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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

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In the Matter of )

PACIFIC GAS AND ELECTRIC COMPANY )

(Diablo Canyon Nuclear Power )  
Plant, Units 1 and 2) )  
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) Docket Nos. 50-275 O.L.  
) 50-323 O.L.

MOTION OF GOVERNOR GEORGE DEUKMEJIAN

TO REOPEN THE RECORD ON CONSTRUCTION

QUALITY ASSURANCE

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Pursuant to the Atomic Safety and Licensing Appeal Board's Memorandum and Order of April 21, 1983, and under the authority of 10 C.F.R. section 2.718(j), Governor George Deukmejian, representing the State of California, hereby moves the Appeal Board to reopen the record in the Diablo Canyon Nuclear Power Plant ("Diablo Canyon") operating license proceeding on the issue of construction quality assurance.<sup>1/</sup>

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1. "Construction" in this motion means the activities during that period which commences with receipt of items at the construction site and ends when the structures, systems and components are ready for turn over to operations personnel. (See ANSI Standard N.45.2.10-1973 "Quality Assurance Terms and Definitions.") "Quality Assurance" (QA) comprises all those planned and systematic actions necessary to provide adequate confidence that a structure, system or component will perform satisfactorily in service. Quality assurance includes "Quality Control" (QC) which comprises those quality assurance actions

(cont.)

The April 21 decision followed the disclosure of thousands of deficiencies in the Diablo Canyon facility, amounting to proof of a complete breakdown in the quality assurance process. The earliest of these disclosures moved the Nuclear Regulatory Commission (NRC) to suspend the low-power operating license granted Unit 1 and to disavow a prior finding of satisfactory quality assurance, and led both Governor Deukmejian's predecessor and the Joint Intervenors to move to reopen the record on quality assurance. By the April 14, 1983, oral argument on the motions to reopen, both Pacific Gas and Electric Company (PG&E) and the NRC staff had come to agree that the record should be reopened on the issue of quality assurance in the design process, but both resisted reopening on construction quality assurance. Because the moving parties relied in part on evidence filed shortly before the oral argument,<sup>2/</sup> this board declined to rule on the disputed portion

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related to the physical characteristics of a material, structure, component, or system, which provides a means to control the quality of the material, structure, component, or system to predetermined requirements.

2. The Governor filed a Supplemental Affidavit of Richard B. Hubbard on March 29, 1983, and had provided the other parties with an advance copy on March 28. Counsel for the Governor had understood this to be acceptable to PG&E. The Governor also filed with the Director of Licensing and served on the parties a sworn statement of two quality assurance officials of a PG&E construction contractor. Because the witnesses were not available until April 5 and the transcript was not received until April 12, the Governor did not file it with the board but was prepared to advise the board of its existence and at oral argument to seek leave to file it later. Instead, Joint Intervenors chose to file the statement with the board April 13.

of the motion, instead instructing the moving parties to refile if they wished to pursue construction quality assurance in the reopened proceeding.

This motion is based on the revelation since the Licensing Board's July 17, 1981, decision of:

(a) Major deficiencies in PG&E's quality assurance program<sup>3/</sup> for Diablo Canyon's design and construction as identified by the IDVP;

(b) Design errors stemming from that deficient program as identified by PG&E, its contractors and the IDVP;

(c) Construction errors stemming from that deficient program as identified by PG&E, its contractors and the IDVP; and,

(d) Deficiencies in the QA program of a major PG&E construction contractor.

It is also based on the fact that there has been no hearing and no finding on the issue of quality assurance for the extensive new construction presently occurring at Diablo Canyon.

An affirmative finding that an applicant's quality assurance program for construction has met all applicable regulatory standards is an essential element of any lawful decision to authorize the operation of a nuclear power plant. (10 C.F.R. § 50.57.) For this reason, the Governor respectfully submits that this Appeal Board has a mandatory duty to reopen the

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3. As used here, "program" includes both development and implementation of the QA program.

proceedings on the issue of construction quality assurance and to require PG&E to demonstrate, in an adjudicatory proceeding, that its construction quality assurance program does in fact meet its license commitments and all applicable regulatory standards. In bringing this motion, the Governor is mindful of the fact that this Appeal Board has recently ordered that a new adjudicatory proceeding on the issue of design quality assurance be held and that this proceeding be conducted in an expeditious manner. Though the issue of construction quality assurance may be as complex as that of design quality assurance, the Governor believes that the proceedings for both can and should be conducted jointly and on the same schedule. His position in this regard is based on the conviction that construction quality assurance can be litigated on such a schedule and on his desire to ensure that any delays in the ultimate operation of Diablo Canyon will not be based on the regulatory process itself but rather solely upon the speed with which the applicant is able to achieve confirmation of its compliance with the applicable regulatory standards. As a result, the Governor respectfully requests that the reopened hearing on construction quality assurance be consolidated with the hearing on design and that they proceed on the same schedule.

