UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Thomas S. Moore, Chairman
Dr. John H. Buck
Dr. W. Reed Johnson

December 19, 1983
(ALAB-756)

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

Joel R. Reynolds, John R. Phillips and Eric Havian, Los Angeles, California, and David S. Fleischaker, Oklahoma City, Oklahoma, for the San Luis Obispo Mothers for Peace, et al., joint intervenors.

John K. Van DeKamp, Attorney General of the State of California, Andrea Sheridan Ordin, Michael J. Strumwasser, Susan L. Durbin and Peter H. Kaufman, Los Angeles, California, for George Deukmejian, Governor of the State of California.

Robert Ohlbach, Philip A. Crane, Jr., and Richard E. Locke, San Francisco, California, and Arthur C. Gehr and Bruce Norton, Phoenix, Arizona, for Pacific Gas and Electric Company, applicant.

Lawrence J. Chandler and Henry J. McGurren, for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

We are faced with the question whether the record in this operating license proceeding should be reopened to consider new evidence on the alleged inadequacy of the construction quality assurance program utilized by the Pacific Gas and Electric Company in the construction of the

Diablo Canyon facility. In our order of October 24, 1983 we answered that question in the negative. The reasons for our decision are detailed below.

I

Citing the discovery of significant new evidence of deficiencies in the Diablo Canyon construction quality assurance program, the joint intervenors moved on May 10, 1983 to reopen the record in this proceeding.[1] Shortly thereafter, on May 18, 1983, the Governor of the State of California filed a similar motion to reopen the record. These motions followed in the wake of earlier ones by the joint intervenors and the Governor to reopen the record on all aspects of quality assurance (i.e., design and construction) for the Diablo Canyon plant. Although the applicant and the NRC staff initially opposed the prior motions in their entirety, they subsequently conceded that

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[1] The joint intervenors' motion also seeks vacation of the Licensing Board's summary findings on the adequacy of the Diablo Canyon construction quality assurance program contained in the Board's July 17, 1981 partial initial decision authorizing fuel loading and low power testing, and revocation of the low power license issued pursuant to that authorization. See LBP-81-21, 14 NRC 107 (1981). In ALAB-728, 17 NRC 777 (1983), we affirmed the authorization for fuel loading and low power testing. That decision also contains a recitation of the recent history of this proceeding. Because the joint intervenors' supplemental requests necessarily are dependent on the outcome of the reopening question, they also are denied.

the motions met the adjudicatory standards for reopening the record on the design phase of the quality assurance program. We agreed and ordered the proceeding reopened on the issue of design quality assurance but declined to rule at that time on the construction quality assurance issue because of the procedural posture of the case.[2]

Following the filing of the new motions concerning the latter issue, the applicant and staff continued vigorously to oppose any reopening of the record on the issue of construction quality assurance. They both filed extensive responses to the May 1983 motions, accompanied by numerous affidavits and other supporting documents, setting forth the reasons and the factual bases for their opposition. By our leave,[3] both the joint intervenors and the Governor filed replies to those responses.

Owing to the voluminous filings and the number of unanswered questions we had concerning the exact nature and significance of the new evidence, we set the motions for hearing so that these questions could be more fully

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[2] See Memorandum and Order of April 21, 1983 (unpublished).

[3] See Order of June 7, 1983 (unpublished). Under 10 CFR 2.730(c), a moving party has no right to reply to a response to a motion.

explored.[4] Further, because of the importance of quality assurance in the Commission's scheme for regulating the construction of nuclear power plants[5] and our desire to be as informed as possible on the factual claims of the parties, we allowed movants to supplement their previous filings with any new evidence not already submitted.[6] Commencing on July 19, 1983, a four-day hearing on the motions was held near the plant's site at San Luis Obispo, California, where the parties were afforded an opportunity to cross-examine each other's affiants.

The joint intervenors and the Governor advance a number of arguments in support of their motions to reopen. In general, they follow four lines: (1) errors in the applicant's design quality assurance program suggest the existence of errors in the construction quality assurance program; (2) newly found deficiencies in the construction quality assurance programs of several of the applicant's contractors indicate that further quality assurance program errors, as well as construction errors, exist; (3) the applicant's alleged lack of commitment to implement the

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[4] See Order of June 28, 1983 (unpublished).

