UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

6/30/81

In the Matter of	
PACIFIC GAS AND ELECTRIC COMPANY	Docket Nos. 50-275 O.L. 50-323 O.L.
(Diablo Canyon Nuclear Power Plant, Units 1 and 2)	

JOINT INTERVENORS' STATEMENT OF CLARIFIED CONTENTIONS

The SAN LUIS OBISPO MOTHERS FOR PEACE, SCENIC SHORELINE PRESERVATION CONFERENCE, INC., ECOLOGY ACTION CLUB, SANDRA SILVER, GORDON SILVER, ELIZABETH APFELBERG, and JOHN J. FORSTER ("Joint Intervenors") hereby submit clarified contentions in connection with the July 1, 1981 Prehearing Conference held in this proceeding pursuant to the Notice of Conference of Counsel issued by the Atomic Safety and Licensing Board ("licensing board") on May 27, 1981. This Prehearing Conference has been scheduled to consider two motions to reopen the full power licensing proceeding, both of which arose out of the Three Mile Island accident. The first motion, regarding emergency response planning, was filed by Joint Intervenors on May 9, 1979 and the second, raising seventeen additional TMI-related contentions, on March 24, 1981.

Joint Intervenors now submit this statement of clarified contentions in order to facilitate the consideration by the board and all parties of the issues previously raised in the respective

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motions to reopen. Although the essential content of the contentions has not been changed, their precise relationship to Diablo Canyon has been further specified, and the issues of particular concern have been more narrowly focused and, where possible, consolidated. In addition, while Joint Intervenors continue to believe that all contentions originally included in the March 24, 1981 motion to reopen raise significant safety issues, several have been eliminated in order to devote Joint Intervenors' limited resources to the issues of greatest concern.

Accordingly, Joint Intervenors request that the following TMI-related contentions be admitted herein and a hearing scheduled for the submission of evidence relevant to them:

A. May 1979 Motion to Reopen

Emergency Preparedness. The TMI-2 accident demonstrated a need for substantial upgrading of onsite and offsite emergency preparedness. In recognition of this fact, the NRC on August 19, 1980, enacted a new emergency preparedness rule, 10 C.F.R. §§ 50.33(g) and 50.47, and a revised Appendix E to Part 50. 45 Fed. Reg. 55402 (August 19, 1980). This rule is supported and further explained in a joint NRC/FEMA publication, NUREG-0654, Revision 1, entitled "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants." Joint Intervenors contend that PG&E and the combined onsite, state and local emergency response plans and preparedness do not comply with this revised regulation. Significant deficiencies identified to date include the following:

a) PG&E has failed to demonstrate that 10 and 50 mile EPZs are appropriate for Diablo Canyon.. Indeed, PG&E has conducted no site-specific analysis of acute and latent health effects as a function of meteorology, demography, topography, access routes, jurisdicational boundaries, release characteristics, and time of year of release to determine the adequacy of the proposed size of the EPZs.

b) The State of California Nuclear Power Plant Emergency Response Plan, dated 1975 and revised in 1978, does not comply with Section 50.47, and a further revision, designed to comply with Section 50.47, is still only in draft form. There is no reasonable assurance that, when completed, the new State plan will comply with the new rule.

c) The San Luis Obispo County Emergency Response and Emergency Evacuation Plans, both dated 1976, have not been implemented and do not comply with Section 50.47. A revision, designed to comply with Section 50.47, is not even scheduled for County adoption until December 1981. There is no reasonable assurance that the new local plan, when completed, will comply with the new rule.

d) There has been no finding and determination by the Federal Emergency Management Agency (FEMA) as to whether state and local emergency plans and preparedness are adequate and capable of being implemented.

e) There has been inadequate training and coordination of offsite personnel who would be asked to respond to the effects of a Diablo Canyon radiological emergency.

Indeed, there has been no full-scale exercise to test emergency preparedness, and the last "drill," in 1979, revealed significant deficiencies in preparedness.

f) The County lacks necessary equipment, especially for monitoring and communications.

g) County medical facilities for treatment of the general public who may be injured in a radiological emergency are inadequate.

h) Neither PG&E's onsite plan nor the County or State offsite preparedness plans address the complications arising from attempting emergency response during an earthquake situation.

i) There is inadequate preparedness to evacuate or take other protective actions on behalf of persons who may be in Montana de Oro State Park, located less than two miles from Diablo Canyon; Avila Beach, located seven miles in the downwind direction; and the other downwind beach areas beyond Avila Beach.