The standards applicable to a motion to reopen the record are well established. Such a motion should be granted if

- (1) it concerns significant new information relevant to safety;
- (2) the new information, if considered originally, would have

changed the result; and (3) the motion is timely. (Kansas Gas and Electric Co. (Wolf Creek Generating Station, Unit 1) ALAB-462 (1978) 7 NRC 320, 328; Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station) ALAB-138 (1973) 6 AEC 520, 523; Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station) ALAB-167 (1973) 6 AEC 1151.) In the discussion below, the Governor will demonstrate that each of these criteria has been met and therefore that his motion to reopen the record on the issue of construction quality assurance should be granted.

I

THIS MOTION IS BASED ON SIGNIFICANT NEW  
INFORMATION RELEVANT TO SAFETY

The significant new information on which this motion is based is (a) the scores of serious errors already uncovered at Diablo Canyon -- including errors in design and the reasonable inference from them that PG&E failed to assure quality in construction; (b) the failures of construction quality assurance already identified by the narrow, incomplete examinations performed to date; (c) the recent disclosures concerning the numerous, repeated violations of NRC quality assurance requirements by a major PG&E construction contractor; and (d) the extensive and rapid paced new construction occurring at Diablo Canyon. Taken together, the Governor submits this evidence gives rise to the conclusion that PG&E did not and does not have an adequate quality assurance program for construction at Diablo Canyon.

There should be little dispute that such information is "significant" and "relevant to safety."

The importance of an effective construction quality assurance program to the safety of nuclear power plant operation cannot be questioned. As the Appeal Board noted in Consumer's Power Company (Midland Plant, Units 1 and 2) ALAB-106 (1972) 6 AEC 182, 183:

"[O]ne of the most significant elements of the Commission's 'defense-in-depth' approach to nuclear safety is its emphasis upon quality assurance and quality control in the construction of nuclear power plants."

In testimony to the United States Congress, the NRC staff reiterated this point in stating the following:

"Most of [the errors found at Diablo Canyon and four other plants] can be traced to failure of quality assurance due to ineffective management control of the QA program. There are a myriad of excuses and reasons why management fails. Some are explicit failures of performance or lack of attention. Other failures rising from poor attitudes and perceptions are difficult to identify. The NRC cannot tolerate these defects because of thier [sic] potential impact in terms of public risk.

"It is surprising that some licenses are insufficiently concerned about quality assurance not only because of the safety implications but also because of the immense cost of mistakes and of the resulting delay in construction."

(Testimony of Mr. William Dircks in the Oversight Hearing on Quality Assurance in Nuclear Power Plant Construction before the Subcommittee on Energy and the Environment of the Committee on Interior and Insular Affairs, House of Representatives, Nov. 19, 1981, Serial No. 97-26 (hereinafter "Oversight Hearings"), p. 8 (emphasis added)).

Indeed, it is self-evident that it is critical to the safety of a nuclear power plant that the quality of its structures, systems, and components which are important to safety be assured. As a consequence, the detection of failures in a quality assurance program has obvious safety significance.

A. The Scores of Design Errors Already Revealed at Diablo Canyon, Requiring Thousands of Plant Modifications, Demonstrate a General Failure of the Quality Assurance Program That Forecloses Confidence in Construction Quality Assurance

This board already has before it ample evidence of the deficiencies discovered in the design of Diablo Canyon.<sup>4/</sup> As the

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4. Since the board has directed the parties to focus their renewed motions on construction QA (April 21 Order, pp. 4-5), and since the board is generally familiar with the evidence on design QA, no new material is being filed on design QA with this motion. However, since this motion relies in part on the failures in design QA, the board is asked to take official notice of the May 24, 1982, Affidavit of Richard B. Hubbard (hereinafter "Hubbard Affidavit") and the March 26, 1983, Supplemental Affidavit of Richard B. Hubbard (hereinafter "Supplemental Affidavit"), already on file with the board. (Fed. Rules of Evid., rule 201.) Where this motion relies on specific portions of those documents, the board's attention will be directed to those portions.

count of errors has soared<sup>5/</sup> even PG&E has lost its ardor to defend its record on design QA. Now reduced to an exercise in damage control, PG&E seeks to contain the implications of these findings to the design stage.

PG&E's efforts must fail. The same "top licensee management" on whom the NRC relies for "heavy emphasis and active involvement" in the quality assurance program (Oversight Hearings, p. 7) permitted the situation to fester that produced a design riddled with errors. The obvious inference is that those immediately responsible for construction QA felt no different pressure from PG&E management than did the design QA staff. Precisely because the commission requires a commitment to quality assurance among top management, which the known errors demonstrate did not exist, its absence supports the inference that the entire quality assurance program it oversaw was inadequate.

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5. The nomenclature and numerology of Diablo Canyon have themselves become points of controversy. The term "error/open item" (EOI) is used by the IDVP, which counts 303 such items by its latest reckoning. The IDVP counts 54 EOIs as either class A or class B, the most serious categories of errors. (Teledyne, April 1983 Semi-Monthly IDVP Status Report.) But this figure is misleading, since a single EOI can correspond to thousands of deficient components. For example, one EOI required modification to 900 out of the first 12,000 of a total of 23,000 electrical conduit and cable tray supports. (See Hubbard Supplemental Affidavit, p. 13.)

