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NUCLEAR REGULATORY COMMISSION ISSUANCES

December 1983

U.S. NUCLEAR REGULATORY COMMISSION

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NUCLEAR REGULATORY COMMISSION ISSUANCES

December 1983

This report includes the issuances received during the specified period from the Commission (CLI), the Atomic Safety and Licensing Appeal Boards (ALAB), the Atomic Safety and Licensing Boards (LBP), the Administrative Law Judge (ALJ), the Directors' Decisions (DD), and the Denials of Petitions for Rulemaking (DPRM).

The summaries and headnotes preceding the opinions reported herein are not to be deemed a part of those opinions or to have any independent legal significance.

U.S. NUCLEAR REGULATORY COMMISSION

Prepared by the Division of Technical Information and Document Control,
Office of Administration, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555
(301/492-8925)

COMMISSIONERS

Nunzio J. Palladino, Chairman
Victor Gilinsky
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal

Alan S. Rosenthal, Chairman, Atomic Safety and Licensing Appeal Panel
B. Paul Cotter, Chairman, Atomic Safety and Licensing Board Panel

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gilinsky
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal

In the Matter of **Docket Nos. 50-413**
50-414

DUKE POWER COMPANY, *et al.*
(Catawba Nuclear Station,
Units 1 and 2) **December 6, 1983**

The Commission denies the applicant's request for stay of an Appeal Board order that modified a Licensing Board's order allowing Intervenor's counsel limited access to applicant's employee-witnesses.

RULES OF PRACTICE: ATTORNEY-CLIENT PRIVILEGE (APPLICATION TO EMPLOYEES OF A PARTY)

Under *Upjohn Co. v. United States*, 449 U.S. 383 (1981), an employer may under appropriate circumstances treat communications from employees to corporate counsel as privileged under the attorney-client privilege. That does not mean, however, that every employee from whom a privileged communication is obtained is thereby a "client" represented by corporate counsel, or a "party" to any pending legal disputes for purposes of ABA Disciplinary Rule 7-104.

RULES OF PRACTICE: ATTORNEY-CLIENT PRIVILEGE (APPLICATION TO WITNESSES)

It is a well-established principle that counsel should be at liberty to approach witnesses for an opposing party. *Vega v. Bloomsburgh*, 427 F. Supp. 593 (D. Mass. 1977). That principle is not overturned by *Upjohn*, *supra*.

ORDER

On November 17, 1983, we issued a brief order (unpublished) in which we deferred action, pending the receipt of submissions from the parties, on Duke Power Company's November 15 request for a stay of an order issued by the Atomic Safety and Licensing Appeal Board the previous day. That order, which modified a November 10 order of the Atomic Safety and Licensing Board, permitted counsel for Palmetto Alliance to approach Duke's employee-witnesses during breaks in the hearing and after hours in order to seek their cooperation. The Appeal Board made clear that employees were to be able to decide for themselves whether they wished to cooperate with Palmetto. Duke was forbidden to instruct employees not to speak with Palmetto counsel, and was directed to rescind any prior instruction to that effect. At the same time, Palmetto was barred from making any inquiry of any witness that directly or indirectly solicited information about the existence or nature of any communications between the witness and Duke counsel. Moreover, the Appeal Board ruled that Duke could instruct the witnesses not to disclose any such communication with Duke counsel to Palmetto. The Appeal Board made clear, however, that inquiry into underlying facts would be proper, notwithstanding that those facts may have been the subject of prior communications between the witnesses and Duke counsel.

In its application to us for a stay, Duke asserted that the rule of *Upjohn Co. v. United States*, 449 U.S. 383 (1981), made clear that the attorney-client privilege attached to communications between Duke and its employee-witnesses. According to Duke, its employees were clients of Duke counsel such that Duke counsel could legally bar contacts with those employees, and any such contacts, even if authorized by the Appeal Board, would constitute a violation of Disciplinary Rule 7-104 of the American Bar Association. Duke asserted that it met all the criteria for issuance of a stay of the Appeal Board's order: likelihood of prevailing on the merits, substantial harm to itself if a stay were denied,

lack of harm to others if the stay were granted, and public interest considerations favoring the grant of a stay.

In our order of November 17, we posed four questions relating to the issues in this matter, and we asked the parties to address whether the criteria for a stay had been met. In our order today, we do not issue a final ruling on the merits of the complex legal issues involved. We do, however, make an initial ruling on those topics for the limited purpose of determining whether Duke has met its burden of showing a *likelihood* of prevailing on the merits. Our initial judgment is that Duke has failed to meet that burden, and that the criteria for a stay therefore have not been met, for the reasons which follow.[1]

In our view, Duke's reliance on *Upjohn* is misplaced. Under *Upjohn*, an employer may under appropriate circumstances treat certain communications from employees to corporate counsel as privileged under the attorney-client privilege. That does not mean, however, that every employee from whom a privileged communication is obtained is thereby a "client" represented by corporate counsel, or a "party" to any pending legal dispute, for purposes of ABA Disciplinary Rule 7-104. Although the Supreme Court in *Upjohn* rejected the "control group" test for determining when the attorney-client privilege is applicable, that does not mean that in every legal dispute involving a company, senior corporate officials and manual workers stand on the same legal footing simply because both are company employees and both may be called to testify. Since Duke's claim that the witness-employees are "clients" and "parties" depends solely on its interpretation of *Upjohn*, and not on any proffered indicia of those witness-employees' intent to retain Duke's counsel as their own or to seek party status, we have no basis to find that these individuals are clients or parties, or anything other than employees and witnesses of Duke.