[5] See, e.g., Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station), ALAB-124, 6 AEC 358, 361-62 (1973).

[6] See Order of June 28, 1983, supra.

Commission's quality assurance regulations confirms the existence of flaws in the applicant's construction quality assurance program; and (4) the extensive nature and rapid pace of recent modification work following the discovery of design errors at the plant suggest the need to monitor the present construction quality assurance program. We consider these arguments below.

II

The proponents of a motion to reopen the record in a licensing proceeding carry "a heavy burden." Kansas Gas and Electric Co. (Wolf Creek Generating Station, Unit No. 1), ALAB-462, 7 NRC 320, 338 (1978). To prevail,

> [t]he motion must be both timely presented and addressed to a significant safety or environmental issue. Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973); . . . Georgia Power Co. (Alvin W. Vogtle Nuclear Plant, Units 1 and 2), ALAB-291, 2 NRC 404, 409 (1975). Beyond that, it must be established that "a different result would have been reached initially had [the material submitted in support of the motion] been considered." Northern Indiana Public Service Co. (Bailly Generating Station, Nuclear-1), ALAB-227, 8 AEC 416, 418 (1974).

Id. See also Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980). All parties agree that this tripartite test controls our decision.

Although the timeliness of the May 1983 motions is not in dispute, the applicant contests the assertions of the

joint intervenors and the Governor that the new evidence establishes a significant safety issue and, that had the evidence previously been known, a different result would have been reached. For its part, the staff rests its opposition on the "significant safety issue" criterion. We turn, therefore, to the second prong of the Wolf Creek standard. Because we conclude that the new evidence presented by the joint intervenors and the Governor lacks the requisite safety significance on the issue of construction quality assurance, we reach no other question.

To determine what constitutes a "significant safety issue" for motions predicated on alleged deficiencies in the applicant's construction quality assurance program, we need to bear in mind the enormous size and complexity of this nuclear power plant. The Diablo Canyon facility has been under construction since 1968[7] and has entailed costs running into the billions of dollars. Its construction has required millions of hours of work by thousands of workers with vast ranges of differing skills. By virtue of the sheer size and complexity of the plant, it is inevitable

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[7] The construction permits were issued for Units 1 and 2 on April 23, 1968 and December 9, 1970, respectively.

that errors will occur in the course of construction. Although a program of construction quality assurance is specifically designed to catch construction errors, it is unreasonable to expect the program to uncover all errors. In short, perfection in plant construction and the facility construction quality assurance program is not a precondition for a license under either the Atomic Energy Act or the Commission's regulations. What is required instead is reasonable assurance that the plant, as built, can and will be operated without endangering the public health and safety. 42 U.S.C. 2133(d), 2232(a); 10 CFR 50.57(a)(3)(i); Power Reactor Development Co. v. International Union, 367 U.S. 396, 407 (1961); Maine Yankee Atomic Power Co. (Maine Yankee Atomic Power Station), ALAB-161, 6 AEC 1003, 1004 (1973), aff'd sub nom. Citizens for Safe Power v. NRC, 524 F.2d 1291 (D.C. Cir. 1975).

It is in this context that the movants' evidence of alleged quality assurance deficiencies must be addressed. In order for new evidence to raise a "significant safety issue" for purposes of reopening the record, it must establish either that uncorrected construction errors endanger safe plant operation, or that there has been a breakdown of the quality assurance program sufficient to raise legitimate doubt as to the plant's capability of being operated safely. See Union Electric Co. (Callaway Plant, Unit 1), ALAB-740, 18 NRC ___, ___ (September 14, 1983)

(slip opinion at 2-3).[8]

III

A. The joint intervenors and the Governor argue that the existence of deficiencies in the design quality assurance program not only justifies reopening on that issue (as has already been ordered), but requires reopening on construction quality assurance matters as well. They assert that the correspondence of several of the same factors that led to inadequacies in the design aspects of the quality assurance program compels an inference that the applicant's construction quality assurance program for the plant was also deficient. Specifically, they point to the same top management that ran both aspects of the program and the same quality assurance manual that governed both activities.