In the Declaration<sup>6/</sup> of Richard B. Hubbard<sup>7/</sup> accompanying this motion, Mr. Hubbard, drawing on the known design errors and his expertise in quality assurance, expresses the opinion that the design errors demonstrate deficiencies in the overall QA program and in the management attitude of PG&E concerning quality assurance that make it likely similar lapses will be found in construction QA. (Hubbard Declaration, p. 28; see also Hubbard Affidavit, pp. 92, 97.)

Indeed, it was precisely this logic that led the NRC staff to conclude that the known design deficiencies required expansion of the IDVP into an examination of construction QA. (See Hubbard Declaration, p. 28.)

PG&E resists the inference of systematic, program-wide QA deficiencies by emphasizing what distinctions there were between design and construction QA. Thus, while PG&E admits QA for both were spelled out in the same manual, PG&E observes that there were separate sections for design and construction. PG&E asserts design and construction QA had different immediate

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6. A declaration is used in lieu of an affidavit pursuant to 28 U.S.C. section 1746.

7. Mr. Hubbard is a professional quality engineer with 19 years' experience in the design, manufacture, construction and operation of nuclear power generation facilities. For 11 of those years, he was in responsible managerial positions in the Nuclear Instrumentation Department, Atomic Power Equipment Department, and Nuclear Energy Control and Instrumentation Department of General Electric Company. Since 1976, Mr. Hubbard has had substantial involvement in both the Diablo Canyon proceeding, as a consultant to the Governor of California and the Joint Intervenors.

supervisors -- but does not dispute that both reported to the same corporate management.

And it was this common high-level PG&E management -- on which the NRC staff has said it places such great reliance to protect the public health and safety -- that failed to insist upon adequate design quality assurance. Under the circumstances, the inference that QA deficiencies infected both design and construction is inescapable.

B. The Known Errors in Construction Independently Justify Reopening the Record on Construction QA

But this motion does not rest on inferences alone. There is direct evidence of quality assurance failures in construction.

As early as the first report from the verification program, discrepancies between the plant "as-built" and the design have been uncovered. R. L. Cloud reported in his November 11, 1981, Progress Report No. 1 deviations from the as-built and the as-designed configuration of supports for electrical conduits. (See Hubbard Affidavit, p. 24.) In addition, raceway supports were found to differ from installation instructions. (Id., at pp. 31-32.) Cloud also found a number of discrepancies between several piping systems as installed and their as-built drawings -- a finding particularly remarkable since PG&E claimed to have reinspected those systems in response to NRC Bulletin 79-14. (Id., at pp. 28-29.)

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NRC Bulletin 79-14 required inspection of plants to verify that safety-related piping was built in conformity with the seismic models used to analyze them. The Diablo Canyon inspection resulted in an April 17, 1980, report to the staff disclosing that 26 percent of the piping examined differed from the design by a margin large enough to require reanalysis. (See Hubbard Affidavit, exh. T.) To the extent that the distinction between design and construction quality assurance has any meaning at all, the function of construction quality assurance is precisely to verify that the plant is built in accordance with the design that has been analyzed and qualified. To find that 26 percent of the construction deviated from the design by so wide a margin that the analysis of the design was inapplicable to the construction is to thoroughly discredit the construction quality assurance product.<sup>8/</sup>

At the April 14 oral argument, counsel for PG&E sought to deflect such criticism away from the construction quality assurance program by suggesting that deviations between the as-built drawings and actual construction were not the responsibility of the construction QA program. His colloquy with the board (R.T. pp. 203-205) did not establish the innocence of construction QA personnel (nor identify other guilty parties),

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8. The evidence pertaining to the 79-14 inspection is the lone evidence cited in support of this motion that was available before the Licensing Board's decision. It is cited here because, although the evidence itself is not new, its implications, in light of the other evidence, must be reevaluated.

but it did serve one valuable purpose: to demonstrate the uncertainty of the boundary between design and construction quality assurance and the concomitant peril that this artificial distinction could prevent the board from identifying serious breaches in the quality assurance program.

In an effort to meet the evidence of construction quality assurance breakdowns, the IDVP embarked upon an extremely limited review of the construction program -- consisting of a truncated examination of the performance of two construction contractors. The review produced 24 groups of errors<sup>9/</sup> demonstrating violations of Criteria 9, 10 and 11 of Appendix B requirements. (See Hubbard Declaration, pp. 33-37.) In addition the IDVP also documented numerous failures in the Diablo Canyon construction QA program itself. It showed that purchased materials and services failed to meet the requirements of Criterion 7 of Appendix B (see Hubbard Declaration, pp. 37-38); that contrary to Criteria 5 and 17, required QA/QC records were not maintained (Hubbard Declaration, pp. 38-39); and that contrary to the requirements of Criterion 16 of Appendix B, no follow-up or corrective action has been documented with respect

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9. Once again the numerology of PG&E error counting confounds analysis. For example, the first error identified was the finding that "the majority of welds on supports 9, 10, and 11 . . . exhibited incomplete fillet, short weld length, undercut weld, spatter, arc strikes, slag, and poor workmanship." (PG&E Phase II Status Report, March 11, 1983, p. A-14.) This constellation of errors was classified by the IDVP as a single "Error Class C (observation)." (Ibid.)

to the QA breakdowns identified by the IDVP (Hubbard Declaration, pp. 43-44).