We do not read *Upjohn* as having overturned the well-established principle that counsel should be at liberty to approach witnesses for an opposing party. *Vega v. Bloomsburgh*, 427 F. Supp. 593 (D. Mass. 1977). To the extent that *Upjohn* bars forced disclosure of communications from employees to corporate counsel, the Appeal Board's order has gone at least as far as did the Supreme Court in *Upjohn* in protecting the employer's interest. Whereas *Upjohn* barred only the release of certain written communications, the Appeal Board's order bars Palmetto from asking, and allows Duke to instruct the witnesses not to reveal, anything

[1] We have considered the *amicus* filings of the Government Accountability Project and the Atomic Industrial Forum, but they do not affect the outcome of our decision.

regarding prior communications between the witnesses and Duke counsel.[2]

If the employee-witnesses were in fact "clients" and "parties," some doubt might be cast on the validity of the Appeal Board's order, since it forbids Duke counsel from directing the witnesses not to talk to Palmetto counsel. Since we are not persuaded, however, that the witnesses are "clients" of Duke's attorneys (notwithstanding that some communications from the witnesses to Duke counsel may be privileged under the attorney-client privilege), no problem is presented in this regard.

We need not reach the question whether Duke's witnesses are also Palmetto's witnesses, since in our view, Duke's challenge to the validity of the Appeal Board's order is no more valid if it is assumed that the witnesses are Duke's alone than if it is assumed that the witnesses are both Duke's and Palmetto's.

Since Duke has failed to carry its burden of demonstrating a likelihood of success on the merits, we need not discuss in any detail the other factors involved in determining whether a stay shall be granted. Suffice it to say that we are not persuaded that Duke would be irreparably harmed, or that Palmetto would be uninjured, or that the public interest would be served, by a departure from the general rule that opposing counsel may have access to a party's intended witnesses.

We are not insensitive to Duke's concern over Palmetto's stated desire to probe the communications which have taken place between the witnesses and Duke counsel. Indeed, the record shows Palmetto alleging no other motive than that for wishing access to the Duke employee-witnesses. Nevertheless, we believe the Appeal Board's restrictions on the scope of inquiry and of disclosure are such as to protect Duke's interests. We are entitled to presume that all parties will comply with the Board's order, both from respect for the Board's authority and a regard for the sanctions which would flow from any flouting of that order.

Duke's request for a stay is therefore DENIED.

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[2] We do not reach the issue of whether the Appeal Board unduly restricted communication between the witnesses and Palmetto's counsel, since no party has raised the issue and it has not been briefed to us. However, we would note our concern that the Appeal Board's restriction may have gone further than *Upjohn* supports.

The dissenting views of Commissioner Roberts are attached.
It is so ORDERED.

For the Commission[1]

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 6th day of December 1983.

DISSENTING VIEW OF COMMISSIONER ROBERTS

I would have stayed and reversed the Licensing Board's order. Intervenor's only stated purpose for seeking contact with Applicant's witnesses during breaks in the hearing, to discover the nature of the communications between Applicant's counsel and its witnesses, was an improper one. Tr. 6491-92. Intervenor's counsel failed to provide any authority in support of its request. Tr. 6592. Nevertheless, and over the strong objection of Applicant's counsel, the Licensing Board ordered that Intervenor may contact Applicant's future witnesses (except executive level witnesses) and that neither Applicant nor its counsel shall instruct Applicant's employee/witnesses not to speak to or cooperate with Intervenor's counsel. Tr. 6646. Moreover, any such instructions previously given had to be withdrawn. *Id.* The Licensing Board issued its order apparently on a theory that Applicant's employee/witnesses are also Intervenor's witnesses and that not to allow Intervenor's counsel access to the witnesses would be unfair. Tr. 6645-46. The Licensing Board placed no restrictions on the nature of the information that could be sought by Intervenor's counsel during his off-the-record contacts with the witnesses. However, the Appeal Board, apparently recognizing the existence of an attorney-client privilege as to certain information known to the witnesses, modified the Licensing Board's order to provide that Intervenor's counsel may not, during any off-the-record contact, inquire into communications between the witnesses and Applicant's counsel that bear on the proceeding and the issues being litigated in the proceeding.

[1] Commissioner Gilinsky was not present but had previously indicated his approval of this order.

By modifying rather than reversing the Licensing Board's order, the Appeal Board merely specified a barrier between privileged communications and facts known to the Applicant's employee/witnesses that is impossible to define or enforce. Therefore, and because the Licensing Board should not have taken its extraordinary action without citing clear authority for doing so, I would have stayed and reversed its order.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gilinsky
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal

In the Matter of **Docket Nos. 50-275**
50-323

PACIFIC GAS AND ELECTRIC COMPANY
(Diablo Canyon Nuclear Power Plant, Units 1 and 2)

December 9, 1983

ORDER

On June 6, 1983, Joint Intervenors petitioned for Commission review of ALAB-728, 17 NRC 777 (1983), the Appeal Board affirmation of issues other than quality assurance addressed in the Licensing Board decision on Pacific Gas and Electric Company's application for a license to load fuel and conduct low-power testing. The time for the Commission to act on the petition, as extended, has expired and the petition is therefore deemed denied pursuant to 10 C.F.R. § 2.786(b)(5).

The separate views of Commissioners Gilinsky and Asselstine are attached.*

*Although separate views regarding the denial of review may set forth strongly held views of a Commissioner, they are of no legal significance.

In addition, such separate statements are potentially misleading. Because the Commission majority provides no "on the record" explanation of the reasons for not accepting review, the separate arguments in favor of Commission review are not answered. Separate views often do not set forth reasons for denying review and therefore provide an incomplete record of the Commission's decision-making process.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 9th day of December 1983.

SEPARATE VIEWS OF COMMISSIONER GILINSKY (SECY-83-377; REVIEW OF ALAB-728, DIABLO CANYON)

I am disappointed that in the following three instances the Commission has failed to rise above giving participants in its proceedings the legal run-around.

1. The intervenors wanted to litigate the adequacy of the hydrogen control system, which is supposed to protect against the burning of large quantities of hydrogen which might be generated during an accident. The Board refused to hear this contention on the grounds that this event is "not credible" and that the intervenors had not surmounted the artificial barriers which the Commission has placed in the way of considering this issue.

I should make clear at the outset that hydrogen control is not an acute problem at Diablo Canyon. The containment building, unlike that of certain plants, has a sufficiently large volume and high design pressure to withstand a hydrogen burn. While the effects of hydrogen fire on the continued operability of safety equipment inside the containment are not yet clear, the situation here is the same as at other plants and the question is being considered in a rulemaking.

