severely injured by falling due to a sudden leak on the concentrate pump. His companion helps him to Access Control where you are the RPM on shift. You should:

    a. Assist in care of the injury
    b. Notify the Control Room to request an ambulance
    c. Determine the extent of contamination involved with the injury
    d. All of the above.

19. You are entering the radwaste storage area on the east side of the plant alone to label waste containers, and notice a box of dry waste is smoking. You should:

    a. Discharge a fire extinguisher in the box and then continue your labeling.
    b. Exit the area, go to a phone dial 779-21 and remain on the phone
    c. Get your labeling done and report the smoke to your supervisor afterwards.

20. While on the graveyard shift the Shift Foreman calls and requests a radiation survey around the waste drumming station due to an area alarm indication. Upon entering the area, you report 150 mr/hr above the normal ambient radiation. The Shift Foreman declares an Alert Emergency condition and notifies the following:

a. San Luis Obispo County, State office of Emergency Services, NRC
b. Plant Manager, Plant Superintendent, Plant Engineer, Supervisor of Chemistry and Radiation Protection.
c. Manager of Nuclear Plant Operations
d. All of the above.

LECTURE NOTES EPD 350

14

MAINTENANCE AND REPAIR UNDER RADIOLOGICAL Emergency Condition

I. Introduction
   1. Purpose of Course
   2. Review of Basic Actions in the Event of an Emergency Onsite

II. Site Emergency Plan
   1. Purpose
   2. NRC Requirements Summarized
   3. Summary and Organization
   4. Emergency Procedure
   5. Site Emergency Organization
   6. Corporate E.P. Interfaces
   7. Emergency Facilities

III. Emergency Action Levels

IV. Administration Under Emergency Conditions
   1. Site Assembly and Accountability
   2. Use of the Operational Support Center
   3. Communication With The Technical Support Center

MAINTENANCE AND REPAIR [illegible]
RADIOLOGICAL EMERGENCY CONDITI[illegible]

I. Introduction

1. Purpose of Course

This course is intended to provide a broad overview of the Diablo Canyon Emergency Plan and those implementing procedures dealing with topics such as organization, communications, emergency facilities and responsibilities in an emergency situation.

It is intended for those who may have the responsibility to perform their normal activities (maintenance and repair) under abnormal conditions when the Site Emergency Organization is in effect.

2. Review of Basic Actions in the Event of an Emergency Onsite.

Refer to the lecture notes for EPD-600.

II. Site Emergency Plan

1. Purpose - A) Demonstrate compliance with NRC requirements for Emergency Planning.

B) Provide an overview of the organization, facilities, equipment and procedures used in an emergency and in maintaining emergency preparedness.

2. NRC Requirements Summarized:

10CFR50.33 Contents of Applications

Must submit state and local Radiological Emergency Plans for an Operating License.

10CFR50.47 Emergency Plans

Must have finding for an operating license that the state of onsite and offsite emergency preparedness provides reasonable assurance that protection measures can and will be taken in the event of a radiological emergency.

Federal Emergency Management Agency (FEMA) to review state and local emergency plans. FEMA finding of adequacy is a rebuttable presumption in NRC proceeding.

Sixteen standards for Emergency Plans defined.

Emergency Planning Zones set:
Plume Exposure Pathway = 10 miles
Ingestion Pathway = 50 miles

3. Summary and Organization

A. Organization and Contents

1) Definitions - Brief definitions of unusual terms.

2) Scope and Applicability - Establishes purpose of document.

3) Summary - brief summary of following sections.

4) Emergency Conditions - Contains information on the indentification and classification of an emergency situation. This information is basically the same as that in Procedure GA-1. Standard NRC emergency action levels are used to facilitate identification and non-technical assessment of emergency conditions. These come from NUREG-0654, Appendix 1. The use of emergency action levels assist various affected parties in understanding the potential severity and initiating a preplanned response during the early stages of an emergency situation. Examples of Diablo Canyon conditions for each emergency action level are also included in Section 4.

5) Organizational Control of Emergencies - The normal plant operating and emergency organizations are identified in this section. The Section also summarizes the relationship between the plant staff and participating offsite emergency authorities and responsibilities of individuals and organizations involved in response organizations. This section is the only place where such a summary exists without reviewing each of the individual plans.

6) Emergency Measures - Specific emergency response measures are outlined in this section. The activiation and actions of the emergency organization, onsite evacuation, and personnel injury are also addressed. This information is summarized from the various emergency procedures.

7) Emergency Facilities and Equipment - Emergency control centers, communication systems, and assessment, protective and medical facilities are described in this section. This is also the only place where such a convenient summary exists.

8) Maintaining Emergency Preparedness describes training, drills and exercises to be used to maintain emergency preparedness and the program for emergency plan reviews and equipment maintenance.

9) Recovery - describes general plans for restoring the plant to a safe status.

10) Appendices - Contains interfacing emergency plans and miscellaneous information, such as a listing of emergency procedure and letters of agreement on emergency response.