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[8] As noted earlier, the Governor concedes the applicability of the Wolf Creek criteria for reopening the hearing record. But the Governor, relying on a statement contained in Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523-24 (1973), claims that his reopening motion must be granted if he has timely presented newly discovered evidence addressed to a significant safety issue and the moving papers are strong enough, in light of opposing filings, to avoid summary disposition. The analogy in Vermont Yankee to summary disposition (i.e., that a motion for reopening must be supported by evidence that is at least equivalent to that necessary to avoid a motion for summary disposition) should not be interpreted to mean that such evidence is all that is ever necessary to meet the test for reopening. To so conclude would, for all practical purposes, relieve movants

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The movant's evidence on this point falls far short of establishing their asserted inference. Although at Diablo Canyon both design and construction quality assurance are parts of a single program, the historical development, organizational structure and responsibilities of each component are different. Similarly, the personnel skills, verification methods and corrective actions applicable to each phase of the programs are different.[9] Therefore, it simply does not follow that merely because the same top management is ultimately responsible for the entire quality assurance program and the details of the program are found in a single manual, the existence of defects in the design aspect of the program are symptomatic of like errors in the construction phase of the program. The many different elements and functioning of each component of the program are such that it would be gross speculation to arrive at the

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(Footnote Continued)
of the heavy burden imposed by Wolf Creek, supra, and decisions cited therein.

[9] See Affidavit of Richard S. Bain (July 1, 1982) and Affidavit of Warren A. Raymond, Charles W. Dick and Michael J. Jacobson (July 2, 1982), accompanying Response of Pacific Gas and Electric Company To Joint Intervenors' Motion To Reopen The Record (July 2, 1982). These affidavits are incorporated by reference in Response Of Pacific Gas and Electric Company To Motions To Reopen The Record On Construction Quality Assurance (May 31, 1983).

movants' conclusion based on these two factors alone.[10] More important, however, is the fact that the joint intervenors and the Governor -- despite the additional opportunity presented by the hearing on their motions -- were unable to support their premise and establish construction quality assurance shortcomings sufficient to show a systematic breakdown in the quality assurance program or defects in the plant that may adversely affect its capability for safe operation.

B. The movants also rest their motions to reopen the record on certain specific areas of deficiency in the quality assurance programs of the applicant's contractors. In this connection, they focus primarily on three contractors: the H.P. Foley Company, the G.F. Atkinson Company, and the Wismer and Becker Company.

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[10] Both the joint intervenors and the Governor rely on the expert opinion of Richard B. Hubbard to support their position that the deficiencies in the applicant's design quality assurance program portend similar deficiencies in the construction quality assurance program. In like fashion, they depend upon Mr. Hubbard's opinion for support of most of their other arguments. Voir dire and cross-examination of Mr. Hubbard, however, established that he lacked experience and familiarity with construction work in general and with the Diablo Canyon construction quality assurance program. Tr. 39-42, 92-95, 105-110, 161-62. In the circumstances, Mr. Hubbard's opinion is entitled to little weight and it does nothing to enhance the movants' arguments.

1. The Foley Company was responsible for all of the electrical work at the plant and, from about 1977, for much of the completion of the plant's construction (i.e., the "clean-up" contractor). The joint intervenors and the Governor claim that the inadequacy of Foley's (and, in turn, the applicant's) construction quality assurance program is made manifest by several incidents and construction practices. Relying heavily on a sworn statement provided to the Governor's attorneys by a former quality assurance manager of the company, Virgil H. Tennyson, they assert that Foley's quality assurance organization, in contravention of the Commission's regulations, 10 CFR Part 50, Appendix B, I, lacks sufficient independence from the company officials responsible for production. On this score, they allude to statements made by Mr. Tennyson to the effect that he was constantly under pressure to shortcut quality assurance requirements in order that construction work could go forward. They stress, for example, an incident recounted by Mr. Tennyson in which red tags, used by the Foley construction quality assurance department to identify nonconforming work, were allegedly ordered removed by the company's project manager in violation of quality assurance procedures.

