

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of)
PACIFIC GAS AND ELECTRIC COMPANY)
(Diablo Canyon Nuclear Power Plant)
Unit Nos. 1 and 2)

Docket Nos. 50-275 O.L.
50-323 O.L.

NRC STAFF REPLY TO THE APPEAL BOARD'S
SEPTEMBER 2, 1982 ORDER

Bradley W. Jones
Counsel for NRC Staff

September 24, 1982

DESIGNATE ORIGINAL

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I. INTRODUCTION

On September 2, 1982 the Appeal Board issued an Order which directed the parties to the Diablo Canyon proceeding to address whether the issuance of the Initial Decision on August 31, 1982 had rendered moot any of the issues in the appeals of the July 17, 1981 Partial Initial Decision regarding low power, which are pending before the Appeal Board. The Staff hereby replies to the Appeal Board's September 2, 1982 Order.

II. BACKGROUND

On July 14, 1980, Pacific Gas and Electric Company (Applicants or PG&E), during the course of the consideration of their application for a full power license for Diablo Canyon, filed a motion with the Licensing Board requesting authorization for fuel loading and low power testing up to 5% rated power at the Diablo Canyon Nuclear Power Plant, Unit 1. Following a hearing limited to consideration of issues pertinent to low power operation, the Licensing Board in this proceeding authorized

issuance of an operating license limited to fuel loading and low power testing (low power license), in a Partial Initial Decision dated July 17, 1981.^{1/} Joint Intervenors filed exceptions to the Partial Initial Decision and a brief in support of the exceptions on August 3, 1981 and September 2, 1981, respectively. Governor Brown filed exceptions to the Partial Initial Decision and a brief in support of his exceptions on the same dates.

While the above appeals were pending before the Appeal Board, the full power proceeding was completed. On August 31, 1982 the Licensing Board issued an Initial Decision authorizing the Director of Nuclear Reactor Regulation to issue a full power license "consistent with the Board's decision in this case, subject to the Commission's determination and order." (Initial Decision, August 31, 1982 slip op. at 218).

The scope of the Staff's reply to the Appeal Board's September 2, 1982 Order is restricted to the scope of the issues briefed by the Joint Intervenors and Governor Brown, Commonwealth Edison Company (Zion Station, Units 1 and 2), ALAB-226, 8 AEC 381, 382 (1974); cf. Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B), ALAB-409, 5 NRC 1391, 1396-97 (1977), with respect to the Partial Initial Decision. Following is a discussion of the issues raised in Joint Intervenors' and Governor Brown's briefs in support of exceptions.

^{1/} A low power license was issued by the Director of Nuclear Reactor Regulation on September 22, 1981. However, due to subsequently discovered design errors at Diablo Canyon that license was suspended by the Commission on November 19, 1981. CLI-81-30, 14 NRC 950 (1981).

A. Joint Intervenors' Issues

The first issue raised by Joint Intervenors is whether the Licensing Board improperly denied certain of their contentions. (Joint Intervenors' Brief at 13-35). In its September 2, 1982 Order, the Appeal Board specifically stated that the admissibility of full power contentions was not within the Appeal Board's inquiry as to mootness. (Order at 2, n.2). However, the question as to whether the admissibility of the low power contentions has become a moot issue was not precluded and will be addressed herein.

The second issue raised by Joint Intervenors is whether the emergency plans for Diablo Canyon meet the Commission's regulations. (Joint Intervenors' Brief at 37). Within this issue Joint Intervenors raise several sub-issues. They are: 1) whether the emergency planning standards must be fully complied with for low power; (Id. at 39), 2) whether the low risk of low power operation renders certain offsite emergency planning deficiencies insignificant, (Id. at 46), and 3) whether the emergency plans must consider the effects of an earthquake occurring simultaneously with an accidental radiological emergency. (Id. at 53).

The third issue raised by Joint Intervenors is whether NEPA requires a separate environmental impact statement for low power operation in addition to that prepared for full power operation. (Id. at 56)

The fourth issue is whether the Licensing Board was correct in granting summary disposition on Joint Intervenors' Contention 13 related to reactor vessel level indicators. (Id. at 60).