Interfacing Plans include:

a) Corporate Emergency Plan
b) San Luis Obispo County Nuclear Power Plant Emergency Plan
c) State of California Nuclear Power Plant Emergency Plan
d) French Hospital Emergency Plan
e) USDOE Radiological Assistance Plan
f) Westinghouse Emergency Response Plan

Letters of Agreement Include:

a) U.S. Guard - The Coast Guard provides warning to craft off-shore in the event of a plant emergency.
b) California Department of Forestry - CDF provides off-site support in the case of a fire on-site.
c) San Luis Ambulance Service - Provides ambulance service on-site in case of injured, contamination victims.

4. Emergency Procedure

Emergency procedures are located in Volume 3 of the plant manual (Red Book)

Volume 3 of the plant manual is in the control room, each supervisor's office and a copy is available for inspection in the plant library.

The procedures are organized in the following catagories:

OP - Equipment Operation

R - Radiological

M - Miscellaneous

GA - General Appendices

A future addition to Volume 3 (3B) will contain the following series of procedures:

OR - Organization

EF - Emergency Facility

RB - Radiological (post accident)

5. Site Emergency Organization

A. Shift Organization

The emergency plan and procedures permit broad discretion on the part of the Shift Foreman regarding assignments under emergency conditions.

Refer to Figure 1 for typical assignments.

The on-shift fire brigade contains a minimum of 5 persons. These are designated as

1) Senior Control Operator (Fire Captain)

2) Auxiliary Operator

3) Auxiliary Operator
4) Security Shift Supervisor
5) Shift RPM

In addition two fire crews are established from plant personnel normally on-site during normal working hours.

B. Long Term Organization

The long term organization is also flexible at the discretion of the Site Emergency Coordinator. The general structure is shown on figure 2. As indicated a minimum number of these positions must be filled at the Alert (or higher) emergency level.

6. Corporate EP Interface

The corporate emergency response organization is headed by a Corporate Emergency Coordinator (normally the Vice President Nuclear Power Generation) while technical direction and control is under a Recovery Manager (normally the Manager-Nuclear Plant Operations). Figure 3 shows the organization structure.

Assistance to the site organization is suppling material or manpower for repairs would be provided under the control of the Corporate Technical and Logistical Coordinator (normally the Manager, Nuclear Projects) with the organizations shown in figure 4 and 5.

Interface with the Corporate response organization for maintenance and repairs assistance is through the Emergency Maintenance Coordinator. Besides PG&E assistance, further aid may be obtained through Westinghouse, agreements with other utilities or other vendors or consultants.

7. Emergency Facilities

The primary emergency facilities are the control room and the H.P. and Chemistry labs. The experience at TMI-2 with control room overcrowding and high radiation in the plant has lead to the establishment of facilities away from the control room to accommodate emergency response.

A. Technical Support Center (TSC)

The TSC has been established to move emergency response and recovery management at the plant out of the control room but still provide a radiologically hardened facility.

The TSC is located on the Unit 2 buttresses. It consists of seven rooms, one of which is dedicated to HVAC equipment. The structure is seismic class 1, shielded and the ventilation is connected to the control room pressurization system. This facility has the RMS Health Physics and Harris computer facilities and has communications equipment installed (telephone and radio). A closed circuit TV monitor system and video cameras in the control room provide plant status monitoring. Office space is provided for plant personnel and NRC.

A health physics counting laboratory is also being installed in the south end of this facility.

B. Operational Support Center

The security building lunch room has been designated as the operational support center in the event of an emergency. Its function is to provide space for personnel awaiting emergency response assignment, where they are readily available, but away from the control room, laboratories or the TSC. Direct communication with the TSC is available from this facility.

C. Off-site Facilities

Visitors' Center

The visitors' center off highway 101 has communications including an NRC, red phone, blue phone, plant phone, radio and emergency kit. It has the potential for being used as a site evacuation assembly area, an off-site monitoring coordination area and is, at least temporarily, the backup EOF.

Emergency Operations Facility (EOF)

The EOF is located at the SLO county Sheriff's office off Highway 1 between San Luis Obispo and Morro Bay. It is a trailer office equipped with emergency power, emergency communications and computer display equipment. It is immediately adjacent to the county emergency operations center (EOC) which is the inservice training facility at the county jail. Overall response management will be conducted here.

Real Time Radiation Monitors

A network of 9 radiation monitors will be located off-site to provide general area readings from Morro Bay to south of Oceano. Data from these monitors will be processed by the EARS system. This information will assist in off-site monitoring and will be available to off-site authorities as well as the other parameters monitored by EARS.

Early Warning System

This is a network of civil defense sirens to provide a capability to alert the public to an emergency condition in a short period of time. An emergency broadcast system (EBS) will follow the alerting siren signal to provide people instructions and information on what protective actions may be recommended by the authorities. This system is required by NRC to extend to the 10-mile EPZ. Our present intention is to cover heavily populated areas from Cayucos to Oceano. This system is under the control of San Luis Obispo County.

D. Portable Emergency Equipment

Radiological monitoring and respiratory equipment is available in sufficient quantities on site. In addition emergency supplies for monitoring and setting up controlled access areas are stored in the security building and off-site at the Visitors Center, Sheriff's office and Morro Bay Power Plant.