The problem in this case, as in prior cases where hydrogen control was a more significant safety issue, is that the Commission persists in pretending that the accident which actually occurred at TMI nearly five years ago is "not credible." The hydrogen control system required by NRC's pre-Three Mile Island regulations — which are still in force — is designed to cope with the small amount of hydrogen which was thought to be the maximum that could be generated in an accident. By contrast, it is estimated that during the 1979 Three Mile Island accident approxi-

mately ten times as much hydrogen as this maximum -- several hundred kilograms -- was in fact generated. released into the surrounding containment, and ignited.

In 1980, during the course of the proceeding on whether to permit Three Mile Island Unit 1 to restart, the Licensing Board asked the Commission two questions: (1) whether the regulation on hydrogen control should be waived since a *prima facie* case had been made that hydrogen generation at TMI-2 was well in excess of the design basis of the TMI-1 hydrogen control system; and (2) whether post-accident hydrogen gas control should be an issue in the proceeding. The Commission's response was that the issue could be litigated but, instead of waiving the discredited regulation, it required any party wishing to discuss the hydrogen control system to first demonstrate that: (1) a "credible" loss-of-coolant accident could occur, (2) which would entail the generation of hydrogen, (3) which would burn or explode, (4) causing the breach or leaking of the containment, (5) which, in turn, would result in offsite radiation doses in excess of Part 100 guideline values. The purpose seems to have been to keep this issue from being pursued here and elsewhere.

It is interesting that the Commission, a majority of whose members have persistently denounced NRC's excessive legalism, has consistently followed this most legalistic of precedents. The Commission should get on with the substantive task of deciding whether the various containment designs are strong enough to withstand a large hydrogen burn, and whether the equipment in the containment meets whatever environmental qualification standard the Commission chooses, and forget about this being an "incredible" accident.

2. The second issue is what consideration should be given in emergency planning to the effects of earthquakes on emergency preparedness. When this issue was first raised in the *San Onofre* operating license proceeding, the Commission quashed a quite limited inquiry into the problem by ruling that this issue was of such magnitude that it should be resolved in a "generic proceeding" rather than in case-by-case licensing reviews or hearings.

Now the NRC staff say that they will not undertake such a generic proceeding because they think that the probability of an earthquake severe enough to disrupt emergency preparedness occurring simultaneously with, or causing, a reactor accident is too low to justify a regulation. They want to deal with the problem, which affects only reactors on the West Coast, by doing plant-specific reviews. Nonetheless, the Appeal Board in *Diablo Canyon* followed the Commission's directives in *San Onofre* and affirmed the Licensing Board's decision to exclude the earthquake contention.

3. The third area of concern has to do with the Commission's policy on considering Class 9 accidents. These most serious accidents dominate the risk posed by nuclear power plants, even taking into account their very low probability. Indeed, it is pointless to look at the environmental consequences of reactor accidents in environmental statements unless Class 9 accidents are considered.

Prior to the Three Mile Island accident, the Commission's position was that Class 9 accidents were so improbable that they did not need to be considered in balancing the costs and benefits of a plant. After the accident (which was, in effect, a Class 9 accident), the Commission changed its policy to require that such accidents be considered in cases in which the final Environmental Impact Statement had not yet been issued or, if the final EIS had been issued, in which "special circumstances" were shown to exist.

Since the Diablo Canyon final EIS had been issued before that change in policy, the controversy in this case was over whether "special circumstances" existed. The difficulty is that, instead of deciding this dispute, the Licensing Board resorted to the argument that, because the Appeal Board had found that Diablo Canyon meets the NRC's seismic design requirements, no special circumstances exist. Since no plant will receive a license unless it is found to meet NRC's requirements, the Licensing Board's approach amounts to defining away the "special circumstances" which might justify consideration of Class 9 accidents. This was not the result intended by the Commission when it adopted the new policy.

SEPARATE VIEWS OF COMMISSIONER ASSELSTINE

I agree with Commissioner Gilinsky's separate views on the class nine accidents issue.

Atomic Safety and Licensing Appeal Boards Issuances

ATOMIC SAFETY AND LICENSING APPEAL PANEL

Alan S. Rosenthal, Chairman
Dr. John H. Buck, Vice Chairman
Dr. W. Reed Johnson
Thomas S. Moore
Christine N. Kohl
Gary J. Edles
Dr. Reginald L. Gotchy
Howard A. Wilber

APPEAL BOARDS

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Gary J. Edles
Howard A. Wilber

In the Matter of **Docket Nos. 50-443-OL**
50-444-OL

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1 and 2) **December 6, 1983**

The Appeal Board denies a third motion seeking the recusal or disqualification of the Chairman of the Licensing Board. The Appeal Board finds that the motion is untimely and further that, as in the earlier recusal motions by other parties, the alleged examples of bias neither stemmed from sources outside the proceeding nor demonstrated pervasive bias.

RULES OF PRACTICE: MOTION FOR RECUSAL (OR DISQUALIFICATION)

Ordinarily, disqualifying bias must stem from an extrajudicial source unless there is a demonstration of pervasive bias. *Houston Lighting and Power Co.* (South Texas Project, Units 1 & 2), CLI-82-9, 15 NRC 1363 (1982).

APPEARANCES

Diane Curran and **William S. Jordan, III**, Washington, D.C., for the New England Coalition on Nuclear Pollution.

MEMORANDUM AND ORDER

For yet a third time, we are confronted with a motion under 10 C.F.R. § 2.704(c) seeking the recusal or disqualification of Administrative Judge Helen F. Hoyt as Chairman of the Licensing Board in this operating license proceeding. The prior two motions were filed on October 7 and October 28, 1983 by intervenors Seacoast Anti-Pollution League (SAPL) and the Attorney General of the Commonwealth of Massachusetts (Attorney General), respectively. Judge Hoyt denied both in written orders entered on November 2 and November 22. On the referral to us required by Section 2.704(c), we affirmed those orders. ALAB-748, 18 NRC 1184 (1983); ALAB-749, 18 NRC 1195 (1983).