j) A prompt, 15 minute notification system does not exist and that which is proposed by PG&E will be inadequate, particularly for persons located in the back country of Montana de Oro State Park.

k) PG&E has failed to institute a comprehensive public information program and that which has been proposed will be inadequate to provide the detailed information necessary to protect the public health and safety.

l) The Diablo Canyon emergency operating procedures are not adequate for full power operation. See SER Supp. 12, p. I - 16. and SER Supp. 14, pp. 2 - 1 to 2 - 3.

m) The relevant applicant, state, and local plans do not contain a standardized emergency classification system consistent with NUREG-0654 to determine, implement, and coordinate response measures.

n) Other serious deficiencies in onsite and offsite preparedness as compared to the guidance set forth in NUREG-0654 have been admitted in Joint Intervenors' Exhibit 111.

B. March 1981 Motion to Reopen

Contention 1. Withdrawn.

Contentions 2 and 3. Combined and rewritten as follows:

Hydrogen. The Diablo Canyon hydrogen control system is based upon the assumption that the amount of fuel cladding that would react chemically to produce hydrogen would, under all circumstances, be limited to less than 5 percent. The TMI accident demonstrated that this assumption is not valid, since as much as 50 percent of the cladding at TMI reacted to form hydrogen.

Joint Intervenors contend that the Diablo Canyon facility will not meet General Design Criteria 4, 16, 41, and 50 because the applicant has not demonstrated that substantial quantities of hydrogen, in excess of the Section 50.44 design basis amount, will not be generated in the event of a loss-of-coolant accident. Further, Joint Intervenors contend that the applicant has failed to demonstrate that in the event of such generation the hydrogen will not combust. Finally, Joint Intervenors contend that the applicant has also failed to demonstrate that structures, systems and components important to safety, including the internal recombiners, the containment spray system, and the containment shell and associated penetrations, can withstand the pressures, heat, and related environmental conditions resulting from combustion of the amounts of hydrogen generated in a severe LOCA. Since for the foregoing reasons the applicant has failed to demonstrate operation of safety-related systems under all postulated accident conditions, Joint Intervenors also contend that the appli-

cant has not demonstrated that releases of offsite radiation in excess of 10 C.F.R. § 100.11(a)(2) exposure guidelines will be prevented.

Joint Intervenors also contend that the Staff has failed to address the hydrogen issue in a SER supplement. Since hydrogen generation is an unresolved safety issue (NUREG-0705, Task A-48), the Staff under ALAB-444 (River Bend) and ALAB-491 (North Anna) must specify, inter alia, the present status of the generic studies, including the plan and schedule for resolution, and the measures employed at Diablo Canyon to compensate for lack of the answers sought in the generic studies.

Contention 4. Rewritten as follows:

Decay Heat Removal. Joint Intervenors contend that the Staff has failed to address the shutdown decay heat removal issue in an SER supplement. Since shutdown decay heat removal is an unresolved safety issue (NUREG-0705, Task A-45), the Staff under ALAB-444 (River Bend) and ALAB-491 (North Anna) must specify, inter alia, the present status of the generic studies, including the plan and schedule for resolution, and the measures employed at Diablo Canyon to compensate for lack of the answers sought in the generic studies.

Contentions 5-7. Withdrawn..

Contentions 8 and 9. Combined and rewritten as follows:

Relief and Block Valves. Joint Intervenors contend that the present classification of Diablo Canyon relief valves and associated block valves, instruments and controls does not comply with 10 C.F.R. 50, Appendix A, Criterion 1, 10 C.F.R.

Part 50, Appendix B, Reg. Guide 1.26 and SRP (Reg. Guide 1.70), Section 3.22. Joint Intervenors also contend that General Design Criteria 1, 14, 15 and 30 are violated because relief and block valves have not been qualified under all transient and accident conditions.

Proper operation of power operated relief valves, associated block valves and the instruments and controls for these valves is essential to mitigate the consequences of accidents. The TMI accident demonstrated this fact. In addition, their failure can cause or aggravate a LOCA. Therefore, these valves must be classified as components important to safety and required to meet all safety-grade design criteria. However, the Diablo Canyon block and relief valves do not meet all safety-grade design criteria, in violation of the regulatory practices listed above. In addition, reactor coolant system relief valves form part of the reactor coolant system pressure boundary. When relief valve operation is unreliable, series block valves are relied upon to maintain the integrity of the pressure boundary. Despite these important safety functions, appropriate qualification testing has not been done to verify the capabilities of these block valves to function during normal, transient and accident conditions. In the absence of such testing and verification, the public health and safety are endangered.