III. Emergency Action Levels

The NRC has defined four classes of Emergency Action Levels. These are:

Notification of Unusual Event
Alert
Site Area Emergency
General Emergency

It is the responsibility of the plant to determine which class a given situation fits. The classification can be revised as the situation changes or more information is available, but the initial classification is very important as it determines:

a. The extent of response by off-site agencies including company, federal, state, county and city.

b. The extent of immediate public alerting and protective actions.

c. The number of plant personnel called to respond.

d. The promptness of notifying off-site authorities. NRC guidelines class for notification within about 15 minutes for an unusual event and sooner (consistent with the need for other emergency actions) for other classes.

Determination of the classification for an event is the responsibility initially of the Shift Foreman. This is assumed by the Site Emergency Coordinator, when available.

Procedure guidance is provided to allow determining a classification based either on the type of event, or the actual (or potential) radiological effects.

(examples of each classification)

IV. Administration under Emergency Conditions

A. Site Assembly and Accountability

(see procedure GA-3 for a description of the accountability process).

B. Use of the Operational Support Center

The Operational Support Center is intended as an initial staging area for personnel reporting on-site in an emergency or for persons retained on-site awaiting assignment in an emergency situation.

It is expected that personnel with specific assignments will be moved to a location where the work is to be performed or in the case of complex jobs, to a staging area for that activity (ie the shops or labs).

Personnel entering or leaving the site should check in and out of the OSC to maintain a current status of on-site personnel.

C. Communication with the Technical Support Center

1. Telephone

The plant has three telephone capabilities:

a. Computerized Branch Exchange - (Rolm CBX), handles outgoing (PTCT calls and connect to the Company private automatic branch exchange (PABX). Most phones in the TSC are on the CBX.

b. PABX - Handles only calls within the PGandE private telephone system. Most phones in the plant are on this system.

c. Dedicated phones - Go between the TSC and the following:

1) Control Room
2) OSC
3) EOF
4) County Sheriff's Office
5) State OES

The CBX is programmed to give the TSC, and other emergency extensions priority access to available lines and sole access to certain emergency service lines. In order to maintain this priority service, normal plant phones (and other in the PG&E system) cannot call direct to the TSC. They can be called from the TSC phones.

Calls to TSC extensions from plant phones will be diverted to a phone control console in the TSC where they can be forwarded to the desired extension.

Outside calls to the plant normal number will be diverted to the TSC if the administration building phone console is off and the TSC phones are manned. Priority will be given to answering a special plant phone number designated for emergency use only.

Phone calls on both numbers divert to the control room if both the administration building and TSC phone console are off.

2. Radio

The TSC has access to 6 plant radio frequencies, 3 of which are for local use only. These are:

Operations

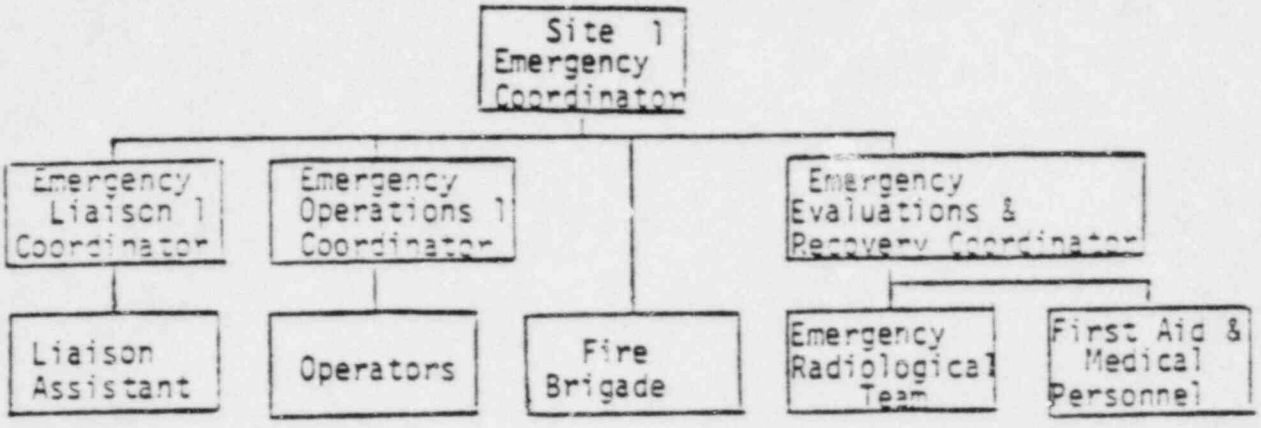
Security

Health Physics

Portable radios will be available for in plant use on these local frequencies to communicate with the TSC.