The motion now before us is that of another intervenor in the proceeding — the New England Coalition on Nuclear Pollution (Coalition). It was filed on November 23. And, as were the earlier motions of SAPL and the Attorney General, it is grounded on the claim that, by her conduct during the course of the proceeding, Judge Hoyt has demonstrated personal bias — or at the least has created an appearance of such bias — against the intervenors and town representatives participating in the proceeding.

On the date of her receipt of it (November 28), Judge Hoyt summarily denied the motion with the observation that the matters addressed therein had been ruled upon in her previous orders on the other recusal motions. In compliance with the Section 2.704(c) mandate, this latest order also was referred to us.[1] We affirm.

1. The merits of the Coalition's motion need not detain us long. The substance of every example of asserted bias set forth by the Coalition was likewise advanced in one or both of the two recusal motions passed upon in ALAB-748 and ALAB-749. The conclusions reached in those decisions are therefore equally applicable here. In short, as its predecessors, the Coalition's motion must fail because (1) all of the cited rulings, conduct or remarks of Judge Hoyt occurred during the

[1] A copy of the order is attached as Appendix A to this opinion.

course of the proceeding; (2) the Commission held in *South Texas*[2] that, ordinarily, disqualifying bias must stem from an extrajudicial source; and (3) although the requirement of an extrajudicial source might not obtain in the instance of pervasive bias, the incidents relied upon by the movants, whether considered separately or in combination, do not demonstrate the existence of such bias.

Despite its acknowledged familiarity with ALAB-748,[3] the Coalition does not explicitly ask that either the first or the third of these conclusions be reconsidered. It does, however, challenge the correctness of the Commission's *South Texas* ruling with respect to the generally prevailing disqualification standard.[4] As we observed in response to similar challenges on the part of SAPL and the Attorney General, any criticism of that ruling must be addressed to the Commission. ALAB-748, 18 NRC at 1188; ALAB-749, 18 NRC at 1200 n.13.[5]

2. In ALAB-749, we also discussed the assertion of the applicants and the NRC staff that the Attorney General's October 28 filing of his recusal motion was untimely. Without expressly endorsing that claim, we noted "our concern that the motion was not filed with any apparent sense of urgency." In that connection, we took note of both judicial and Commission precedent to the effect that a request for disqualification or recusal must be filed promptly once the information or developments undergirding the request have come to the fore. Because all of the events referred to in the Attorney General's motion had occurred no later than the end of August — *i.e.*, at least two months before the motion was filed — we expressed the view that the Attorney General had not fulfilled that obligation. ALAB-749, 18 NRC at 1198-99.

Even though it relies on the same alleged manifestations of bias as had the Attorney General (or SAPL before him), the Coalition remained on the sidelines for several additional weeks before filing its motion. (Indeed, as above seen, when that motion reached Judge Hoyt on November 28 both she and we had already acted on both the SAPL and Attorney General motions.) Further, although in his papers the Attorney General offered a partial (albeit unsatisfactory) justification for not having moved more expeditiously, there is not a single word of explana-

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[2] *Houston Lighting and Power Co.* (South Texas Project, Units 1 & 2), CLI-82-9, 15 NRC 1363 (1982).

[3] *See* Motion by New England Coalition on Nuclear Pollution for Disqualification of Judge Hoyt (November 23, 1983) at 29. The motion was, of course, filed before issuance of ALAB-749.

[4] *Id.* at 5.

[5] In acting upon the SAPL and Attorney General motions, we had before us the responses to them that the applicants and the NRC staff filed with Judge Hoyt. In the circumstances, we have treated those responses as if they had been directed to the Coalition's motion as well.

tion in the Coalition's motion as to the reason for its inertia.[6] It thus seems a fair inference that the Coalition assumed that it was free to await Judge Hoyt's disposition of the previous recusal motions before putting in its own oar.

A canvass of the readily available precedents on the question would have, of course, immediately disabused the Coalition of any such notion. Beyond that, it might have occurred to the Coalition that the motivation underlying its filing of a recusal motion that simply rehearsed the assertions made by other parties in prior — and denied — motions of their own might be misunderstood.[7]

In the circumstances, we are persuaded that, apart from its lack of legal merit, the Coalition's motion was untimely without any suggested or discernible cause. For this further and independent reason, its denial by Judge Hoyt must be upheld.

The November 28, 1983 order of Judge Hoyt is *affirmed*.
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[6] In this regard, it is worthy of note that even SAPL felt constrained to deal in its motion with the timeliness question. SAPL's Motion for Disqualification of Judge Hoyt (October 7, 1983) at 24. According to SAPL, at the conclusion of the evidentiary hearing at the end of August all of the intervenors were confronted with an imminent deadline for the submission of contentions on offsite emergency response planning issues. That being so, SAPL maintained (and we implicitly agreed), "the five-week delay in filing [its] motion is . . . not grounds for waiver of its right to move for disqualification." Needless to say, the Coalition's November 23 filing cannot be justified on a like basis.

[7] At the very least, it is not customary for a tribunal to receive motions at well-spaced intervals that seek precisely the same relief on essentially the same factual averments. This is so even where, unlike here, the motions do not constitute a repetitious attack upon the personal integrity of the tribunal or a member thereof. Accordingly, to avoid any possible (albeit erroneous) implication of an unworthy purpose, it was incumbent upon the Coalition to explain the timing of its action. On that score, it should be observed that, leaving aside its opportunity to file its own motion at a considerably earlier date, the Coalition might well have made its views known in reply to the motions filed by SAPL and the Attorney General. The Coalition had the same right to respond to those motions as did the applicants and the staff but nonetheless remained entirely silent.

APPENDIX A

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judge:

Helen F. Hoyt

In the Matter of

Docket Nos. 50-443-OL
50-444-OL
(ASLBP No. 82-471-02-OL)

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1 and 2)

November 28, 1983

ORDER

On November 23, 1983, NECNP filed "Motion by New England Coalition on Nuclear Pollution for Disqualification of Judge Hoyt." The motion was received by this Judge on November 28, 1983.