But when Mr. Tennyson was cross-examined at the hearing on the motions, a far different picture emerged from that painted by the joint intervenors and the Governor. Although

an incident involving the premature removal of red tags from nonconforming work did occur in violation of the company's quality assurance procedures, it appears that the physical corrections to the nonconforming work already had been performed before the tags were removed.[11] The same conclusion was reached by the staff after its investigation of the incident.[12] Moreover, the incident appears to be an isolated one. Thus, it neither establishes a systematic breakdown in Foley's construction quality assurance program nor demonstrates an uncorrected defect in the plant that adversely affects safe operation. Nor do we believe that the red tag incident, or other statements concerning the removal of red tags attributed to Foley's construction manager by Mr. Tennyson, demonstrate a lack of independence on the part of the quality assurance organization from the production department. In the context in which these statements were allegedly made, we believe the various remarks were little more than shorthand expressions to complete the inspection process in a timely manner, but not at the expense of proper

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[11] Tr. 652.

[12] See Inspection Report Nos. 50-275/83-13 and 50-323/83-10 (May 19, 1983) at 4, attached to Exhibit B of Affidavit of John D. Carlson (May 20, 1983), accompanying NRC Staff's Response To Motions To Reopen The Record on Construction Quality Assurance (June 6, 1983).

quality assurance procedures or the independence of that organization.[13]

Other aspects of Mr. Tennyson's sworn statement similarly fail to substantiate the joint intervenors' and the Governor's allegations of serious deficiencies in Foley's construction quality assurance program. The movants point to the recent large increase in construction work at Diablo Canyon. According to Mr. Tennyson, this "push," which started in late December 1982, resulted in the hiring of many new welders and quality assurance inspectors within a timeframe of approximately three months. In addition, the quantity of work required that the inspectors, among others, work long hours -- from sixty to seventy hours or more per week. All this, according to the joint intervenors and the governor, led to improper welds that escaped quality assurance detection and now must be made the subject of a broad reinspection program.

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[13] Tr. 336, 341-43, 350-52.

We note that in the opinion of the NRC senior resident inspector at Diablo Canyon, John Carlson, the quality assurance organization enjoyed sufficient independence within the company's corporate structure. He stated that although Foley's organizational structure was such that both production and quality management reported to the senior project manager at the site, the quality assurance manager had direct access to the company's regional vice-president in the company's corporate offices in California. Tr. 900-01.

During this period of a rapidly expanding work force, a number of minor welding deficiencies escaped Foley's quality control inspections.[14] But such incidents are not unusual in construction and can be expected, even with qualified and experienced people, until the newly hired workers and inspectors become used to the new conditions, requirements and other aspects of the work environment.[15] The important point is that the problems were recognized and caught by the applicant almost from their inception and it quickly took steps to correct them. The applicant closely monitored the situation and conducted a total of ten audits of Foley's work during this period so as to bring all the work up to acceptable standards.[16] Thus, rather than establishing a pervasive failure of the applicant's quality assurance program, this incident demonstrates that the applicant's construction quality assurance program was performing in an acceptable manner.[17]

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[14] See Inspection Report Nos. 50-275/83-13 and 50-323/83-10 at 11, supra; Tr. 236-38, 898.

[15] Tr. 805-07.

[16] Tr. 562-72.

[17] The movants also cite Mr. Tennyson's sworn statement concerning an incident of harassment of a quality assurance inspector by an iron worker as evidence of Foley's deficient quality assurance program. According to Mr. Tennyson, such harassment was reported to the Foley project manager but, as

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2. Like the H.P. Foley Company, the G.F. Atkinson Company and the Wismer and Becker Company were major contractors for the Diablo Canyon plant. The former was responsible for the erection of the containment structure while the latter installed the primary coolant system piping. Asserted deficiencies found by a review of the construction performed by these contractors also form part of the basis for the joint intervenors' and the Governor's assertions that the record should be reopened on the issue of the applicant's quality assurance program.