The last issue raised by Joint Intervenors is whether the Licensing Board was correct in concluding that relief valve, safety valve, and block valve testing need not be completed prior to low power operation. (Id. at 63).

As will be discussed below, the Staff believes that all but portions of the first issue, and the third and fourth issues, have been rendered moot by events subsequent to the issuance of the Licensing Board's Partial Initial Decision.

B. Governor Brown's Issues

Governor Brown raises similar issues in his brief in support of his exceptions to the Partial Initial Decision.

The first issue raised by Governor Brown is whether the emergency planning standards must be fully complied with prior to low power operation. (Governor Brown's Brief at 12).

The second issue raised by Governor Brown is whether the emergency plans for Diablo Canyon contain deficiencies such that the plans are not adequate for low power. (Id. at 18). Specifically, the Governor raises questions as to whether there is an adequately implemented County plan, (Id. at 22), whether the Sheriff's evacuation plan meets 10 C.F.R. §50.47 requirements (Id. at 26), and whether the effect on emergency planning of an earthquake occurring simultaneously with an accidental radiological emergency need be considered. (Id. at 35).

The third issue raised by Governor Brown relates to whether certain contentions were improperly dismissed from this proceeding. (Id. at 43).

As discussed above, this issue will be addressed solely with respect to whether questions as to the admissibility of low power contentions have been mooted.

The fourth issue raised by Governor Brown is whether the Licensing Board was correct in granting summary disposition on Joint Intervenors' Contention 13 relating to reactor vessel water level indicators. (Id. at 53).

The last issue raised by Governor Brown is whether NEPA requires an impact statement for low power other than the Final Environmental Statement prepared for full power operation of the Diablo Canyon Nuclear Power Plant. (Id. at 56).

As will be discussed below, only portions of the third issue and the last two issues have not been mooted by actions occurring since the low power discussion was issued.

III. DISCUSSION

First, the Staff will address which low power contentions, that were proffered but not accepted for litigation, have been mooted. The Staff will then address issues which were litigated during the proceeding, initially discussing the remaining issues on appeal which have been mooted by events subsequent to the low power Partial Initial Decision, and finally discussing those remaining issues on appeal which have not been mooted.

A. Proposed Contentions

Governor Brown and Joint Intervenors raised on appeal the issue of whether certain proposed contentions were properly rejected for the low power hearing by the Licensing Board. (Joint Intervenors Brief at 13-35, Brown Brief at 43). Those contentions are briefly summarized and addressed below.^{2/}

1. Proposed Contentions Mooted By The Full Power Initial Decision.

Two proposed contentions which were not litigated at the low power phase of the hearings were litigated, pursuant to Commission Order,^{3/} at the full power phase. Low power Contention 10, relating to classification

^{2/} The full text of the contentions is attached as Appendix A. Since Governor Brown is participating in this proceeding as an interest State under 10 C.F.R. § 2.715(c) he may participate only to the extent that contentions are admitted which coincide with the subject areas identified by the Governor. 10 C.F.R. § 2.715(c) states:

(c) The presiding officer will afford representatives of an interested State, county, municipality, and/or agencies thereof, a reasonable opportunity to participate and to introduce evidence, interrogate witnesses, and advise the Commission without requiring the representative to take a position with respect to the issue. Such participants may also file proposed findings and exceptions pursuant to §§ 2.754 and 2.762 and petitions for review by the Commission pursuant to § 2.786. The presiding office may require such representative to indicate with reasonable specificity, in advance of the hearing, the subject matters on which he desires to participate.

See also, Metropolitan Edison Co. (Three Mile Island Nuclear Generating Station, Unit 2) ALAB-454, 7 NRC 39 (1978).

For this reason the analysis focuses only on those contentions which Joint Intervenors have alleged were improperly rejected.

^{3/} CLI-81-22, 14 NRC 598 (1981)

of pressurizer heaters as safety or non-safety grade, and Contention 12, relating to classification of relief and block valves as safety or non-safety grade, were fully litigated at the full power phase of the hearings. The Licensing Board ruled in the Initial Decision that pressurizer heaters and relief and block valves were properly classified at Diablo Canyon. (Initial Decision, slip op. at 216-217). The admissibility and resolution of these contentions has, therefore, been mooted.