PG&E relies on the report of the IDVP to exonerate its construction quality assurance program. That reliance is utterly misplaced. The IDVP concluded that quality had been assured not because there were no errors in the limited sample it examined, but because it found the errors not to have created a safety hazard. While some comfort may be taken in the opinion that a given error did not create a safety hazard, that fact offers no assurance about those phases of construction not yet examined. As Hubbard states in his declaration, the only finding that can be made as to the status of construction QA is that there have been "numerous instances where the required construction inspections were not properly performed and documented and where the items as-constructed failed to conform to the design requirements." (Hubbard Declaration, p. 29.) Once construction deviates from design, it is mere fortuity whether or not a safety hazard will be created. Thus, while the discovery of construction errors does give rise to the reasonable conclusion that other phases of construction are likewise afflicted with errors, it supports no conclusion about whether those errors pose a safety hazard.

The significance of this deficiency in the IDVP's conclusions concerning construction QA at Diablo Canyon is explained by Hubbard in the following terms:

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". . . the IDVP in a number of instances indicated a view that a problem was not significant in a particular installation because it had not resulted in any damage to or otherwise affected any structure, system, or component. I cannot agree. The Diablo Canyon QA/QC measures presumably were drawn up in accordance with the parameters I described: (a) the QA/QC measures were designed to achieve a necessary objective; and (b) if implemented the QA/QC measures would have achieved the objective. In fact, however, the necessary implementation was not achieved. Instead, over a number of years, there were recurring observations of lack of necessary QA/QC attention. [10/]

"The failure to implement the construction control measures represents a serious concern primarily because it reflects a lack of discipline in and management attention to the QA/QC program. The QA/QC management program required specified standards be reliably and repeatably achieved and that program objective was not obtained. In QA/QC, such lack of attention to prescribed measures cannot be tolerated. Each QA/QC measure, once issued by responsible management, must be assumed to be important. The fact that PG&E and the IDVP now in hindsight apparently find the repeated instances

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10. The IDVP found that one of the two contractors, Wismer & Becker, was not in compliance with its own requirements for nearly 20 percent (15 out of 80) of the construction QA program attributes evaluated. (See Hubbard Declaration, pp. 40-41.)

of non-compliance to be acceptable (or at least not a significant concern) represents a lack of attention to the necessary discipline and detail which constitute a basic ingredient of a successful construction QA/QC program."

(Hubbard Declaration, pp. 42-43.)

Hubbard has concluded from the IDVP's examination of the Wismer & Becker work that the breakdowns in the QA process and the product of that process uncovered by the IDVP "is indicative of a management failure to ensure full implementation of the Diablo Canyon QA program." (Id., at p. 41.)

It is important to note the methodological differences between the way the IDVP treated errors found in design and those uncovered in its limited construction review. No effort was made to identify root causes for construction errors. And most fundamentally, no effort was made to document in the IDVP's interim technical reports (ITR) an engineering justification for approving deviations from the existing construction and quality assurance standards. (See Hubbard Declaration, pp. 29-31, 43-44.)

In this regard, it is worthwhile noting that the NRC staff has come to the conclusion that the IDVP's treatment of and conclusions about the construction QA breakdowns it uncovered are inadequate. As Thomas M. Novak, Assistant Director for Licensing, said in a recent letter<sup>11/</sup> to the IDVP:

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11. The May 2, 1983, letter is attached to this motion as Exhibit A.

"We find that the information for closing out EOI's is inadequate. The statement that an EOI was reviewed and analyzed, including additional information provided by PG&E, and that a completion report was issued is too general. In addition, the summary and evaluation of the review results do not address the corrective action or other resolution of the deficiencies identified during the audit. We request that you provide additional information in both reports such that they are sufficiently self-contained to allow a determination of the adequacy of the bases for closing out each EOI.

"Secondly, we find that the review results do not appear to be entirely consistent with specific EOI findings. For example, ITR 38 Rev. 1 states that '. . . the contractor performed his work in compliance with PG&E Specification 8752. . .'. However, many EOI's in the report identify specific noncompliances with the specification. . . ."

(Emphasis added.)

The point here is not, as PG&E suggests, merely that the IDVP failed to prove quality assurance in construction. To be sure, the Governor contends that the limited construction review was so inherently flawed -- in its constricted scope and invalid sampling -- that it was incapable of demonstrating quality assurance. But this motion is based on more than merely the failure to prove construction quality assurance. It is based more fundamentally on the documented breakdowns in the quality assurance process, including those documented by the IDVP.