In the fall of 1981, the applicant discovered errors in the assignment of seismic design spectra for equipment and piping in portions of the containment annulus of Unit 1. These errors, in conjunction with the discovery of additional problems with the applicant's design quality assurance program, prompted the Commission to order the applicant to undertake an independent design verification program to assure the adequacy of the Diablo Canyon

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far as Mr. Tennyson was aware, nothing was done to curtail it. The record, however, shows that the errant iron worker was immediately dismissed as a result of the harassment. See Affidavit of Richard S. Bain, James R. Manning and Richard D. Etzler (May 31, 1983) at 14, accompanying Response of Pacific Gas and Electric Company To Motions To Reopen The Record On Construction Quality Assurance (May 31, 1983) [hereinafter "BME Affidavit (May 31, 1983)"].

design.[18] While the program was in progress, and as an adjunct to it, the applicant commissioned the same organizations performing the design review to examine the containment structure construction and the primary coolant system piping. The applicant undertook this, at the urging of the NRC regional staff, to confirm the adequacy of the construction of Diablo Canyon and to verify that the staff inspection efforts had not allowed significant undetected deficiencies.[19] Although a number of contractors were involved in constructing the applicant's facility, the independent reviewers selected the construction performed by the Atkinson Company and the Wismer and Becker Company (and their subcontractors) because that construction was both ... substantial and involved structures or components vitally important for safe operation of the plant.[20] This review resulted in a favorable finding on both the adequacy of the applicable quality assurance programs and the construction.[21]

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[18] See CLI-81-30, 14 NRC 950 (1981).

[19] See Affidavit of Philip J. Morrill (June 2, 1983) at 3, accompanying NRC Staff's Response To Joint Intervenors' and Governor Deukmejian's Motions To Reopen The Record (June 6, 1983).

[20] Id.

[21] Id. See also Attachment 3, Interim Technical Report

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The joint intervenors and the Governor, however, dispute the validity of these conclusions. They assert that the deficiencies uncovered by the review stand as evidence that the applicant's construction quality assurance program and those of its contractors were not functioning properly. Further, they claim that no conclusions can be drawn from the review about the adequacy of construction by other contractors working on the plant because of the limited nature of the review (i.e., only two of twelve contractors were examined).

Although the review did result in the finding of a number of errors, these deficiencies were essentially matters of minor significance and were generally the result of close decisions by the reviewing personnel on items that had called for the exercise of similar judgments by the contractors' quality control personnel.[22] None of the deficiencies required any physical modifications.[23] Moreover, the review was conducted on work performed as far back as eight years earlier using today's more stringent

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No. 36 (Revision 1) and Attachment 4, Interim Technical Report No. 38 (Revision 2), accompanying Response of Pacific Gas and Electric Company To Motions To Reopen The Record (May 31, 1983) [hereinafter "ITR 36" and "ITR 38"].

[22] Tr. 428-40.

[23] See ITR 36 and ITR 38.

quality standards and not those applicable to the period of the actual construction.[24] Thus, in the circumstances, the number of errors discovered by the review is neither surprising nor particularly meaningful. What is important is that none of the deficiencies represents any defect adversely affecting the safe operation of the plant or a systematic breakdown of the applicable construction quality assurance programs.

In addition, the movants' assertion that the independent construction review was too narrow to enable any statistically valid conclusions to be drawn about the quality of the work of the contractors not examined misses the point. On motions by the joint intervenors and the Governor to reopen the record on the issue of construction quality assurance, it is not incumbent upon the applicant to establish the adequacy of its construction quality assurance program or the adequacy of the construction at Diablo Canyon.[25] Therefore, given the results of the limited independent review (i.e., both the construction and construction quality assurance programs of two major contractors was adequate), we fail to see how the applicant's decision not to review the work of all the other

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[24] Tr. 429-31.

[25] See p. 5 supra.

plant contractors casts suspicion on the adequacy of any of the unreviewed programs or construction work.

It is, of course, possible that a review of the work of the remaining contractors might lead to the discovery of serious construction or construction quality assurance flaws. But the theoretical possibility of such discoveries is insufficient. To demonstrate the need for additional construction quality review, the movants must either establish construction errors that endanger safe plant operation or show a pervasive failure of the quality assurance programs sufficient to raise legitimate doubt as to the adequacy of a plant's construction. The results of the independent construction review of the work performed by the Atkinson Company and the Wismer and Becker Company do neither.[26]

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[26] The movants also assert that numerous deviations in piping installations from what the movants label "as built" drawings, identified by the applicant and the independent construction review, show the failure of the applicant's construction quality assurance program. But the conclusion the joint intervenors and the Governor draw from these asserted discrepancies is unsupported by the record and evidences a misapprehension of the applicant's drawing procedures.