Contention 10. Rewritten as follows:

Reactor Vessel Level Instrumentation System. NRC regulations require instrumentation to monitor variables as appropriate to ensure adequate safety (Appendix A, GDC 13) and that the

instrumentation shall directly measure the desired variable. IEEE 279, § 4.8, as incorporated in 10 C.F.R. 50.55a(h), and good design practices require that:

> To the extent feasible and practical protection system inputs shall be derived from signals which are direct measures of the desired variable.

The applicant plans to add a Westinghouse-designed Reactor Vessel Level Instrumentation System (RVLIS) to provide an unambiguous, easy-to-interpret indication of inadequate core cooling. Intervenors contend that the proposed RVLIS does not meet the foregoing requirements with regard to the following deficiencies:

a. The RVLIS is still under development with ongoing testing not scheduled to be completed until November 1981 and reports to the Staff by January 1982. Staff determination of the acceptability of the RVLIS will occur some time after January 1982. Yet despite its untested and unproven status, the RVLIS is scheduled to be installed at Diablo Canyon prior to fuel load.

b. The RVLIS may provide erroneous or uncertain readings of water level during conditions of void redistribution, level swell, coolant pumps being turned on or off, small breaks in the vessel head, and severe accidents such as Anticipated Transient Without Scram (ATWS) events.

c. During LOCAs of greater than 6-inch break size, both the RVLIS and core exit thermocouples may provide ambiguous indications of inadequate core cooling.

d. The RVLIS design has not been demonstrated as being in compliance with the single-failure criterion. The RVLIS appears to rely on a single data processor fed by redundant inputs and feeding to redundant readout devices. However, withholding of "proprietary" information makes the applicant's description of the RVLIS unclear as to the number of data processors and the algorithm used to create the displays.

e. The RVLIS data processor(s) and the displays are not qualified for seismic conditions which the plant may be expected to experience. Thus, there is no assurance that the system will operate during and following a severe earthquake.

f. Since the plant computer is a common element of the redundant thermocouple indication system, and since the computer does not fully satisfy the Class 1E isolation requirements, full conformance to the Staff's isolation criterion has not yet been provided.

In addition, further deficiencies in the RVLIS may exist. However, because the detailed description of the RVLIS has been withheld from the Joint Intervenors due to the claim of "proprietary information," Intervenors cannot complete the evaluation of the applicant's response to Item II.F.2 of NUREG-0737, "Instrumentation for Detection of Inadequate Core Cooling."

Contention 11. Rewritten as follows:

Small-Break LOCA Analysis. 10 C.F.R. 50.46 requires analysis of ECCS performance "for a number of postulated loss-of-

coolant accidents of different sizes, locations, and other properties sufficient to provide assurance that the entire spectrum of postulated loss-of-coolant accidents is covered." For the spectrum of LOCAs, specific parameters are not to be exceeded. At TMI, certain of these were exceeded. For example, the peak cladding temperature exceeded 2200° Fahrenheit (50.45(b)(1)), and more than 1% of the cladding reacted with water or steam to produce hydrogen (50.46(b)(3)). The measures proposed by the Staff address primarily the very specific case of a stuck-open power-operated relief valve. However, any other small LOCA could lead to the same consequences. Additional analyses to show that there is adequate protection for the entire spectrum of small break locations for the Diablo Canyon design have not been performed. Therefore, Joint Intervenors contend that there is no basis for finding compliance with 10 C.F.R. 50.45 and 50.46 and GDC 35. None of the corrective actions to date have fully addressed the demonstrated inadequacy of protection against small LOCAs. See SER Supp. 14, p. 3-22.

Contentions 12 and 13. Withdrawn.

Contention 14. Rewritten as follows:

Environmental Qualification of Safety-Related Electrical Equipment. Joint Intervenors contend that the Diablo Canyon safety-related electrical equipment is not capable of maintaining functional operability under all service conditions during the installed life for the time it is required to operate, thereby violating General Design Criteria 1, 2, 4 and 23 of Appendix A and Sections III and XI of Appendix B to 10 C.F.R. Part 50.

The TMI-2 accident demonstrated that the severity of the environment in which equipment important to safety must operate was underestimated and that equipment previously deemed to be environmentally qualified failed. The NRC itself has recognized the significance of these developments, urging licensees to address this matter promptly. See Petition for Emergency and Remedial Action, CLI-80-21, May 27, 1980.