The matters addressed in the subject motion have previously been ruled upon by this Judge on two occasions (November 2 and 22, 1983). The first ruling was in response to SAPL's motion of October 7, 1983 and the second was in response to MassAG's motion of October 28, 1983.

NECNP's motion is *denied.*

The matter is referred to the Atomic Safety and Licensing Appeal Board pursuant to 10 C.F.R. § 2.704(c).

Helen F. Hoyt
ADMINISTRATIVE JUDGE

Bethesda, Maryland

Cite as 18 NRC 1318 (1983) **ALAB-752**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Dr. John H. Buck

In the Matter of **Docket Nos. STN 50-553**
STN 50-554

TENNESSEE VALLEY AUTHORITY
(Phipps Bend Nuclear Plant,
Units 1 and 2)

December 6, 1983

The Appeal Board grants the applicant's motion to terminate the Board's jurisdiction over the single remaining issue pending in this construction permit proceeding, based upon the facility's cancellation.

RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES

Parties to appeal board proceedings have an obligation to keep the board informed of all significant developments that may bear on decisions in the proceeding. *Tennessee Valley Authority* (Browns Ferry Nuclear Plant, Units 1, 2 and 3), ALAB-677, 15 NRC 1387, 1388 (1982).

APPEARANCES

Herbert S. Sanger, Jr., Lewis E. Wallace, and **James F. Burger,** Knoxville, Tennessee, for the applicant, Tennessee Valley Authority.

MEMORANDUM AND ORDER

1. On the authority of our recent *Cherokee* decision,[1] we *grant* the applicant's November 30, 1983 motion to terminate the appellate jurisdiction retained over this construction permit proceeding in ALAB-506.[2] The situation here is identical in all material respects to that in *Cherokee*. The retained jurisdiction was with regard to a single issue: the environmental effects associated with the release of radioactive radon gas (radon-222) to the atmosphere as a result of the mining and milling of uranium for reactor fuel. Although the ultimate Commission determination on it has not as yet been reached,[3] that generic issue has no further importance insofar as the Phipps Bend facility is concerned. This is because the applicant has cancelled the facility.

2. In granting the sought relief, we are constrained to record our conviction that the applicant was extremely tardy in bringing our attention to the facility cancellation. Appended to its motion are two letters sent by the applicant's Nuclear Licensing Manager to the NRC Director of Nuclear Reactor Regulation. The first letter, dated October 26, 1982 — *i.e.*, more than a year ago — referred to the fact that, as the NRR Director was said to be already aware, "TVA has made a decision to cancel . . . [the] Phipps Bend Nuclear Plant." The letter went on to explain that its purpose was to inform the Director that TVA was engaged in discussions looking to the leasing of portions of the site to a steel company. In the second letter, dated February 16, 1983, the official alluded to the prior communication "regarding TVA's decision to cancel the Phipps Bend Nuclear Plant" and requested the NRR Director to withdraw the construction permits that had been previously issued for the facility. Enclosed with that letter were copies of a document entitled *TVA Cancellation of the Phipps Bend Nuclear Plant* (February 1983). The first sentence of the introduction to the document stated that the cancellation decision had been made on August 25, 1982.

We were not furnished with copies of either of these letters. Nor were we otherwise advised by the applicant (or for that matter by the NRC staff) of the facility cancellation. Two months ago, however, the cancellation came to our attention through a different source. Accordingly, by letter of October 19, the Secretary to this Board requested applicant's counsel to move promptly to terminate the appellate jurisdiction

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[1] *Duke Power Co.* (Cherokee Nuclear Station, Units 1, 2 and 3), ALAB-745, 18 NRC 746 (1983).
[2] 8 NRC 533, 550 (1978).
[3] *See Cherokee, supra*, 18 NRC at 747.

retained in ALAB-506. On November 22, nothing having been heard from counsel in the meantime, the Secretary wrote to him again. Eight days later, the motion was filed.

Just last year, we had occasion to remind this applicant of its obligation to keep us informed of "all significant developments that may bear on decisions in pending proceedings." *Tennessee Valley Authority* (Browns Ferry Nuclear Plant, Units 1, 2 and 3), ALAB-677, 15 NRC 1387, 1388 (1982). True enough, the *Browns Ferry* proceeding was in active litigation when the significant development occurred. But while the fact that, in contrast, the proceeding at bar has been dormant for some time might explain the failure to have notified us immediately of the Phipps Bend cancellation, it cannot justify a fifteen-month delay. Moreover, even were it to be assumed that applicant's counsel had forgotten entirely about the retained appellate jurisdiction and thus had thought in August 1982 that the adjudicatory proceeding had already come to an end, the question would remain why the Secretary's October 19 letter to him did not trigger the prompt action requested therein.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Christine N. Kohl, Chairman
Dr. W. Reed Johnson
Howard A. Wilber

In the Matter of **Docket No. 50-382-OL**

LOUISIANA POWER & LIGHT COMPANY
(Waterford Steam Electric Station, Unit 3)

December 9, 1983

The Appeal Board in this operating license proceeding denies as not now presenting a significant safety concern a motion to reopen the record on an issue relating to basemat cracks, denies a second motion to reopen on the synergism issue because of a lack of jurisdiction, and, on *sua sponte* review, affirms the Licensing Board's partial initial decision on the adequacy of applicant's emergency planning brochure.

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

A motion to reopen must satisfy the following three-part test:

(1) Is the motion timely? (2) Does it address significant safety (or environmental) issues? (3) Might a different result have been reached had the newly proffered material been considered initially?

Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit No. 1), ALAB-738, 18 NRC 177, 180 (1983), and cases cited.

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

The proponent of a motion to reopen bears a heavy burden. *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit No. 1), ALAB-462, 7 NRC 320, 338 (1978).

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

A successful movant must provide with its motion to reopen more than bare allegations or simple submission of new contentions. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-5, 13 NRC 361, 363 (1981). Any supporting material should be provided with the motion so that the test for reopening can be meaningfully applied.