2. Proposed Contentions Mooted by Appeal Board Action.

The second group of proposed low power contentions are those which are identical, or substantially identical, to full power contentions which were rejected by this Board as not meeting the standards for reopening a closed record. (Appeal Board Order, December 11, 1981):

Low Power Contentions 6 and 17, proposed by Joint Intervenors in contemplation of reopening the record, relate to containment integrity in the presence of hydrogen production during an accident. These contentions are subsumed in full power Contentions 2 and 3 which address hydrogen control and which were rejected by the Appeal Board as not meeting the reopening standard. Thus, the Appeal Board has already ruled that the subject matter of the Contentions does not meet the reopening standard and that issue is moot.

Low Power Contention 14, proposed by Joint Intervenors in contemplation of reopening the record, relates to ECCS performance in the presence of loss of coolant accidents (LOCAs). Full power Contention 11 is essentially identical and was rejected by the Appeal Board as not meeting the reopening standard. Thus, the Appeal Board has already ruled that the

subject matter of the Contention does not meet the reopening standard and that issue is moot.

Low power Contentions 20 and 23, proposed by Joint Intervenors in contemplation of reopening the record, relate to the interaction of safety and non-safety systems and equipment. This issue is subsumed in full power Contentions 15 and 16 which the Appeal Board rejected as not meeting the reopening standard. Thus, the Appeal Board has already ruled that the subject matter of the Contentions does not meet the reopening standard and that issue is moot.

3. Proposed Low Power Contentions Which Have Not Been Mooted

Certain contentions were proposed only at the low power stage of the proceeding. The issues relating to whether these contentions should have been admitted for litigation at the low power proceeding still remain to be resolved. Low power contentions falling within this category are:

- 1) Contention 3 relating to quality assurance deficiencies.
- 2) Contention 7 relating to safety considerations in Table-B.2 of NUREG-0660.
- 3) Contentions 8 and 9 relating to specific alleged deficiencies in the ECCS.
- 4) Contention 15 relating to the providing of a system to inform the operator of any safety system which has been deliberately disabled.
- 5) Contention 16 relating to preventing operator override of safety systems.
- 6) Contention 18 relating to environmental qualification of equipment.^{4/}

^{4/} The admissibility of full power Contention 14, which subsumes low power Contention 18, was deferred by the Appeal Board in its December 11, 1981 Order.

- 7) Contention 19 relating to consideration of Class 9 accidents.^{5/}
- 8) Contention 21 relating to the need for an analysis of all deviations at Diablo Canyon from present Regulatory Guides and Regulations.

Whether the above contentions should be admitted is an issue which is appropriate, therefore, for consideration in the context of the low power appeal.

B. Issues Which Have Been Mooted

The Appeal Board has previously recognized that full power initial decisions may have the effect of mooting issues raised with regard to an order granting a low power (or provisional) operating license. Northern States Power Company, (Monticello Nuclear Generating Plant, Unit 1) ALAB-020, 4 AEC 557 (1971); see also Commonwealth Edison Company (Zion Station, Units 1 and 2) ALAB-226, 8 AEC 381, 393 (1974). The Staff believes that events subsequent to issuance of the low power Partial Initial Decision have mooted some of the issues and sub-issues raised in Joint Intervenors' and Governor Brown's appeal of the Partial Initial Decision.

^{5/} This issue is raised in recently filed exceptions to the Initial Decision. (Governor Brown's Exceptions, p.19, September 16, 1982.) While the Governor's arguments concerning this exception have not yet been filed, it may become apparent subsequent to this filing that the same positions are being argued under the Governor's full power exceptions and low power exceptions concerning low power Contention 19. If such unity of argument is found it would be appropriate to merge the two exceptions for the purpose of more efficiently resolving this issue.