The applicant has had in place and followed appropriate drawing procedures from the beginning of the Diablo Canyon project. See BME Affidavit (May 31, 1983) at 2-5; Tr. 634-35. Further, the subject piping was correctly installed by the contractor in accordance with the design requirements on the area drawings and erection isometric

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C. In a more general vein, the joint intervenors and the Governor contend that since 1970 the applicant's construction quality assurance program for Unit 1 has not complied with the Commission's quality assurance regulations, 10 CFR Part 50, Appendix B, because the applicant did not commit to conform its program to Appendix B after it became effective. Rather, the applicant only committed to apply Appendix B to the extent possible. Thus, they argue, the applicant effectively exempted its quality program from compliance with the regulations for post-1970 construction activities and the record must be reopened to ensure that Diablo Canyon was properly constructed.[27]

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drawings. See BME Affidavit (May 31, 1983) at 6-7; Tr. 618, 619-20, 634. Hence, there was no construction quality problem. Tr. 619, 626. The discrepancies cited by the movants were those between the design analysis isometric drawings and the actual installations. But those analysis drawings were not used in the field to erect piping. See BME Affidavit (May 31, 1983) at 7; Tr. 618, 619-20, 634. The apparent source of the problem was the failure of the applicant's engineering department timely to incorporate into the analysis drawings all the previously approved field changes so that the drawings at the time of the review conformed to the installed piping. See BME Affidavit (May 31, 1983) at 7-8; Tr. 626. We do not find this particular failure by the Pacific Gas and Electric Company engineering department to be significant from the standpoint of the applicant's construction quality assurance program.

[27] The joint intervenors point to the construction of certain raceway supports at Diablo Canyon using "Superstrut" material manufactured by the Midland-Ross Company as evidence of the applicant's failure to comply with Appendix B and to construct the facility properly. An NRC inspection
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Although not expressly stated, seemingly implicit in movants' argument is the notion that the regulations required immediate compliance upon the effective date of Appendix B and that the applicant's commitment was insufficient to ensure a properly constructed facility. We disagree.

The Commission's predecessor, the Atomic Energy Commission, recognized in promulgating Appendix B in 1970 that the nature of the construction process for a plant already being built, such as Diablo Canyon, Unit 1, precluded the complete and immediate application of the quality assurance criteria. In the Statement of

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of the Midland-Ross facility determined that the manufacturer's quality assurance program was insufficient and not in conformance with Appendix B. See Board Notification No. 83-02 (January 7, 1983) and enclosure. Thereafter, the agency conducted an inspection at Diablo Canyon on the use of the material. That inspection concluded that the applicant's procurement and use of the material was generally consistent with Appendix B requirements applicable to off-the-shelf or commercial grade items. See Affidavit of Philip J. Morrill (June 2, 1983) at 6 and Exhibit C (Inspection Report Nos. 50-275/82-41, 50-323/82-19 (January 6, 1983)), accompanying NRC Staff's Response To Joint Intervenors' and Governor Deukmejian's Motions To Reopen The Record (June 6, 1983); Tr. 887-92. Further, we note that subsequent physical testing and evaluations of the Superstrut material indicate that it meets the design requirements for Diablo Canyon. Tr. 884. See Board Notification No. 83-14A (April 6, 1983) and enclosure. See also Pacific Gas and Electric Company and Bechtel Power Corporation "Final Report On The Evaluation Of Spot-welded Materials Used In Support Systems For Electrical Conduit and Cable Trays At Diablo Canyon Power Plant" (July 1, 1983).

Considerations accompanying the final version of Appendix B, it stated that the criteria would be "used for guidance in evaluating the adequacy of the quality assurance programs in use by holders of construction permits and operating licenses."[28] Therefore, contrary to the movants' suggestion, the applicant was not required to conform the construction quality assurance program for Unit 1 to Appendix B upon the provision's effective date. Moreover, the applicant's commitment in the Final Safety Analysis Report (FSAR) to apply the Appendix B criteria to the extent possible for the construction of Unit 1 was completely reasonable.[29] As stated by the applicant's assistant manager for nuclear plant operations, Warren A. Raymond:

> We applied [Appendix B] as we possibly could. But you must remember that a great deal of the design and construction and procurement for Unit No. 1 had already been completed prior to the time that Appendix B came into existence, and it's extremely difficult to try to apply all of those provisions to something which was done prior to the time that the regulation was enacted.[30]

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[28] 35 Fed. Reg. 10498, 10499 (1970) (emphasis supplied).