FIGURE /

YPICAL ON-SHIFT EMERGENCY ORGANIZATION
AND ASSIGNMENTS



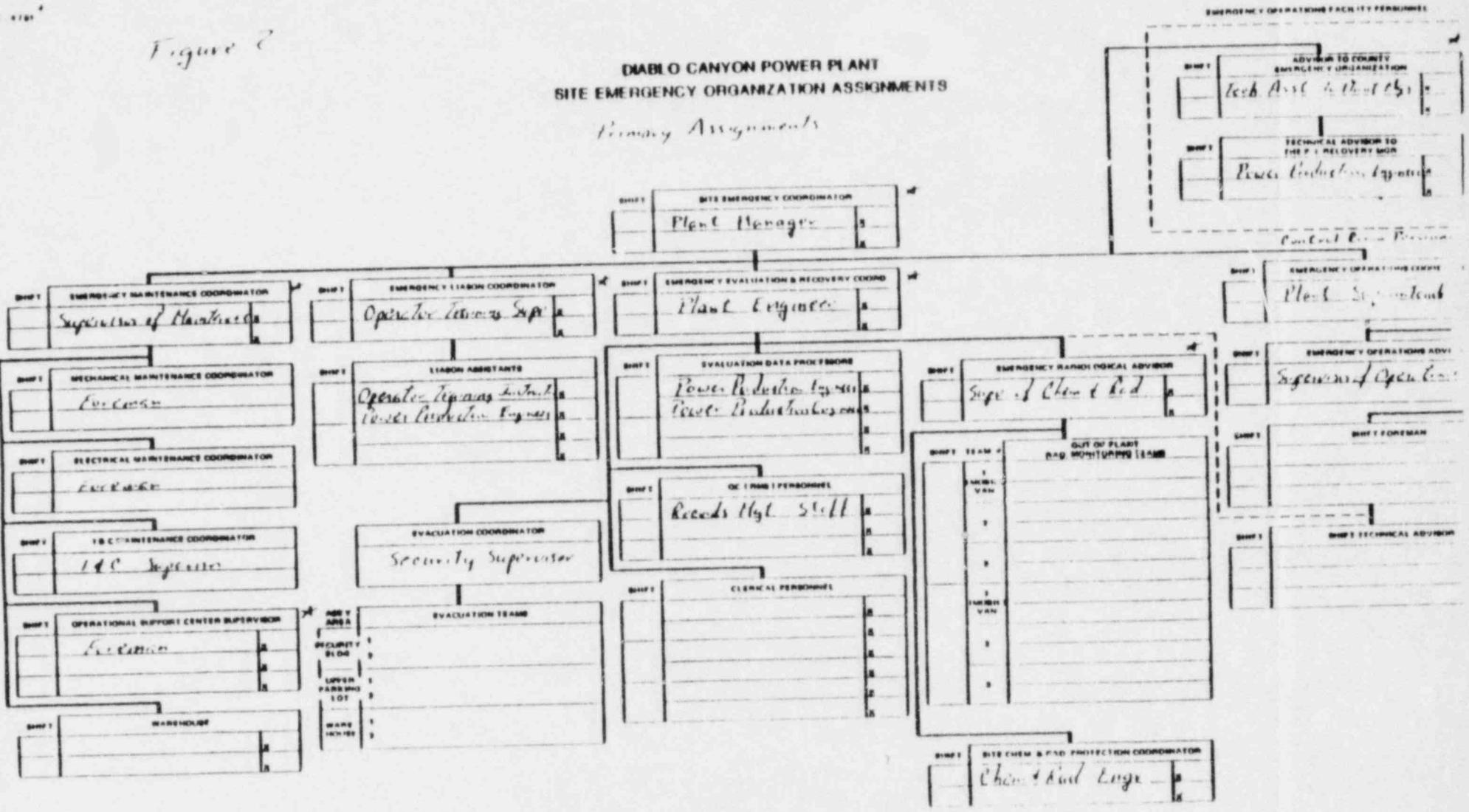
Position	Typical Assignment
Interim Site Emergency Coordinator[1]	Shift Foreman (Sr. Control Operator if not available)
Interim Emergency Liaison Coordinator[1]	Shift Control Technician or Auxiliary Operator
Interim Emergency Operations Coordinator[1]	Sr. Control Operator or Control Operator
Interim Emergency Evaluations & Recovery Coordinator	Shift Engineer
Liaison Assistant	Control Technician or Shift Clerk
Operators	Assignments per the Interim Site Emergency Coordinator
Fire Brigade	See Procedure M-6 or R-6
Emergency Radiological Team	Shift RXM or Auxiliary Operator (if required)
First Aid and Medical	Employees at the scene.