1. Emergency Planning

The first issue concerning emergency planning, raised by both Joint Intervenors and Governor Brown, is whether the emergency plans for Diablo Canyon must be in full compliance with the emergency planning standards of 10 C.F.R. § 50.47 prior to fuel load and low power testing. That issue has been resolved and mooted.

On July 13, 1982 the Commission amended 10 C.F.R. § 50.47 to specifically provide that a low power license could be issued "after a finding is made by the NRC that the state of onsite emergency preparedness provided reasonable assurance that adequate protective measures can and will be taken in the event of an emergency." 10 C.F.R. § 50.47(d). In the Statement of Considerations accompanying the amendment the Commission, after noting that the amendment was only issued to clarify 10 C.F.R. § 50.47, stated that the amendment was to make it clear that "for issuance of operating licenses authorizing only fuel loading and low power operation (up to 5% of rated power), no NRC or Federal Emergency Management Agency (FEMA) review, findings and determinations concerning the state or adequacy of offsite emergency preparedness shall be necessary." 47 Fed. Reg. 30232 (July 13, 1982).

The Commission's amendments, which apply to the Diablo Canyon low power proceeding since the amendments only clarify already existing regulations, would moot both Governor Brown's and Joint Intervenors' issues as to what offsite planning is necessary for issuance of a low

power license. Onsite plans are the only emergency plans which must meet the regulatory standards for low power operation.^{6/}

6/ Although full compliance and findings on offsite plans are not required for issuance of a full power license, the Commission, in the Statement of Considerations, did note several offsite standards which would be reviewed by the Staff prior to low power operation. They are:

(a) Section 50.47(b)(3). Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate State and local staff at the licensee's near-site Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.

(b) Section 50.47(b)(5). Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and followup messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

(c) Section 50.47(b)(6). Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

(d) Section 50.47(b)(8). Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

(e) Section 50.47(b)(9). Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

(f) Section 50.47(b)(12). Arrangements are made for medical services for contaminated injured individuals.

(g) Section 50.47(b)(15). Radiological emergency response training is provided to those who may be called on to assist in an emergency.

These items have been reviewed and, in fact, the Licensing Board specifically made findings on each of these standards in its full power Initial Decision. (Initial Decision, pp. 29-73).

The second group of emergency planning issues which are mooted are Governor Brown's and Joint Intervenors' issues relating to alleged deficiencies in the emergency plans. With one exception, discussed below, all the sub-issues raised in the briefs in support of exceptions related to alleged deficiencies in offsite emergency plans.^{7/} As discussed above, the Commission has made it quite clear that offsite emergency plans need not be completed for issuance of a low power testing and fuel load license. The issues relating to offsite planning are, therefore, mooted for the purposes of the low power appeal.

2. Earthquake Considerations in Emergency Planning.

The only issue raised by Joint Intervenors and Governor Brown which might conceivably have a bearing on onsite emergency planning is, whether the effects on emergency planning of an earthquake occurring simultaneously with an accidental radiological release must be considered. (Joint Intervenors' Brief at 53, Brown Brief at 35).

Subsequent to the low power decision and the briefing of exceptions to that decision, the Commission addressed the issue of earthquake considerations in emergency planning. The Commission ruled that the current regulations do not require consideration of the impacts on emergency planning of earthquakes which cause or occur during an accidental radiological release. Southern California Edison Company (San Onofre Nuclear

^{7/} The offsite issues raised by Governor Brown were the adequacy of the County Emergency Plan and the Sheriff's Emergency Plan. Joint Intervenors' brief did not discuss any specific offsite deficiency other than with respect to consideration of the effects of earthquakes on emergency planning. (Joint Intervenors Brief at 53). They did, however, footnote one exhibit which purported to present offsite deficiencies. (Id. at 45, n.72).

Generating Station, Units 2 and 3) CLI-81-33, 14 NRC 1091 (1981). On December 23, 1981 the Licensing Board in this proceeding issued a Memorandum and Order in which it ruled that the San Onofre decision removed the earthquake emergency planning issue from its jurisdiction. (Memorandum and Order, December 23, 1981, slip op. at 2).^{8/} The Staff submits that the San Onofre decision moots the question of whether the occurrence of an earthquake during an accidental radiological emergency need be considered in analyzing the adequacy of onsite emergency planning for low power operation. The Commission stated that the question of whether to consider the effects of earthquakes on emergency planning should not be litigated on a case-by-case basis, but would be treated generically by the Commission. (CLI-81-33, 14 NRC at 1092). The Commission's ruling is wholly dispositive on this issue. Thus, this issue is mooted for all purposes in this proceeding.