C. The Sworn Statements of Two Former Quality Assurance Officials at Diablo Canyon, Revealing Violations of NRC Regulations on Construction Quality Assurance, Require That the Record be Reopened

In his testimony to the Subcommittee on Energy and the Environment on November 19, 1981, William Dircks, Executive Director for Operations, identified what had been found to be the basic causes for construction quality assurance errors in nuclear power plants under construction across the country:

". . . Clearly, in each case there was an overreliance by the utility on its contractors for maintaining a thorough quality assurance program. The utility's own QA staff was too small to maintain sufficient surveillance over the work of contractors. In two of the cases we saw instances where the construction management dominated or controlled the quality assurance program and personnel. And, in each of the cases where problems had been identified, the corrective action taken was not sufficiently broad. Too frequently, the response was one of treating the symptom, rather than finding the basic cause and correcting it.

"In analyzing the identified problem areas, one can come up with a list of immediate causes--such as unqualified workers or QC inspectors, falsified records, intimidation of quality control inspectors, lack of authority, lack of communication, inadequate staffing levels, inadequate corrective action systems, lack of supervisors, poor to nonexistent procedures, poor design and change control,

design errors, inadequate analyses, and so on.

"Most of these can be traced to failure of quality assurance due to ineffective management control of the QA program. There are a myriad of excuses and reasons why management fails. Some are explicit failures of performance or lack of attention. Other failures rising from poor attitudes and perceptions are difficult to identify. . . ." (Oversight Hearings, p. 8 (emphasis added).)

On April 5, 1983, counsel to the Governor, pursuing press reports a major PG&E subcontractor at Diablo Canyon had discharged two quality assurance officials under suspicious circumstances, took sworn statements (hereinafter "Statement") from Virgil Tennyson and Richard Roam, who had, until the previous month, been the manager and assistant manager of quality assurance for the H. P. Foley Company at Diablo Canyon.<sup>12/</sup> The testimony of these two men demonstrate that precisely the conditions Dircks identified as the basic causes of construction quality assurance breakdowns prevailed at Diablo Canyon.

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12. Virgil H. Tennyson was, until March of this year, the quality assurance manager for the Howard P. Foley Company at Diablo Canyon. He held this position for approximately 9 years. Richard E. Roam was, until March of this year, the assistant quality assurance manager for the Foley Company. The Foley Company was and is primarily responsible for electrical work on the plant but recently has picked up the tail end of contracts for work on structural steel, instrumentation and pumps at Diablo Canyon.

A copy of their sworn statement is attached hereto as Exhibit B.

Both men have testified under oath that their company's quality assurance program was dominated and controlled by construction management (Statement, p. 47) and that this management and PG&E personnel continually insisted that they violate quality control procedures (Statement, pp. 49-51). They have further related that this control ultimately culminated in their being ordered to remove hold orders placed on nonconforming work (Statement, pp. 31-32) and that hold orders had in fact been removed from nonconforming work by their own quality assurance inspectors at the direct insistence of construction personnel (Statement, pp. 42-43). Construction management control of a quality assurance department, not to mention orders to violate established procedures, is a direct violation of Criteria 1, 14 and 15 of Appendix B to 10 C.F.R., Part 50 and was identified by NRC staff in congressional testimony as a leading cause of construction errors in nuclear power plants.

Tennyson and Roam also state that, from 1974 through a portion of 1982, there was no requirement that their company's quality assurance inspectors meet ANSI standards (Statement, pp. 14-15) and that they had hired individuals without knowing whether they had had any prior construction or quality assurance experience (Statement, pp. 16-18). The use of inexperienced quality assurance inspectors is contrary to the requirements of Criteria 2 and 5 of Appendix B to 10 C.F.R. Part 50 and has likewise been identified as a major factor in construction errors.

Both men also testify that the construction personnel charged with doing the welding on the structural steel in the containment and fuel-handling building were too inexperienced to know how to work around hold orders (Statement, pp. 31, 42). In addition, they testified that in many instances these workers and the quality assurance inspectors were unable to properly read design drawings as to the correct orientation of the work to be done. (Statement, pp. 66, 68.) The hiring of inexperienced workers violates Criterion 2 of Appendix B to 10 C.F.R. Part 50.

Furthermore, both these men state that the newer construction workers at the plant harrassed and intimidated their quality assurance inspectors to the point where inspectors would have to be moved to different locations in the plant or attempt in other ways to avoid confrontations. (Statement, pp. 68-71.) Harrassment of quality assurance inspectors is a federal crime (42 U.S.C. § 2148(b)) and has likewise been described by the NRC staff as a leading cause of construction errors in its congressional testimony.

Moreover, these two men relate that until 1982 there often were no specific criteria upon which to judge whether the work they were being asked to inspect met design requirements (Statement, pp. 59-60, 61-62) and that at the time they were terminated, design changes in the field were being processed outside of normal OA/OC procedures (Statement, pp. 55-56). The failure to provide specific inspection criteria and an established policy for field design changes is contrary to to the

requirements of Criteria 3, 5 and 6 of Appendix B to 10 C.F.R., Part 50, and was identified as a basic factor in construction errors by the NRC staff.