[1]Required Assignment

Figure C

DIABLO CANYON POWER PLANT
SITE EMERGENCY ORGANIZATION ASSIGNMENTS

Primary Assignments



* Positions filled at Alert level

PROCEDURE 1.1
ACTIVATION OF THE CORPORATE EMERGENCY ORGANIZATION

APPENDIX E-1
EMERGENCY RESPONSE ORGANIZATION,
CORPORATE EMERGENCY RESPONSE ORGANIZATION MANAGEMENT

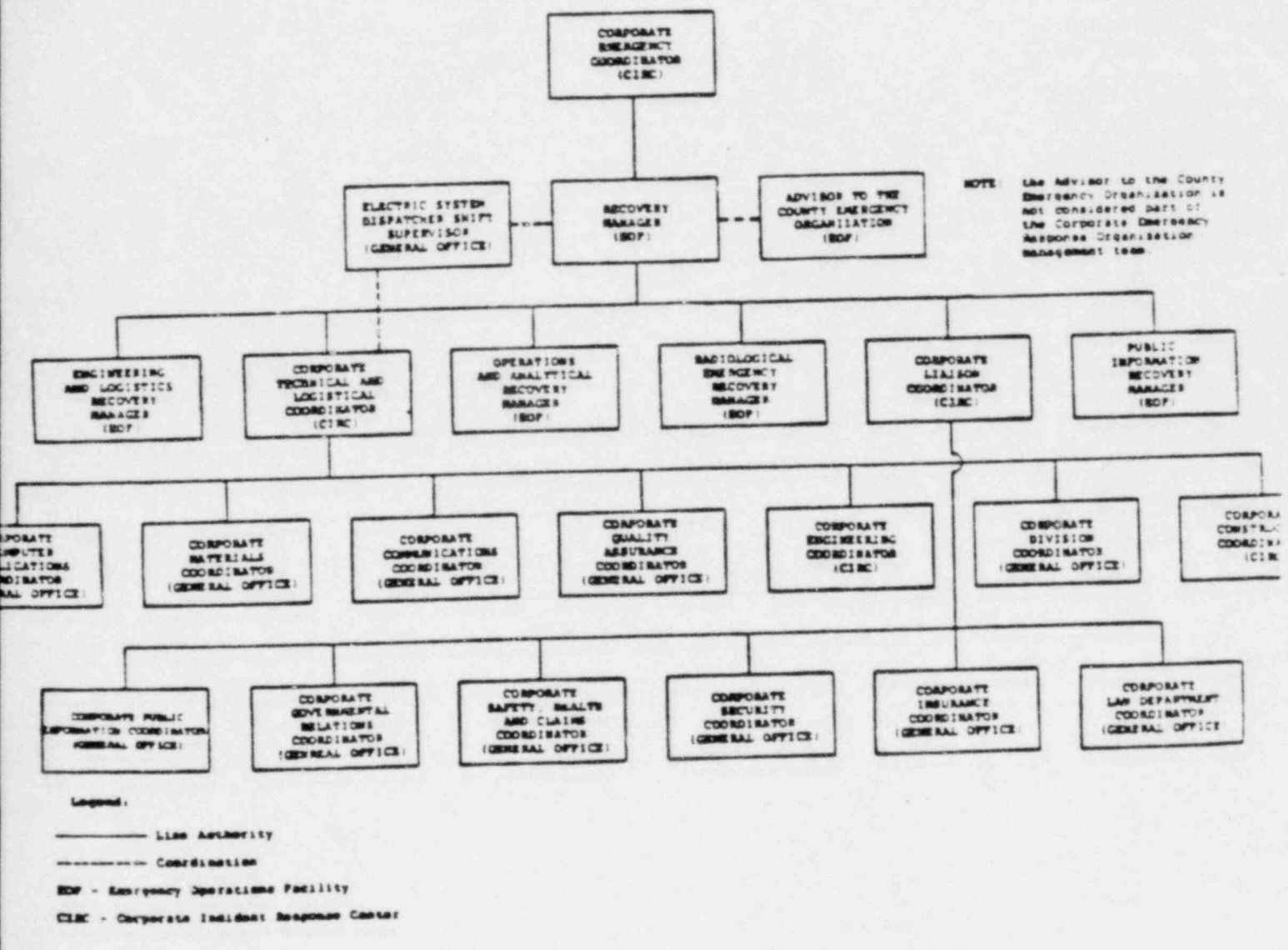
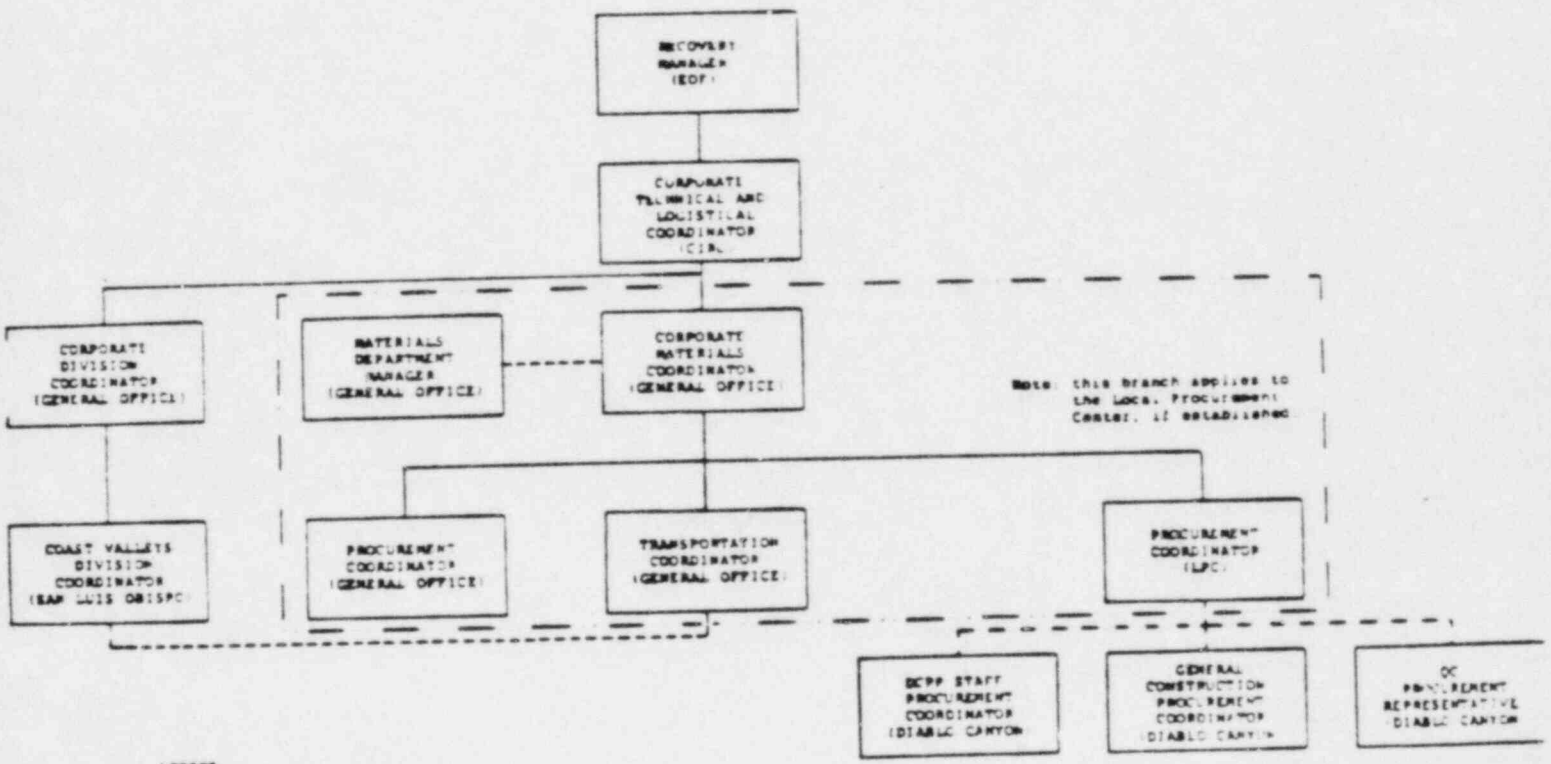