Diablo Canyon should not be permitted to operate until all safety related electrical equipment has been demonstrated to be qualified to operate as required by the GDC. There are significant deficiencies in the qualification of Diablo Canyon equipment which Joint Intervenors contend must be eliminated before operation can be authorized. These deficiencies, revealed in a June 10, 1981 letter from PG&E to the NRC Staff, include:

a. Rosemount Model 1152 Differential Pressure Transmitters. The accuracy of the device did not remain within allowable limits for one hour as required by the Staff. Also the qualification tests for these transmitters were inadequate in that no chemical spray was used and radiation levels were below specifications.

b. Barton Model 763 and 764 Pressure and Differential Pressure Transmitters. The combination of high radiation levels corresponding to post-LOCA conditions and in high temperatures typical of MSLB activities resulted in excessive instrument error.

c. Westinghouse Containment Fan Cooler Motors. The one year post-accident operability criterion has not been adequately demonstrated.

d. ASCO Model NP8316 Solenoid Valves, ASCO Model 8316 and 8321 Solenoid Valves. Environmental qualification of these devices under severe accident environment has not been demonstrated.

e. Limitorque Model SMB Valve Motor Operator. Aging and operability have not been demonstrated.

f. NAMCO Model EA180 Limit Switch. Aging and operability have not been demonstrated.

g. Fischer and Porter Model 10B2496 Pressure Transmitter, Model 50EP1041 Pressure Transmitter. Difficulty has been experienced in correlating the qualification data with the actual instruments installed. Also, subsequent to seismic bracing of these devices, difficulty has been experienced in maintaining calibration.

h. Limitorque Model SMC Valve Motor Operator. Aging and operability have not been demonstrated.

i. ITT General Controls Model NH92 Valve Operator. Operability requirement for these valves for 120 days has not been demonstrated.

j. Target Rack Model 79AB-001 Solenoid Valves. Qualification is presently underway but has not been demonstrated.

k. General Electric Model NS02/03/04 Electrical Penetrations. Forty-year qualified life and 120-day LOCA operability have not been demonstrated.

l. Continental Silicon Rubber Cable. Forty-year qualified life and 120-day LOCA operability have not been demonstrated.

m. Boston Silicon/Hypalon Cable. Forty-year life and 120-day LOCA operability have not been demonstrated.

n. Raychem Stilan Cable. 120-day LOCA operability has not been demonstrated.

o. Boston Silicon Glass Braid/Kapton/Hypalon Fan Cooler Cable. Forty-year qualified life and 120-day LOCA operability have not been demonstrated.

p. Raychem Sealed Splices. 120-day LOCA operability has not been demonstrated.

q. Conax Electrical Conductor Seal Modules. 120-day LOCA operability has not been demonstrated.

r. O.Z. Gedney Conduit Sealing Assemblies. Forty-year qualified life and 120-day LOCA operability have not been demonstrated.

s. Rockbestos Firewall III Cable. 120-day LOCA operability has not been demonstrated.

t. ITT Surprenant Exane II Cable. 120-day LOCA operability has not been demonstrated.

u. Raychem Elametrol. Forty-year qualified life and 120-day LOCA operability have not been demonstrated.

Further, the applicant has failed to demonstrate that all the equipment to be utilized in carrying forth the plant emergency procedures is environmentally qualified (see Table 4 of June 1981 PG&E Report). Joint Intervenors also contend that the Staff has failed to determine that environmental qualification

of Class 1E electrical equipment for full power operation is adequate. (See SER, Supp. 13, p. 7-1). Further, the Staff has not determined the adequacy of the radiation qualification of safety-related equipment. SER, Supp. 14, p. 3-8.

Contentions 15 and 16. Combined and rewritten as follows:

Systems Interaction. Joint Intervenors contend that Diablo Canyon, consistent with General Design Criteria 2, 3, 4, 22, and 24 to Appendix A to 10 C.F.R. Part 50, cannot be granted an operating license until PG&E demonstrates that structures, systems and components important to safety will not be prevented from operating and performing their intended functions as a result of interactions with non-safety-related systems. Joint Intervenors further contend that in violation of the single failure requirements of Appendix A to Part 50, PG&E has failed to demonstrate that safety-related structures, systems and components will not lose the redundancy required to compensate for single failures as a result of such interactions.