3. Consideration of Low Risk for Low Power Operation.

Joint Intervenors challenge the Licensing Board's reliance on the low risk of radiological accidents with offsite consequences, as justification for finding deficiencies in the Diablo Canyon Emergency Plans to be insignificant for low power operation. (Joint Intervenors' Brief at 46). This issue has been mooted by subsequent Commission and Licensing Board action.

^{8/} On March 5, 1982 the Commission issued an Order which denied Governor Brown's January 12, 1982 request for directed certification of the Licensing Board's ruling.

Explicit in the Commission's clarifying amendment discussed in section "a" above, is the determination that the low risk associated with low power operation is a basis justifying limiting consideration of emergency preparedness at low power to onsite planning. See 47 Fed. Reg. 30233. As such the low risk determination is no longer open to litigation and consequently this issue is mooted for purposes of the low power appeal.

4. Relief and Safety Valve Testing.

Joint Intervenors raised the issue on appeal of whether the testing of relief valves, safety valves, and block valves for the Diablo Canyon plant must be completed prior to low power testing. The Staff believes that this issue is appropriate for resolution in connection with the low power appeal. However, as a result of the delay of low power operation due to the Commission's suspension of the low power license for Diablo Canyon, the Electrical Power and Research Institute (EPRI), which was conducting the tests on the valves designed to comply with NUREG-0737, Section II.D.1, has had time to complete its valve testing program. The only remaining action for completion of the testing requirements is for PG&E to submit documentation showing the applicability of the test results at EPRI to the Diablo Canyon valves. Such documentation is presently expected in late November, 1982. Upon receipt of all necessary documentation the Staff will inform the Appeal Board and submit a recommendation for appropriate action.

C. Issues Not Mooted By The Initial Decision

There are two issues which have not been mooted either by the Initial Decision on full power or by other subsequent events, which are directly related to low power operation of Diablo Canyon, and which remain to be resolved before the Joint Intervenors' and Governor Brown's appeals of the low power decision can be completely disposed of.^{9/}

1. Whether an Environmental Impact Appraisal or Statement is Needed.

Both Joint Intervenors and Governor Brown argue on appeal that a separate environmental impact statement or environmental impact appraisal is required for low power operation of Diablo Canyon. (Joint Intervenors' Brief at 56; Brown Brief at 56) This issue relates directly to low power operation and is not subsumed in any of the rulings or changes to the regulations which have taken place since this issue was appealed. Although the Staff continues to believe that no environmental impact appraisal or environmental impact statement is required for low power operation, other than the impact statement prepared for full power, it does believe that this issue should be resolved by the Appeal Board in the context of the appeal of the low power Partial Initial Decision.

^{9/} The Staff, nevertheless, knows of no legal impediment to consideration of any of these issues in the context of the full power appeal. For reasons of efficiency, therefore, the Appeal Board may consolidate the low power and full power appeals.

2. Whether Summary Disposition of Contention 13 Was Appropriate.

The Licensing Board, during the course of the low power proceeding, granted the Staff's and Applicant's motions for summary disposition of low power Contention 13. This contention related to the installation of reactor vessel water level indicators at the Diablo Canyon Plant. The question of whether this contention was properly disposed of is a question which needs to be determined in the context of the appeal of the low power decision. The Joint Intervenors and Governor Brown did not present evidence on this issue in either the full power or low power hearings and the issue was not addressed in the Initial Decision on full power. The question of whether the Licensing Board should have proceeded to receive evidence on this contention in the low power hearings is a question related to low power, although the Staff recognizes that any record developed if evidence on this issue is admitted would be a part of the full power record. The Staff, therefore, believes that this issue should be resolved by the Appeal Board in the context of the appeal of the low power Partial Initial Decision.