Figure 3

PROCEDURE 4.1
MATERIALS

APPENDIX E-1
EMERGENCY RESPONSE ORGANIZATION, MATERIALS DEPARTMENT RELATIONSHIPS



Legend

——— Line Authority

- - - - - - Coordination

— — — Corporate Materials Department Organization

EOF - Emergency Operations Facility

CIRC - Corporate Incident Response Center

LPC - Local Procurement Center

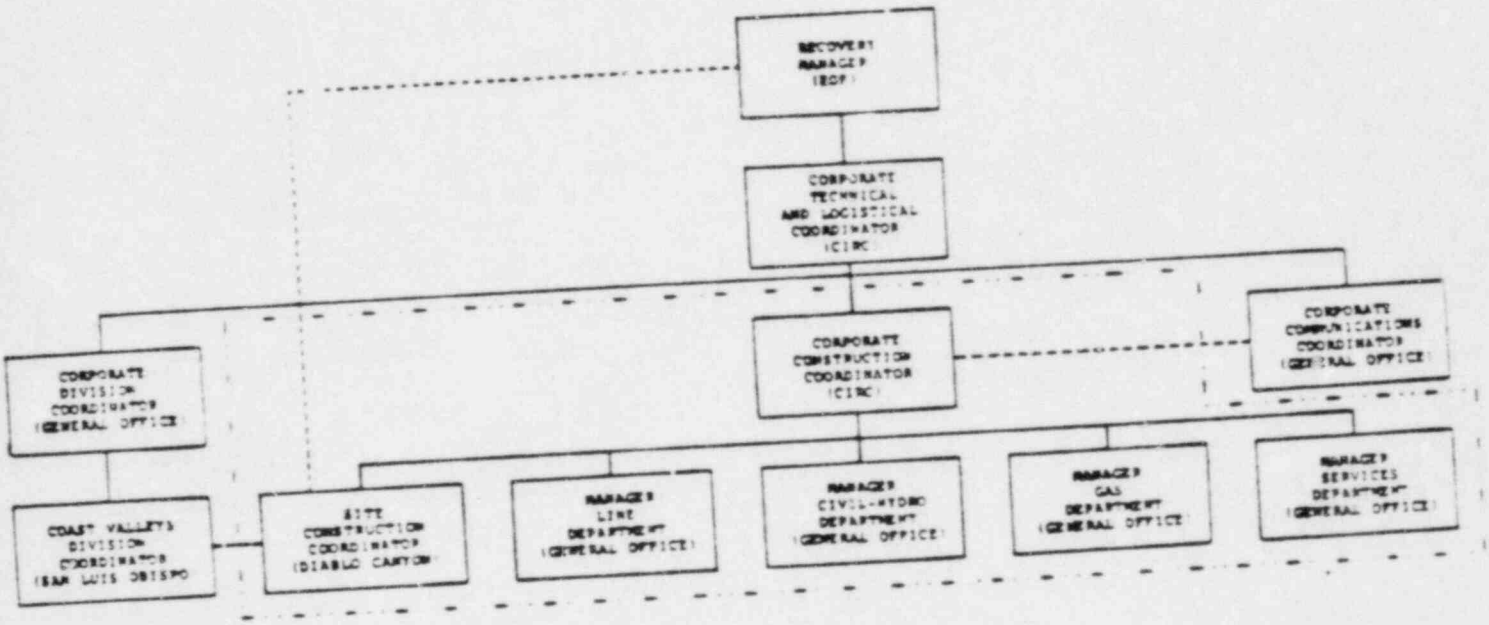
Note: the Procurement Coordinator may be assigned to the General Office or the Local Procurement Center