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

A party that seeks to raise a new, previously uncontested issue through a motion to reopen the record must satisfy both the reopening criteria and the late contention criteria set forth in 10 C.F.R. § 2.714(a)(1). *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-82-39, 16 NRC 1712, 1714-15 (1982).

RULES OF PRACTICE: SUMMARY DISPOSITION

A party seeking summary disposition has the burden of proving the absence of a material issue of genuine fact; an opposing party's failure to respond is thus not necessarily fatal.

RULES OF PRACTICE: REOPENING OF PROCEEDINGS (BOARD JURISDICTION)

Appeal boards are without jurisdiction to consider a party's request to reopen the record on an issue specifically addressed in an earlier decision that has become administratively final. *See Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-530, 9 NRC 261, 262 (1979); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-513, 8 NRC 694, 695-96 (1978). *See generally Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-551, 9 NRC 704 (1979).

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

Undocumented newspaper articles on matters with no apparent connection to the facility under consideration do not provide a legitimate basis on which to make an evidentiary finding or to reopen a record.

TECHNICAL ISSUES DISCUSSED

Cracking and moisture in concrete.

APPEARANCES

Carole H. Burstein, New Orleans, Louisiana, for Joint Intervenors Oystershell Alliance and Save our Wetlands, Inc.

Bruce W. Churchill, Ernest L. Blake, Jr., and **Delissa A. Ridgway,** Washington, D.C., for applicant Louisiana Power & Light Company.

Sherwin E. Turk for the Nuclear Regulatory Commission staff.

DECISION

In ALAB-732, 17 NRC 1076 (1983), we affirmed the Licensing Board's November 1982 partial initial decision (LBP-82-100, 16 NRC 1550, *as modified,* LBP-82-112, 16 NRC 1901) concerning certain emergency planning and synergism contentions in this operating license proceeding. Three matters remain for our consideration: *sua sponte* review of the Licensing Board's second partial initial decision (LBP-83-27, 17 NRC 949 (1983)) on the issue of the adequacy of applicant's emergency planning brochure,[1] and two motions to reopen the record filed with us by Joint Intervenors subsequent to that decision. For the reasons set forth below, we deny one motion to reopen, dismiss the other for lack of jurisdiction, and affirm LBP-83-27.

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[1] Joint Intervenors filed exceptions to LBP-83-27, but failed to brief them. Accordingly, in an unpublished order entered August 17, 1983, we dismissed their appeal. As is our practice, however, we undertake here on our own initiative a review of that decision and the underlying record. *See Offshore Power Systems* (Manufacturing License for Floating Nuclear Power Plants), ALAB-689, 16 NRC 887, 890 (1982).

I.

We recently reiterated the three-part test that a motion to reopen must satisfy:

> "(1) Is the motion timely? (2) Does it address significant safety (or environmental) issues? (3) Might a different result have been reached had the newly proffered material been considered initially?"

Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit No. 1), ALAB-738, 18 NRC 177, 180 (1983), and cases cited. The proponent of such a motion thus has a "heavy burden." *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit No. 1), ALAB-462, 7 NRC 320, 338 (1978). A successful movant must provide with its motion more than "bare allegations or simple submission of new contentions." *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-5, 13 NRC 361, 363 (1981). It is not enough merely to express a willingness to provide unspecified, additional information in support of the motion at some unknown date in the future. Any supporting material should be provided with the motion so that the test for reopening can be meaningfully applied.

A. Joint Intervenors' first motion to reopen concerns the May 1983 discovery of hairline cracks in the concrete foundation mat on which the Waterford facility rests.[2] Joint Intervenors claim that these cracks, and the water found seeping through them, "raise fundamental questions about the integrity of the plant's design and the effect [they] will have on future safe operation" of the facility. Memorandum in Support of Motion to Reopen Contention (July 25, 1983) at 2. Joint Intervenors assert that similar cracks were found in 1977 and that it raised this matter as an issue through its original contention 22. According to movants, the cracks and associated moisture are at odds with the theory on which Waterford was designed — *i.e.*, that the facility is to be "watertight." In their view, this has serious implications for the public safety, raising, for example, the prospect of radioactive material leaking down through the cracks and eventually contaminating sources of drinking water.

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[2] This "basemat" is a rectangular structure of steel-reinforced concrete 380 feet long, 267 feet wide, and 12 feet thick. The Reactor Building, Reactor Auxiliary Building, Fuel Handling Building, and Component Cooling Water System Structure rest on this concrete "island." Final Safety Analysis Report (FSAR), § 3.4.1.

The focus of our concern here is on the second reopening criterion: whether Joint Intervenors' motion addresses a significant safety issue.[3] As noted, movants rely principally on a May 28, 1983, article in *Gambit* magazine concerning newly discovered hairline cracks and moisture in the foundation mat of the Waterford facility. The article also refers to the discovery in 1977 of similar cracking and seepage, and to the supposedly watertight design of the plant. *See* Applicant's Answer (September 30, 1983), Attachment 7. The article alone does not provide a basis for reopening the record. It reports certain facts — *i.e.*, the existence of hairline cracks in 1977 and 1983 — that are not really in dispute, but fails to explain their significance vis-a-vis the safe operation of the plant.[4] The *Gambit* report, however, does suggest a basis for further inquiry.

Several such inquiries have been undertaken. In a routine inspection conducted in May 1983, NRC inspectors examined the foundation mat and found a very small amount of seepage, but no visible cracks. The

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[3] Joint Intervenors base their July 25 motion principally on a May 28, 1983, article in *Gambit* magazine that discussed the May 11 discovery of moisture and cracks in the Waterford foundation. Although it could reasonably be argued that Joint Intervenors should have filed their motion earlier, no party really disputes that it is timely and therefore satisfies the first of the three reopening criteria. To the extent that Joint Intervenors may seek to reopen to litigate the 1977 discovery of cracks in the basemat, however, their motion is grossly out of time.