In addition, Tennyson and Roam both concur in the conclusion that the management of the H. P. Foley Construction Company did not regard their quality assurance department as an important or significant portion of the operation at Diablo Canyon. Management failure to assign quality assurance an independent and significant role in the company's operations is inconsistent with what Chairman Palladino has said is essential to an effective QA/QC program. In congressional testimony, he said the following in this regard:

"To be effective, a QA program must have full support and attention of the nuclear industry managers responsible for design and construction." (Oversight Hearings, p. 5.)

Finally, Tennyson and Roam both indicated that their department did not systematically inspect any equipment which, though important to safety, was not safety related. (Statement, p. 53.) The failure to have a systematic quality assurance program for all structures, systems and components which are important to safety is a violation of the requirements of General Design Criterion 1 of Appendix A to 10 C.F.R. Part 50.

Hubbard has reviewed the Tennyson-Roam statement and recounts in detail the violations of NRC regulations and accepted industry practice alleged by the two men. (Hubbard Declaration, pp. 4-27.) He concludes:

requirements of Criteria 3, 5 and 6 of Appendix B to 10 C.F.R., Part 50, and was identified as a basic factor in construction errors by the NRC staff.

In addition, Tennyson and Roam both concur in the conclusion that the management of the H. P. Foley Construction Company did not regard their quality assurance department as an important or significant portion of the operation at Diablo Canyon. Management failure to assign quality assurance an independent and significant role in the company's operations is inconsistent with what Chairman Palladino has said is essential to an effective QA/QC program. In congressional testimony, he said the following in this regard:

"To be effective, a QA program must have full support and attention of the nuclear industry managers responsible for design and construction." (Oversight Hearings, p. 5.)

Finally, Tennyson and Roam both indicated that their department did not systematically inspect any equipment which, though important to safety, was not safety related. (Statement, p. 53.) The failure to have a systematic quality assurance program for all structures, systems and components which are important to safety is a violation of the requirements of General Design Criterion 1 of Appendix A to 10 C.F.R. Part 50.

Hubbard has reviewed the Tennyson-Roam statement and recounts in detail the violations of NRC regulations and accepted industry practice alleged by the two men. (Hubbard Declaration, pp. 4-27.) He concludes:

"In my opinion, the discrepancies in the QA/QC process described by Mr. Tennyson and Mr. Roam, and the discrepancies in the product of the H. P. Foley construction control program documented on attachment A, taken together provide clear evidence that H. P. Foley has failed to develop and implement a construction QA/QC program in compliance with the 18 criteria of Appendix B and GDC-1 of Appendix A." (Hubbard Declaration, p. 27.)

In summary, with respect to the quality assurance root causes for construction errors at nuclear power plants identified by the NRC staff, the Tennyson-Roam statement identifies six of those root causes as existing in the Diablo Canyon quality assurance program in direct violation of the regulatory requirements set forth in Appendices A and B to 10 C.F.R. Part 50.

D. The Extensive Nature and Rapid Pace of the New Construction at Diablo Canyon Coupled With PG&E's Tradition of QA Failure, Compels the Conclusion That a Hearing on Quality Assurance Is Required

The remarkable series of errors discovered at Diablo Canyon has led to more than just additional inspection; it has forced PG&E to undertake a major new construction program simply to modify the plant to correct the serious errors that have been discovered. The extensive nature and furious pace of this construction coupled with PG&E's tradition of QA failure, compels the conclusion that a hearing on quality assurance is required.

Accounts of the number of employees presently engaged in construction activities at the site vary, but recent reports have

placed the number in the thousands. PG&E appears not to contest that there are presently more workers engaged in modifications to the plant than were ever employed at the site during the initial construction.

In addition to the testimony of Tennyson and Roam, there is ample independent evidence that the current construction activities are being undertaken with a deep concern on the part of the utility for the time the work takes. These time pressures are a frequent contributor to construction errors in nuclear power plants (Oversight Hearings, p. 8), which ought to heighten this board's concern for quality assurance.

Under the circumstances, the current effort can scarcely be characterized as mere repair of an existing plant. It follows that, whatever the parties' rights to reopen the record on quality assurance in the original construction, the parties are entitled to a hearing on quality assurance in the present round of construction -- a topic on which they have had no previous opportunity to a hearing.