Figure 4

CORPORATE EMERGENCY RESPONSE PLAN
IMPLEMENTING PROCEDURE

PROCEDURE 4.4
GENERAL CONSTRUCTION

APPENDIX E-1
EMERGENCY RESPONSE ORGANIZATION,
GENERAL CONSTRUCTION DEPARTMENT RELATIONSHIPS



Legend

——— Line Authority

---------- Coordination

— — — Corporate Construction Department Personnel

EOF - Emergency Operations Facility

CIRC - Corporate Incident Response Center

Figure E

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
AND
THIRD REQUEST FOR PRODUCTION OF DOCUMENTS
TO PACIFIC GAS AND ELECTRIC COMPANY

I have assisted in preparing the answers to Interrogatories 16, 29, 31. Said answers are true and correct to the best of my knowledge and belief.

J. L. Potter

Subscribed and sworn to
before me this 2nd day
of November, 1981

Theodora Lora Cooke
Notary Public
in and for City and County
of San Francisco, State of California

SEAL

My Commission expires January 28, 1985

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
AND
THIRD REQUEST FOR PRODUCTION OF DOCUMENTS
TO PACIFIC GAS AND ELECTRIC COMPANY

I have assisted in preparing the answers to Interrogatories 3. Said answers are true and correct to the best of my knowledge and belief.

E. P. Wollak

Subscribed and sworn to before me this 2nd day of November, 1981

Theodora Cooke, Notary Public for the City and County of San Francisco, State of California

SEAL

My commission expires January 28, 1985

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
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I have assisted in preparing the answers to Interrogatories 3. Said answers are true and correct to the best of my knowledge and belief.

E. P. Wollak

Subscribed and sworn to
before me this 2nd day
of November, 1981

Theodora Cooke (SEAL)
Theodora Cooke, Notary Public
in and for the City and County
of San Francisco, State of California

My Commission expires January 28, 1985

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
AND
THIRD REQUEST FOR PRODUCTION OF DOCUMENTS
TO PACIFIC GAS AND ELECTRIC COMPANY

I have assisted in preparing the answers to Interrogatories 11. Said answers are true and correct to the best of my knowledge and belief.

Ann Hartwell-Spann

Subscribed and sworn to
before me this 2nd day
of November, 1981

Theodora Cooke (SEAL)
Theodora Cooke, Notary Public
in and for the City and County
of San Francisco, State of California

My Commission expires January 28, 1985

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
AND
THIRD REQUEST FOR PRODUCTION OF DOCUMENTS
TO PACIFIC GAS AND ELECTRIC COMPANY

I have assisted in preparing the answers to Interrogatories 3. Said answers are true and correct to the best of my knowledge and belief.

P. D. Newell

Subscribed and sworn to
before me this 2nd day
of November, 1981

Theodora Cooke (SEAL)
Theodora Cooke, Notary Public
in and for the City and County
of San Francisco, State of California

My Commission expires January 28, 1985

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
AND
THIRD REQUEST FOR PRODUCTION OF DOCUMENTS
TO PACIFIC GAS AND ELECTRIC COMPANY

I have assisted in preparing the answers to Interrogatories 10. Said answers are true and correct to the best of my knowledge and belief.

Faith J. Rockmaker
Faith Rockmaker

Subscribed and sworn to
before me this 2nd day
of November, 1981

Theodora Cooke (SEAL)
Theodora Cooke, Notary Public
in and for the City and County
of San Francisco, State of California

My Commission expires January 28, 1985

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
AND
THIRD REQUEST FOR PRODUCTION OF DOCUMENTS
TO PACIFIC GAS AND ELECTRIC COMPANY

I have assisted in preparing the answers to Interrogatories 1, 3, 4B,C, 9, 12, 24, 34. Said answers are true and correct to the best of my knowledge and belief.

R. J. McDevitt

R. J. McDevitt

Subscribed and sworn to
before me this 2nd day
of November, 1981

Theodora Cooke (SEAL)
Theodora Cooke, Notary Public
in and for the City and County
of San Francisco, State of California

My Commission expires January 28, 1985

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
AND
THIRD REQUEST FOR PRODUCTION OF DOCUMENTS
TO PACIFIC GAS AND ELECTRIC COMPANY

I have assisted in preparing the answers to Interrogatories 2. Said answers are true and correct to the best of my knowledge and belief.

G. C. Lenfesty

Subscribed and sworn to
before me this 2nd day
of November, 1981

Theodora Cooke (SEAL)
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of San Francisco, State of California

My Commission expires January 28, 1985

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
AND
THIRD REQUEST FOR PRODUCTION OF DOCUMENTS
TO PACIFIC GAS AND ELECTRIC COMPANY

I have assisted in preparing the answers to Interrogatories 33, 35A. Said answers are true and correct to the best of my knowledge and belief.