In a related vein, applicant argues that, in addition to the three reopening criteria, Joint Intervenors must satisfy the five criteria enumerated in 10 C.F.R. § 2.714(a)(1) governing the admission of late contentions. *See* 10 C.F.R. § 2.714(b). In applicant's view, Joint Intervenors are seeking to raise a new, previously uncontested issue. Under *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-82-39, 16 NRC 1712, 1714-15 (1982), Joint Intervenors must therefore fulfill both the reopening criteria and the late contention criteria. We agree with applicant's statement of the governing precedent, but disagree that Joint Intervenors are raising a wholly new and previously uncontested issue in this proceeding. Their contention 22, as rephrased and *admitted* by the Licensing Board in an unpublished order dated September 12, 1979, read:

> "Applicant has failed to discover, acknowledge, report or remedy defects in safety related concrete construction."

LBP-81-48, 14 NRC 877, 880 (1981). Joint Intervenors' then-counsel apparently acknowledged that the contention lacked the basis and specificity required by our Rules of Practice. *Id.* at 878-79. *See* 10 C.F.R. § 2.714(b). The Licensing Board nonetheless admitted it, and, due to its very breadth, it encompasses the specific claims of defective concrete construction now before us. Those are the pertinent considerations for our present purposes — not the Licensing Board's likely error in admitting such a broad contention in the first place.

Moreover, it is no answer that Joint Intervenors "abandoned" contention 22 by not responding to applicant's motion for summary judgment and are therefore estopped from resurrecting it now. As the Licensing Board correctly pointed out, the party seeking summary judgment has the burden of proving the absence of a material issue of genuine fact; an opposing party's failure to respond is thus not necessarily fatal. The latter simply runs a greater risk that the motion will be granted — as it was here. *See* LBP-81-48, *supra*, 14 NRC at 883.

In sum, the matter Joint Intervenors now raise is fairly encompassed within its original, albeit overly broad, contention 22; accordingly, they are not required to satisfy the five factors set forth in 10 C.F.R. § 2.714(a)(1). In any event, our determination of the significance of the issue raised by their motion (*see* pp. 1325-28, *infra*) renders this matter academic.

[4] Joint Intervenors' and *Gambit*'s discussion of the cracks discovered in 1977 is somewhat misleading. They state that applicant reported the cracks to the NRC as a "significant construction deficiency." Joint Intervenors' Memorandum at 4; Applicant's Answer, Attachment 7. *See* 10 C.F.R. § 50.55(e). In fact, after evaluating the cracks, applicant informed the NRC that this was *not* a reportable significant deficiency in construction. Nor did the NRC issue a notice of violation. *See* Applicant's Answer at 20, Attachment 5, Attachment 6 (Inspection Report No. 50-382/77-08 (September 21, 1977)) at 9.

inspectors reached no conclusions on the safety implications of the matter. *Id.*, Attachment 4 (Inspection Report No. 50-382/83-18 (June 30, 1983)) at 5-6. A special Inquiry Team established to investigate the cracking and other matters at Waterford issued a report on July 14, 1983, in which it recommended that applicant obtain "an independent engineering evaluation of the common basemat cracking and seepage matters." *See* Board Notification 83-133 (September 15, 1983), Enclosure ("Inquiry Team Report") at 12. Whether in response to this report, the *Gambit* article, Joint Intervenors' motion, or some other impetus, applicant requested Harstead Engineering Associates, Inc., to perform such a study.

Applicant has submitted the Harstead Report as an attachment to its reply to Joint Intervenors' motion. First, the report addresses the cracks themselves. All are so small that they can be characterized only as "hairline," and the existence of many can be inferred solely from the presence of moisture. Harstead Report (September 19, 1983) at 10, 26. The report points out that such cracking is expected in reinforced concrete structures and is generally caused by tensile forces, drying shrinkage, thermal gradients, and settlement. *Id.* at 24.[5] According to the report, the cracks "[do] not give any evidence at all of any structural distress," and "are of little concern with respect to the structural adequacy of the mat." *Id.* at 24, 25.[6]

The Harstead Report also analyzes the moisture associated with the hairline cracking. It finds a minimal amount of moisture (probably ground water) and no evidence of seepage from standing or draining water. *Id.* at 10, 25. Further, the waste management system is adequate to eliminate the possibility of any ground water accumulation. *Id.* at 11-12. The report also determines that there are not enough chemical agents in the moisture present in the cracks to have any corrosive effects. *Id.* at 32. More important, the authors of the report find no evidence of any corrosion of the steel reinforcing bars (rebars). *Id* at 34.[7] Any evidence of iron or rust is thought to originate from pipe threading or sweepings on the surface of the concrete. *Id.* at 39-40. The report therefore concludes: "there is no evidence of any process which has been or could be detrimental to the structural integrity of the foundation mat." *Id.* at 40.

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[5] The report notes that although overall settlement of the structure was initially greater than expected, it has remained constant since 1979. Harstead Report at 8, 23.

[6] A second report reaches the same conclusion. *See* Harstead Report (October 12, 1983) at 20-23.

[7] The report explains that a passivating film forms on the steel rebars through contact with concrete. This film protects the rebars from corrosion unless there are extremely high levels of corrosion-inducing factors present. The levels of such agents at Waterford are well below that threshold. Harstead Report at 29-34, Appendix M.

Applicant has also submitted the affidavits of two engineers from Ebasco Services Incorporated, the architect-engineer of Waterford 3. Both are consistent with the Harstead Report. One elaborates on why controlled cracking, such as that discovered in 1977 and 1983, is expected and necessary for the transfer of tensile loads from the concrete to the embedded rebars. Affidavit of Joseph L. Ehasz (September 27, 1983) at 2, 6-7. *See also* American Concrete Institute Standard Building Code Requirements for Reinforced Concrete, ACI 318-63, § 1508(b) and commentary for § 1508. The other affidavit addresses the negligible amounts of corrosion-inducing agents in the moisture associated with the cracking and concludes that there is no basis for expecting any significant corrosion. Affidavit of William F. Gundaker (September 27, 1983).