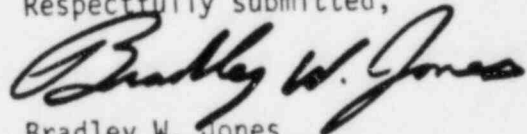
IV. CONCLUSION

For the reasons stated above, the Staff believes that the Licensing Board's Initial Decision on full power operation of Diablo Canyon, along with certain amendments to the regulations and Commission decisions, have rendered moot all emergency planning issues raised by Governor Brown and Joint Intervenors in their appeal of the low power Partial Initial Decision. Both subsequent developments and the Appeal Board's ruling on

the admissibility of full power contentions have rendered certain proposed contentions moot.

The Staff does believe some issues remain which could be considered in the context of the low power decision. Those issues are: 1) whether a separate low power environmental impact appraisal statement is necessary, 2) whether Contention 13 relating to reactor vessel water level indicators was appropriately dismissed by the Licensing Board's summary disposition, and 3) whether certain contentions proposed by Joint Intervenors were properly rejected by the Licensing Board.

Respectfully submitted,



Bradley W. Jones
Counsel for NRC Staff

Dated at Bethesda, Maryland
this 24th day of September, 1982.

ATTACHMENT A

STATEMENT OF JOINT INTERVENORS' REJECTED
CONTENTIONS

3. The Applicant has failed to demonstrate compliance at Diablo Canyon with 10 C.F.R. Part 50, Appendix B, regarding quality assurance.

6. The Applicant has failed to demonstrate that the containment at Diablo Canyon can withstand pressures resulting from the combustion of hydrogen likely to be generated by the reaction of zirconium cladding with water during a loss-of-coolant accident at the facility.

7. The Applicant has failed to address adequately safety considerations designed as high priority and/or high risk in Table B.2 of NUREG-0660, "TMI Action Plan."

8. The accident at TMI Unit 2 demonstrated that reliance on natural circulation to remove decay heat is inadequate. During the accident, it was necessary to operate at least one reactor coolant pump to provide forced cooling of the fuel. However, the Applicant's testing program does not demonstrate a reliable method for forced cooling of the reactor in the event of a small loss-of-coolant accident ("LOCA"), particularly with regard to two-phase flow and with voids such as occurred at TMI-2. This is a threat to health and safety and a violation of both General Design Criterion ("GDC") 34 and GDC 35 of 10 C.F.R., Part 50, Appendix A.

9. Using existing equipment at Diablo Canyon, there are three principal ways of providing forced cooling of the reactor: (1) the reactor coolant pumps; (2) the residual heat removal system; and (3) the emergency core cooling system in a "bleed and feed" mode. None of these methods meets the NRC's regulations applicable to systems important to safety and is sufficiently reliable to protect public health and safety:

a. The reactor coolant pumps do not have an adequate on-site power supply (GDC 17), their controls do not meet IEEE 279 (10 C.F.R. 50.55a(h)) and they are not adequately qualified (GDC 2 and 4).

b. The residual heat removal system is incapable of being utilized at the design pressure of the primary system.

c. The emergency core cooling system cannot be operated in the bleed and feed mode for the necessary period of time because of inadequate capacity and radiation shielding for the storage of the radioactive water bled from the primary coolant system.

10. The staff recognizes that pressurizer heaters and associated controls are necessary to maintain natural circulation at hot stand-by conditions. Therefore, this equipment should be classified as "components important to safety" and required to meet all applicable safety-grade design criteria, including but not limited to diversity (GDC 22), seismic and environmental qualification (GDC 2 and 4), automatic initiation (GDC 20), separation and independence (GDC 3 and 22), quality assurance (GDC 1), adequate, reliable on-site power supplies (GDC 17) and the single failure criterion. The Applicant's proposal to connect two out of four of the heater groups to the present on-site emergency power supplies does not provide an equivalent or acceptable level of protection.

12. 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. 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.

14. 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 struck-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, there is no basis for finding compliance with 10 C.F.R. 50.46 and GDC 35. None of the corrective actions to date have fully addressed the demonstrated inadequacy of protection against small LOCAs.