## II

### THIS NEW INFORMATION, IF CONSIDERED ORIGINALLY WOULD HAVE CHANGED THE RESULT

In its order of May 4, 1981, on how appeal and licensing boards should handle TMI related issues (Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power plant, Units 1 and 2) CLI-81-5 (1981) 13 N.R.C. 361), the Commission issued a policy statement with respect to the standards by which a TMI related

motion to reopen a proceeding should be judged. Though the policy statement was designed to assist this Appeal Board with TMI related litigation, the standard set forth with respect to motions to reopen is derived directly from the Wolf Creek decision, supra, and thus is of general applicability. Those standards were delineated as follows:

"As we stated in the Revised Policy Statement, where the evidentiary record on safety issues has closed the record should not be reopened . . . absent a showing by the moving party, of 'significant new evidence not included in the record, that materially affects the decision [citation omitted]. We emphasize that bare allegations or simple submission of new contentions is not sufficient. Only significant new evidence requires reopening. Of course, in moving to reopen, a party need not supply written testimony of independent experts, but is free to rely on admissions and statements from applicant and NRC staff and official NRC documents or other documentary evidence.

"Parties are generally free to raise issues of compliance with NRC regulations, subject to 10 CFR 2.714 specificity and lateness requirements, where applicable and standards for reopening records, where applicable . . . Thus if a party comes forward on a timely basis with significant new . . . evidence indicating that an NRC safety regulation would be violated . . . , we believe that the record should be reopened . . . However, the parties are required to make

the initial case that significant new evidence is available, not merely make claims to that effect." (13 N.R.C. at pp. 362-363.)

Thus, the commission has stated that a party moving to reopen meets its burden of demonstrating a changed result by making an initial case that "an NRC safety regulation would be violated."

In the same order which established the standard for reopening a record for failure to comply with a regulatory standard, the Commission also set forth the standard to be met when a party is not seeking to reopen because a regulatory standard has been breached but rather because compliance with the regulatory standard is not sufficient to guarantee the public's safety. The standard the Commission established for a motion to reopen in those circumstances was the following:

". . . In this situation, a party must first make a prima facie case to the Board that application of a given rule on this particular proceeding would not serve the purpose for which the rule was adopted. If the party is able to make this case, the Commission will determine whether that rule will be waived or an exception made from its requirements in that case." (13 N.R.C. at p. 364 (emphasis added).)

The contrast, in the same opinion, between the Commission's use of the term "initial case" for motions to reopen on the issue of regulatory compliance with its use of the term "prima facie" case in situations where more than regulatory

compliance is being sought, makes it clear that the Commission intended a different standard to apply as between the two motions to reopen and that a party seeking to reopen on the issue of regulatory compliance need not make a "prima facie case" that a violation has occurred, but rather only an "initial case."

For present purposes, this distinction is academic. Whatever constitutes either an "initial case" or a "prima facie case," plainly both standards have been met here by the showing of wholesale violations of the commission's quality assurance standard for construction. This board has been presented with direct testimony, documentary evidence, and expert opinion that the construction quality assurance program at Diablo Canyon failed to meet the requirements of Appendix B and General Design Criterion 1 of Appendix A to Part 50 of 10 C.F.R.

### III

#### THIS MOTION IS TIMELY

All of the evidence on which the Governor relies in support of this motion has been filed with the board virtually as fast as the evidence became available.

The material in Hubbard's initial affidavit was presented to the Appeal Board no later than eight months after its discovery by the Joint Intervenors' and Governor's June and July 1982 motions to reopen on both construction and design quality assurance. The material in his supplemental affidavit was based on information which came into existence after the filing of those motions which supported the evidence on

construction OA previously presented to the Appeal Board. The Tennyson-Roam statement was not taken until April 5, 1983, and was submitted to the commission the day the transcript was received by the Joint Intervenors.

The Governor and his predecessor have caused no delay in consideration of this motion or its supporting evidence. Indeed, the Governor has been prepared to proceed with his motion faster than the commission could deal with its own enforcement action based on some of the same evidence. No delay in commercial operation of this power plant has been occasioned by the conduct of the Governor.

IV

THIS MOTION ALSO MEETS THE REQUIREMENTS  
FOR THE FILING OF A "LATE CONTENTION"

In its April 21 order, the board called on the moving parties to address the standards for filing a "late contention."

Those standards are set out in 10 C.F.R. section 2.714(a)(1):

"(i) Good cause, if any, for failure to file on time.

"(ii) The availability of other means where by the petitioner's interest will be protected.

"(iii) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.

\* \* \* \* \*

"(iv) The extent to which the petitioner's interest will be represented by existing parties.

"(v) The extent to which the petitioner's participation will broaden the issues or delay the proceeding."

Without conceding that this regulation has application to a contention raised in a motion to reopen,<sup>13/</sup> the Governor can easily meet the requirements of section 2.714.

(i) Timeliness. For the reasons discussed in section III, above, this contention has been raised in a timely manner.

(ii) Availability of Other Means. There are no other means by which the state's safety concerns would be protected.

PG&E may argue that the state should settle for the IDVP to protect its interests. Such a claim would be meritless. Indeed, the record has been reopened on design quality assurance -- where the IDVP has focused nearly all its efforts -- notwithstanding the IDVP and the underlying enforcement action by the commission. The simple fact is that the limited access of a party to the IDVP is no substitute for a licensing adjudication, where important safety issues may be determined with the benefit of discovery, cross-examination, compulsory process, express findings, and the other tools of administrative adjudication.