[29] See Diablo Canyon FSAR, § 17.0.

[30] Tr. 464.

The movants turn the applicant's commitment on its head by suggesting that it was a loophole that permitted the applicant to ignore construction quality assurance for Unit 1. Although Mr. Raymond further stated that it would take "an exhaustive review" to identify the construction work at

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In the circumstances, the applicant's failure to conform the Diablo Canyon quality program to Appendix B in 1970 carries with it no suggestion, as the movants would have it, that the applicant's construction quality assurance program was insufficient to ensure a properly constructed facility.[31]

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Unit 1 performed under the quality assurance criteria of Appendix B and that such a review had not been undertaken, this fact does not translate into a conclusion that the applicant neglected construction quality assurance at Unit 1. Tr. 466. Indeed, as early as May 6, 1971 the staff noted in Inspection Report No. 50-275/71-1 at 9:

> "a QA program . . . has been developed and implemented as required. The specific provisions of the QA program are set forth in a document entitled, "PG&E QA Manual, Diablo Canyon Unit No. 2." The staff confirmed that although the provisions of the document had been developed to meet the licensing requirements imposed for Unit No. 2 and the 18 criteria of Appendix B to 10 CFR Part 50, they are also applicable to Unit No. 1 with no distinction in the requirements between the two units.

See also Affidavit of J. M. Amaral (May 31, 1983), accompanying Response of Pacific Gas and Electric Company To Motions To Reopen The Record On Construction Quality Assurance (May 31, 1983) [hereinafter "Amaral Affidavit, May 31, 1983"].

[31] In addition, the joint intervenors and the Governor assert that the applicant's Diablo Canyon quality assurance program failed to comply with 10 CFR Part 50, Appendix A, General Design Criterion 1, which states, inter alia, that systems, structures and components "important to safety" must meet quality standards commensurate with their safety function. The movants argue that the Appendix A requirement is distinct from the Appendix B criteria applicable to "safety-related" systems, structures and components and that the applicant only complied with the latter requirement. Putting to one side the question of the correctness of the

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D. Finally, as another reason to reopen the record on the issue of construction quality assurance, the Governor refers to the extensive amount of modification work being performed at the plant resulting from the design verification program. Specifically, the Governor argues that the applicant's deadlines for completing the modifications have placed such time pressures on the construction that errors are likely to result. According to the Governor, this factor, combined with the deficiencies already identified, establishes the need to reopen the record to examine the construction quality assurance program for the new work. The Governor's argument is unpersuasive.

The movants have failed to produce any reliable or persuasive evidence that the extent of recent construction activities has led to significantly faulty construction or a

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movants interpretation of Appendices A and B -- a matter about which we have considerable doubt -- they have not identified a single system, structure or component "important to safety" that the applicant's quality assurance program failed to cover. Moreover, the applicant published the Diablo Canyon FSAR designating those plant features subject to its construction quality assurance program in 1974. See Diablo Canyon FSAR, § 3.2. The staff accepted that designation the same year. See Safety Evaluation Report for Diablo Canyon (October 16, 1974) at 3.2.1. Although both documents have been publicly available since 1974, the movants waited until 1983 to assert this position in their motion to reopen the record. In the circumstances, the motion on this point is grossly out of time and cannot form the basis for reopening the record. See Wolf Creek, supra, at 338.

serious breakdown in quality control. Rather, it appears that the modification work has been adequately planned and coordinated. In addition, this work has been subjected to an aggressive program of quality assurance inspections and audits by the staff and the applicant which has insured that the minor deficiencies uncovered have been corrected.[32] Further, as explained by Allan Johnson and Bobby Faulkenberry, Enforcement Officer and Deputy Regional Administrator, respectively, of the Commission's Region V office, shakedown errors can be expected at the beginning of any large construction work.[33] Moreover, Mr. Faulkenberry, in his review of the inspection history of Diablo Canyon from 1969 to the present time -- a program amounting to some 20 to 25 man-years of effort and covering the activities of all contractors on the site -- did not find the applicant's noncompliance record out of the ordinary. Indeed, he found the noncompliance rate "about average, or possibly even on the low side."[34] This being so, in the absence of evidence of serious construction quality assurance breakdowns in connection with the modification work now going on at the

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[32] See BME Affidavit (May 31, 1983) at 9-15; Amaral Affidavit (May 31, 1983) at 2-3. See also Inspection Report Nos. 50-275/83-29 and 50-323/83-21 (October 7, 1983).