15. The accident at TMI-2 was substantially aggravated by the fact that the plant was operated with a safety system inoperable, to wit: two auxiliary feedwater system valves were closed which should have been open. The principal reason why this condition existed was that TMI does not have an adequate

system to inform the operator that a safety system has been deliberately disabled. To adequately protect the health and safety of the public, a system meeting the Regulatory Position of Reg. Guide 1.47 or providing equivalent protection is required.

16. The design of the safety systems at TMI was such that the operator could prevent the completion of a safety function which was initiated automatically; to wit: the operator could (and did) shut off the emergency core cooling system prematurely. This violated §4.16 of IEEE 279 as incorporated in 10 C.F.R. 50.55 (a)(h) which states:

The protection system shall be so designed that, once initiated, a protection system action shall go to completion.

The Diablo Canyon design is similar to that at TMI and must be modified so that no operator action can prevent the completion of a safety function once initiated.

17. The design of the hydrogen control system at TMI was based upon the assumption that the amount of fuel cladding that could react chemically to produce hydrogen would, under all circumstances, be limited to less than 5%. The accident demonstrated both that this assumption is not justified and that it is not conservative to assume anything less than the worst case. Therefore, the Diablo Canyon hydrogen control systems should be designed on the assumption that 100% of the cladding reacts to produce hydrogen.

18. 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. One example was the pressurizer level instruments. The environmental qualification of safety-related equipment at TMI is deficient in three respects: (1) the parameters of the relevant accident environment have not been identified; (2) the length of time the equipment must operate in the environment has been underestimated; and (3) the methods used to qualify the equipment are not adequate to give reasonable assurances that the equipment will remain operable. Diablo Canyon should not be permitted to load fuel until all safety-related equipment has been demonstrated to be qualified to operate as required by GDC 4. The criteria for determining qualification should be those set forth in Regulatory Guide 1.89 or equivalent.

19. Neither the Applicant nor the NRC staff has presented an accurate assessment of the risks posed by operation of Diablo Canyon, contrary to the requirements of 10 C.F.R. 51.20(a) and 51.20(d). The design of Diablo Canyon does not provide protection against so-called "Class 9" accidents. There is no basis for concluding that such accidents are not credible. Indeed, the staff has conceded that the accident at TMI-2 falls within that classification. Therefore, there is not reasonable assurance that Diablo Canyon can be operated without endangering the health and safety of the public.

20. The TMI-2 accident demonstrated that there are systems and components presently classified as non-safety-related which can have an adverse effect on the integrity of the core because they can directly or indirectly affect temperature, pressure, flow and/or reactivity. This issue is discussed at length in Section 3.2, "System Design Requirements," of NUREG-

0578, the TMI-2 Lessons Learned Task Force Report (Short Term).

The following quote from page 18 of the report describes the problem:

There is another perspective on this question provided by the TMI-2 accident. At TMI-2, operational problems with the condensate purification system led to a loss of feedwater and initiated the sequence of events that eventually resulted in damage to the core. Several nonsafety systems were used at various times in the mitigation of the accident in ways not considered in the safety analysis; for example, long-term maintenance of core flow and cooling with the steam generators and the reactor coolant pumps. The present classification system does not adequately recognize either of these kinds of effects that nonsafety systems can have on the safety of the plant. Thus, requirements for nonsafety systems may be needed to reduce the frequency of occurrence of events that initiate or adversely affect transients and accidents, and other requirements may be needed to improve the current capability for use of nonsafety systems during transient or accident situations. In its work in this area, the Task Force will include a more realistic assessment of the interaction between operators and systems.

The Staff proposes to study the problem further. This is not a sufficient answer. All systems and components which can either cause or aggravate an accident or can be called upon to mitigate an accident must be identified and classified as components important to safety and required to meet all safety-grade design criteria.

21. The accident at TMI-2 was caused or aggravated by factors which are the subject of Regulatory Guides not used in the design of TMI. For example, the absence of an automatic indication system as required by Regulatory Guide 1.47 contributed to operation of the plant with the auxiliary feedwater system completely disabled. The public health and safety require that

this record demonstrate conformance with or document deviations from the Commission's regulations and each Regulatory Guide presently applicable to the plant.