A. J. Nevolo

Subscribed and sworn to
before me this 2nd day
of November, 1981

Theodora Cooke (SEAL)
Theodora Cooke, Notary Public
in and for the City and County
of San Francisco, State of California

My Commission expires January 28, 1985

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
AND
THIRD REQUEST FOR PRODUCTION OF DOCUMENTS
TO PACIFIC GAS AND ELECTRIC COMPANY

I have assisted in preparing the answers to Interrogatories 14, 15, 34A, 35B. Said answers are true and correct to the best of my knowledge and belief.

K M Godfrey

K. M. Godfrey

Subscribed and sworn to
before me this 2nd day
of November, 1981

Theodora Cooke (SEAL)

Theodora Cooke, Notary Public
in and for the City and County
of San Francisco, State of California

My Commission expires January 28, 1985

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
AND
THIRD REQUEST FOR PRODUCTION OF DOCUMENTS
TO PACIFIC GAS AND ELECTRIC COMPANY

I have assisted in preparing the answers to Interrogatories 8. Said answers are true and correct to the best of my knowledge and belief.

T. A. Mack

T. A. Mack

Subscribed and sworn to
before me this 2nd day
of November, 1981

Theodora Cooke (SEAL)
Theodora Cooke, Notary Public
in and for the City and County
of San Francisco, State of California

My Commission expires January 28, 1985

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
AND
THIRD REQUEST FOR PRODUCTION OF DOCUMENTS
TO PACIFIC GAS AND ELECTRIC COMPANY

I have assisted in preparing the answers to Interrogatories 20,41, 42, 49. Said answers are true and correct to the best of my knowledge and belief.

W. H. FUJIMOTO

Subscribed and sworn to
before me this 2nd day
of November, 1981

Theodora Cooke (SEAL)
Theodora Cooke, Notary Public
in and for the City and County
of San Francisco, State of
California

My Commission expires January 28, 1985

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
AND
THIRD REQUEST FOR PRODUCTION OF DOCUMENTS
TO PACIFIC GAS AND ELECTRIC COMPANY

I have assisted in preparing the answers to Interrogatories 37, 38, 39, 40, 43. Said answers are true and correct to the best of my knowledge and belief.

C. O. COFFER

Subscribed and sworn to
before me this 2nd day
of November, 1981

Theodora Cooke (SEAL)
Theodora Cooke, Notary Public
in and for the City and County
of San Francisco, State of
California

My Commission expires January 28, 1985

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
AND
THIRD REQUEST FOR PRODUCTION OF DOCUMENTS
TO PACIFIC GAS AND ELECTRIC COMPANY

I have assisted in preparing the answers to Interrogatories 37, 40, 45. Said answers are true and correct to the best of my knowledge and belief.

J. E. Herbst

J. E. HERBST

Subscribed and sworn to
before me this 2nd day
of November, 1981

Theodora Cooke SEAL

Theodora Cooke, Notary Public
in and for the City and County
of San Francisco, State of
California

My Commission expires January 28, 1985

I have assisted in preparing the answers to Interrogatories 4, 5, 6, 7, 17, 21, 23, 26, 27, 28 and 30. Said answers are true and correct to the best of my knowledge and belief.

Don K. Davis

Subscribed and sworn to
before me this 3rd day of
November, 1981.

Notary Public in and for the
County of Alameda, the
State of California.

My Commission Expires May 4, 1984

GOVERNOR EDMUND G. BROWN, JR.
SECOND SET OF INTERROGATORIES
AND
THIRD REQUEST FOR PRODUCTION OF DOCUMENTS
TO PACIFIC GAS AND ELECTRIC COMPANY

I have assisted in preparing the answers to Interrogatories 44, 46, 47, 48. Said answers are true and correct to the best of my knowledge and belief.

G. C. WU

Subscribed and sworn to
before me this 2nd day
of November, 1981

Theodora Cooke (SEAL)
Theodora Cooke, Notary Public
in and for the City and County
of San Francisco, State of
California

My Commission expires January 28, 1985

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
PACIFIC GAS AND ELECTRIC COMPANY	)	Docket No. 50-275 Docket No. 50-323
	)	
Diablo Canyon Nuclear Power Plant, Units 1 and 2	)	(Full Power Proceeding)
	)	

CERTIFICATE OF SERVICE

The foregoing document(s) of Pacific Gas and Electric Company has (~~have~~) been served today on the following by deposit in the United States mail, properly stamped and addressed:

Judge John F. Wolf
Chairman
Atomic Safety and Licensing Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Judge Glenn O. Bright
Atomic Safety and Licensing Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Judge Jerry R. Kline
Atomic Safety and Licensing Board
U. S. Nuclear Regulatory Commission
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Washington, D. C. 20555

Chairman
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Appeal Panel
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Judge W. Reed Johnson
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Washington, D. C. 20555

Philip A. Crane, Jr.
Attorney
Pacific Gas and Electric Company

Date: November 3, 1981