The need for PG&E to perform such systems interaction analyses has been graphically illustrated since the record was closed in early 1979. First, the TMI accident itself demonstrated the need for prompt and thorough analyses of interactions between safety and non-safety related systems. Indeed, pursuant to the TMI Action Plan (Section II.C.3)[1/] and an ACRS meeting of November 5, 1979, PG&E was urged to analyze seismically induced interactions. PG&E did

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1/ See also Action Plan items I.A.4, I.E.8, I.F.1, II.C.1&2, II.F.5.

accomplish this task, which resulted in identification of "a considerable number of adverse interactions which might occur during a strong earthquake at the site . . ."[2/] Indeed, 677 interactions were identified. SER Supp. 11, p. 6 - 2. The identification of such interactions represents an extremely significant first step in assuring Diablo Canyon safety.

The PG&E analysis was very limited in scope, as only seismically induced physical interactions were studied. Other extremely serious potential interactions have not been analyzed, despite the fact that "Westinghouse designs are characterized by the large number and types of interactions between control systems and related safety systems,"[3/] and despite several warnings from Staff members that system interaction analyses are sorely needed.[4/] Indeed, in an April 10, 1981 letter from Mr. Demetrios Basdekas of the Staff to Representative Morris Udall,[5/] there was a sharp warning that control system failures could lead to catastrophic accidents, up to and including reactor vessel fracture.

These recent events, plus the positive results of PG&E's limited analysis, demonstrate that no licenses should be granted for Diablo Canyon until all adverse interactions between safety and non-safety systems are identified and remedied. Any other course would violate GDC 2, 3, 4, 22 and 24.[6/]

2/ ARCS Letter to Chairman Ahearne, Nov. 12, 1980.

3/ Memorandum from Stephen H. Hanauer to E. G. Case, August 18, 1977.

4/ E.g., Memorandum from Demetrios L. Basdekas to Chairman Ahearne, Sept. 4, 1979.

5/ This letter was attached to a May 8, 1981 Board Notification.

6/ Such systems interaction effects during the OBE have not been analyzed. See ALAB-644, fn. 406.

Contention 17 Rewritten as follows:

Documentation of Deviations. Joint Intervenors contend that the NRC Staff has (i) failed to require PG&E to document in the FSAR where Diablo Canyon design, structures and components deviate from current regulatory practices (i.e., Regulatory Guides, Branch Technical Positions, and Standard Review Plans) and the basis for and acceptability of those deviations, and (ii) failed to set forth in the Safety Evaluation Report the standards against which Diablo Canyon has been reviewed and the basis for any deviations approved by the Staff from current regulatory practices.

The Diablo Canyon facility, due to its long licensing period, is basically of 1960's design and, in many instances, was reviewed by the Staff against guides and standards which no longer are used by the Staff. Indeed, the Standard Review Plan, NUREG # 75/087, was first published in 1975, well after much of the Staff review of Diablo Canyon had been accomplished.

Neither PG&E in the FSAR nor the Staff in the SER has systematically described the standards against which Diablo Canyon has been reviewed and the basis for and acceptability of any deviations from current regulatory practices. This void in the record is not acceptable, particularly since the Board must make findings based upon the applicable regulatory requirements.

The TMI-2 accident documented the need for documentation of deviations. A major contributing factor in the TMI-2 accident was that the plant had not been required by the NRC Staff to be in

compliance with the then-current regulatory practices.[7/] The TMI-2 accident also demonstrated that the current regulatory practices, practices similar to those being applied by the Staff in their current safety evaluation of Diablo Canyon, were in a number of cases (i.e., hydrogen generation, radiation shielding, source terms, and single failure criterion) not suitably conservative to protect the health and safety of the public.

The Kemeny Commission,[8/] the Rogovin Commission,[9/] Congress,[10/] and the Commission in a recent proposed rulemaking[11/] have all recognized the need for such documentation. Absent such documentation, there is no basis for any Board finding that a level of safety equivalent to current regulatory practices does, in fact, exist.

7/ For example, the absence of an automatic indication system as provided for by Regulatory Guide 1.47 contributed to operation of the plant with the auxiliary feedwater system completely disabled.

8/ Kemeny Rpt., pp. 20, 53, 65 - 66.

9/ Rogoven Rpt. Vol. 2, p. 21.

10/ Pub. L. No. 96-295, § 110.

11/ 45 Fed. Reg. 67099 (1980).

Dated: June 30, 1981

Respectfully submitted,

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of PACIFIC GAS AND ELECTRIC COMPANY (Diablo Canyon Nuclear Power Plant, Units 1 and 2)	Docket Nos. 50-275 O.L. 50-323 O.L.

CERTIFICATE OF SERVICE

I hereby certify that on this 2nd day of July, 1981, I have served copies of the foregoing JOINT INTERVENORS' STATEMENT OF CLARIFIED CONTENTIONS, mailing them through the U.S. mails, first class, postage prepaid.

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