23. The accident at TMI-2 was a multiple failure accident involving independent and dependent failures. The multiple failure sequences exceeded the single failure criterion utilized in the Diablo Canyon design basis accident assessment. Therefore, comprehensive studies of the interaction of nonsafety grade components, equipment, systems, and structures with safety systems and the effect of these interactions during normal operation, transients, and accidents need to be made by the Diablo Canyon Applicant in order to assure that the plant can be operated without endangering the health and safety of the public.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of

PACIFIC GAS AND ELECTRIC COMPANY

(Diablo Canyon Nuclear Power Plant
Unit, Nos. 1 and 2)

}
Docket Nos. 50-275 O.L.
50-323 O.L.

CERTIFICATE OF SERVICE

I hereby certify that copies of NRC STAFF REPLY TO THE APPEAL BOARD'S SEPTEMBER 2, 1982 ORDER in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class or, as indicated by an asterisk, through deposit in the Nuclear Regulatory Commission's internal mail system, this 24th day of September, 1982.

Dr. John H. Buck
Atomic Safety and Licensing Appeal
Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555 *

Dr. W. Reed Johnson
Atomic Safety and Licensing Appeal
Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555 *

Mr. Thomas S. Moore, Member
Atomic Safety and Licensing Appeal
Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555 *

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

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

Elizabeth Apfelberg
1415 Cozadero
San Luis Obispo, CA 93401

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

Philip A. Crane, Jr., Esq.
Pacific Gas and Electric Company
P.O. Box 7442
San Francisco, CA 94120

Mr. Frederick Eissler
Scenic Shoreline Preservation
Conference, Inc.
4623 More Mesa Drive
Santa Barbara, CA 93105

Mrs. Raye Fleming
1920 Mattie Road
Shell Beach, CA 93449

Richard E. Blankenburg, Co-publisher
Wayne A. Soroyan, News Reporter
South County Publishing Company
P.O. Box 460
Arroyo Grande, CA 93420

Byron S. Georgiou
Legal Affairs Secretary
Governor's Office
State Capitol
Sacramento, CA 95814

Mr. Gordon Silver
Mrs. Sandra A. Silver
1760 Alisal Street
San Luis Obispo, CA 93401

Joel R. Reynolds, Esq.
John R. Phillips, Esq.
Center for Law in the Public
Interest
10951 West Pico Boulevard
Third Floor
Los Angeles, CA 90064

Arthur C. Gehr, Esq.
Snell & Wilmer
3100 Valley Center
Phoenix, Arizona 85073

Paul C. Valentine, Esq.
321 Lytton Avenue
Palo Alto, CA 94302

Bruce Norton, Esq.
3216 North 3rd Street
Suite 202
Phoenix, Arizona 85012

David S. Fleischaker, Esq.
P.O. Box 1178
Oklahoma City, Oklahoma 73101

Richard B. Hubbard
MHB Technical Associates
1723 Hamilton Avenue - Suite K
San Jose, CA 95125

John Marrs, Managing Editor
San Luis Obispo County
Telegram-Tribune
1371 Johnson Avenue
P. O. Box 112
San Luis Obispo, CA 93406

Herbert H. Brown
Kirkpatrick, Lockhart, Hill,
Christopher & Phillips
1900 M Street, N.W.
Washington, DC 20036

Harry M. Willis
Seymour & Willis
601 California St., Suite 2100
San Francisco, CA 94108

Janice E. Kerr, Esq.
Lawrence Q. Garcia, Esq.
350 McAllister Street
San Francisco, CA 94102


Mr. James O. Schuyler
Nuclear Projects Engineer
Pacific Gas and Electric Company
77 Beale Street
San Francisco, CA 94106

Mark Gottlieb
California Energy Commission
MS-18
1111 Howe Avenue
Sacramento, CA 95825

Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555 *

Atomic Safety and Licensing Appeal
Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555 *

Docketing and Service Section
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555 *


Bradley W. Jones
Counsel for NRC Staff