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13. When a party has moved to reopen the record, it must demonstrate that it has timely new material evidence pertaining to compliance with regulatory requirements or otherwise relevant to safety. Once it has done so, whether the same party had previously raised the contention -- lacking the evidence on which it now relies -- ought to be of no significance.

The benefits of vigorous participation of independent parties in this licensing proceeding are demonstrated by the revelations of the Tennyson-Roam statement. The independent efforts of counsel for the Governor have provided this board with material evidence on which to judge whether it can rely on the PG&E quality assurance program.

(iii) Petitioners' Contributions to Development of the Record. Significant evidence now before this board has been adduced by the representative of the State of California. As a consequence, this board has every reason to believe that continued participation of the Governor in this proceeding will contribute to the development of a sound record.

(iv) Existing Parties. There being presently no proceeding on construction quality assurance, there are no other parties who might represent the state's interests. The very existence in the commission's regulations of special provisions for representation of an interested state (10 C.F.R. § 2.715(c)) establishes the right of the state to be represented by an official representative.

(v) The Danger of Delay. By allowing this contention, the board will, of course, be broadening the issues. That is the very purpose of this motion. But there is no danger of undue delay.

The Governor has repeatedly made clear his desire that Diablo Canyon become available to the people of California as soon as possible -- consistent with the overriding need to assure

public safety. Accordingly, in arguing for reopening of the record on quality assurance -- both design and construction -- the Governor committed himself to completion of hearings on both design and construction quality assurance in the expedited schedule to which he had stipulated. The Governor remains committed to the principle that a reopened record on construction quality assurance will not delay commercial operation of the plant unless the hearings demonstrate that such delay is necessary in the interest of public safety.

V

THE NEED FOR CONSTRUCTION QUALITY ASSURANCE  
CAN BE MET ONLY BY A REVIEW OF A STATISTICALLY  
VALID RANDOM SAMPLE OF ALL CONSTRUCTION WORK  
AT DIABLO CANYON IMPORTANT TO SAFETY

It has become increasingly clear over the past two years that the only way to assure the quality of construction at Diablo Canyon is to conduct a statistically valid review of all construction activities. Hubbard has identified the requirements of such a program: (1) identification of all structures, systems, and components important to safety, (2) definition of the appropriate confidence level, (3) the drawing of a random sample sufficient to achieve that level of confidence from among all construction work -- excluding that work that cannot be examined nondestructively, (4) examination of all work in the sample -- reviewing both documentary evidence, visual characteristics, and all other appropriate physical criteria.  
(Supplemental Affidavit, pp. 34-35.)

On the basis of this sample, appropriate inferences can be made about all construction work at the site. Should the sample review demonstrate, as PG&E claims, that construction quality assurance has been assured, no further verification would be required. But if construction quality assurance cannot be demonstrated by examination of a sample of the work, an expanded verification program would be necessary.

This is, of course, entirely appropriate. The amount of work to be done -- and the risk of delay -- is governed entirely by the quality of the construction work. The Governor remains confident that if PG&E's claims about construction quality prove well founded, this review can be completed without interfering with commercial operation.

PG&E's resistance to reopening the record on construction quality assurance and the consequent need for this motion to be refiled will necessarily delay commencement of the program to verify construction quality. However, the Governor is informed that in fact the schedule for completion of the work at the site has been delayed further from the schedule discussed in April. A prompt ruling on this motion will still permit adequate time for discovery and hearing before operation of the completed facility. In this connection, counsel for the Governor is informed by counsel for PG&E that the remaining work of the IDVP and the NRC staff virtually assure that discovery in the reopened hearings on design quality assurance cannot close before August 1. It is the expectation of counsel for the Governor that

this provides adequate time for discovery on both design and construction quality assurance.

CONCLUSION

In ruling on this motion, the board has but to conform its decision to the common sense meaning of the undisputed facts. In the last 19 months, we have come to learn that, in the years leading up to licensing, Diablo Canyon was a seriously troubled project, in which quality control was conspicuously absent, in which the pressures of time and cost were pitted against the need for care, in which a power plant was built that could not meet the requirements of the law and the obligations of the utility.

All this motion seeks is the opportunity to test fully the utility's claim that it has now put its house in order -- a test the Governor agrees need not delay commercial operation if, as the company asserts, no deficiencies remain to be found.

The public, whose health and safety has been entrusted to this commission, would not understand how the safety of a nuclear plant with the demonstrated history of Diablo Canyon can be assured without examination of the way in which it has been constructed.

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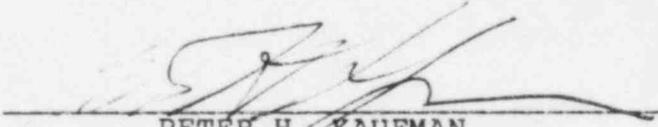
Governor Deukmejian respectfully urges this board to  
reopen the operating license record on construction quality  
assurance.

Dated: **MAY 17 1983**

Respectfully submitted,

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By

  
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DECLARATION