[33] Tr. 805-08.

[34] Tr. 807, 820-22.

plant, no justification is presented for reopening of the record.

We have also considered the other allegations of construction quality assurance deficiencies made by the movants. We find them without merit.[35]

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[35] Some six weeks after the hearing on the motions to reopen the record, the joint intervenors filed a "supplement" to their earlier motion based upon an October 27, 1977 independent audit report critical of the quality assurance program of Pullman Power Products (one of the applicant's major contractors for piping other than the primary coolant system). The audit, conducted by Nuclear Services Corporation (NSC) in the late summer of 1977, covered a period from 1971 to 1977 and identified a large number of purported deficiencies in the Pullman program. The joint intervenors, joined by the Governor, argue that the report provides additional significant new evidence supporting their reopening motions on the issue of construction quality assurance.

The staff response indicates that a review of the NRC inspection reports for the period covered by the NSC audit shows the same kind of deficiencies in the Pullman program as those noted in the audit report. Therefore, the staff believes the audit findings reflect already corrected, isolated occurrences. The applicant's response contains a detailed history of the NSC audit and full documentation of subsequent actions taken by Pullman and Pacific Gas and Electric Company. That documentation shows that Pullman responded fully to each of the audit findings and, where appropriate, proposed corrective actions. See affidavit of Russell P. Wischow (September 21, 1983), Attachment 4, accompanying Pacific Gas and Electric Company Answer To Joint Intervenors' Supplement. The applicant reviewed the NSC audit findings with the Pullman responses and then conducted a separate audit of the Pullman quality assurance program, including a review of the installed hardware. The applicant's audit found three programmatic deficiencies and three deficiencies in the implementation of the program but concluded that the Pullman program generally met the applicable criteria. Id. at Attachments 5 and 6. The

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deficiencies identified by the applicant were then corrected. Id. at Attachment 7. The applicant also concluded that the NSC audit findings presented an inaccurate measure of the overall Pullman quality assurance program because many of the NSC findings inappropriately compared the Pullman program to 1977 standards rather than those applicable when the work was actually performed. Id. at 3.

The joint intervenors filed the "supplement" to their reopening motion without an accompanying motion for leave to file the document or an explanation of when they obtained the NSC audit report. Thus, their filing was in the teeth of our earlier admonition to joint intervenors with respect to such filings. See Memorandum and Order of April 21, 1983 (unpublished) at 2-4. We do not, however, reject the joint intervenors filing on that ground. We have carefully reviewed the NSC audit report and the responses of Pullman and the applicant. These lead us to conclude that the deficiencies identified by NSC in 1977 did not evidence a significant or systematic failure of the quality assurance program. See also Board Notification 83-188 (December 13, 1983) and enclosure.

Another potentially serious matter is raised by the NSC audit report. According to the joint intervenors, the report had not been disclosed previously even though the audit in question was conducted and the report written at about the time the Licensing Board was considering the adequacy of the quality assurance program at Diablo Canyon. Thus, a host of questions concerning the nondisclosure of the report await answers. But it is neither possible nor appropriate for us to address these questions on the materials at hand. Rather, this is a matter for the staff to investigate and, if appropriate, to take the necessary enforcement action. We expect the staff to inform us whether it is undertaking an investigation of this matter.

IV

As is evident from our discussion above, we find that the joint intervenors and the Governor have failed to provide new evidence of a significant safety issue. Although there is some evidence of errors in both the applicant's construction quality assurance program and the construction at Diablo Canyon, we are unable to find that the errors are pervasive so as to indicate a breakdown in the construction quality assurance program and raise legitimate doubt as to the plant's capability of being operated safely. Nor can we find that any construction errors endanger safe plant operation. Accordingly, the motions of the joint intervenors and the Governor to reopen the record on the issue of construction quality assurance and for other relief are denied.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board