The NRC staff's position is generally in accord with that of applicant and the Harstead Report.[8] The staff performed an audit of applicant's analysis and design of the foundation mat, reviewing both the original Ebasco analysis and the recent Harstead Reports. Affidavit of John S. Ma (November 28, 1983) at 1-2, 3-7.[9] Based on this review and visual examination by NRC personnel, the staff concludes that "the cracks and water seepage do not represent a challenge to the structural integrity of the foundation basemat." *Id.* at 3. The staff considers the methodology of applicant's structural design and analysis to be "sufficiently conservative and . . . acceptable," even taking account of the discovered cracking. *Id.* at 6.[10] More important, the strength of the basemat itself, as well as that of the underlying foundation soils, is considered adequate to support the structures above. *Id.* at 9; Affidavit of Raman Pichumani (November 28, 1983) at 3-7.

The staff also concludes that the water associated with the cracking does not threaten the stability and integrity of the basemat. Affidavit of John S. Ma at 7. It agrees with the Harstead Report that this moisture is probably ground water that has seeped through joints and cracks. *Id.* at 9. *See* pp. 1328-29 and note 12, *infra*. It also agrees that the chemical composition of the seepage is not likely to cause corrosion of the steel

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[8] This position is reflected in several affidavits attached to the NRC Staff's Answer to Joint Intervenors' Motions to Reopen Contentions 8/9 and 22 (November 28, 1983).

[9] In addition, the staff solicited and received more detailed information from applicant on a number of areas. Affidavit of John S. Ma at 2, Attachments 1 and 2.

[10] The September 19 Harstead Report (at 24-25) did not identify a particular source of the cracking. The staff, however, believes the cracking discovered in 1983 is the result of "tensile stresses generated by flexure, torsion, and punching-induced shear stress, as a result of the weight of the structures (the dead load) and their location on top of the mat." Affidavit of John S. Ma at 7. On the other hand, the 1977 cracks apparently were caused by soil settlement. *Id.* at 7-9. The staff agrees with applicant (*see* note 5, *supra*) that there has been no significant settlement since 1979. *Id.* at 9; Affidavit of Raman Pichumani (November 28, 1983) at 5, 7.

rebars. Affidavit of John S. Ma at 10. But despite its overall favorable evaluation of the strength and adequacy of the foundation mat, the staff points out that "significant changes in loads or environmental conditions over the course of time" could affect its current conclusions. *Id.* at 3. The staff will thus require applicant to establish a surveillance program to assure the continuing integrity of the foundation mat. *Id.* at 3, 10-11; Affidavit of Raman Pichumani at 7-8.

The Harstead Reports and the affidavits submitted by both the staff and applicant convince us that the cracking and related moisture do not now present a significant safety concern respecting the integrity of the foundation mat at Waterford 3.[11] We agree with the staff, however, as to the desirability of a surveillance program to assure the continued validity of this conclusion. We also believe that the continued integrity of the foundation mat is so important to safety that we urge the staff to require the formal incorporation of a surveillance program into applicant's technical specifications. *See Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-531, 9 NRC 263, 273 (1979).

Because of our conclusion of no present safety significance of the cracks and moisture in the basemat, it follows that a different ultimate result could not have been reached by the Licensing Board had Joint Intervenors' claims been presented to it during the hearing. Reopening of the record for further consideration of this matter thus is not warranted, and the motion is denied.

Notwithstanding our unequivocal conclusion, on the basis of the information submitted to us, that the cracking and moisture in the Waterford basemat have no safety significance, we have one further observation. Both the staff's Safety Evaluation Report (SER) and applicant's Final Safety Analysis Report (FSAR) use the term "watertight" when referring to the foundation mat and the structures resting on it. *See* SER, NUREG-0787 (July 1981), § 3.4.1; FSAR, § 3.4.1. It is not clear, however, whether it is the basemat and specified structures that are to be watertight or just the passageways into and out of those structures. Nor is it apparent what is meant by watertight — a perfect barrier against water intrusion of all sorts, or something less. *See, e.g.*, Affidavit of Joseph L. Ehasz at 4.[12] A further inconsistency arises from the fact that

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[11] As for Joint Intervenors' concern about possible contamination of drinking water, this does not appear possible at Waterford 3. The common foundation mat is below the natural water table. Thus, ground water exerts hydrostatic pressure upward, under the foundation mat, precluding the downward filtering of contaminated water through the mat. *See* FSAR, §§ 2.4.13.3, 2.5.4.11; Harstead Report at 25; Affidavit of Raymond O. Gonzales (November 28, 1983) at 2-3.

[12] A related question arises from Dr. Ma's affidavit. He states that "[t]he water seepage . . . appears to be due to the absence of waterproofing membranes under and around the mat." Affidavit of John S. Ma at 9. *See also id.*, Attachment 2, Attachment at 6. The staff fails to explain, however, whether such waterproofing is or should be required in the plant design.

the facility is designed to an ACI standard that assumes a certain amount of cracking. *See* SER, § 3.8.5; ACI 318-63, § 1508(b). Where there is cracking, it is reasonable to infer the presence of moisture, particularly in an environment like that in which Waterford is situated. And, as we have seen, moisture is in fact present in the Waterford basemat cracks. We thus assume that the inconsistencies arising from the various references to the foundation mat as watertight are only semantic or inadvertent;[13] and that it is only the passageways to and from certain structures housing safety-related equipment — not the foundation mat itself — that are intended to be truly watertight, as that term is ordinarily understood. If our assumptions are correct, applicant should amend its FSAR accordingly. *See generally* 10 C.F.R. §§ 50.34(b), 50.59. If our assumptions are not correct, however, we expect applicant and the staff to advise us of that fact promptly.

B. Joint Intervenors' second motion seeks "to reopen Contention 8/9 with respect to Synergism." That contention alleged:

> Applicant failed to properly evaluate the cumulative and/or synergistic effects of low level radiation with environmental pollutants, known or suspected to be carcinogens.

In ALAB-732, *supra*, we concluded that the great weight of the evidence refuted Joint Intervenors' claim that radioactive releases from Waterford 3 would react synergistically with the chemical pollutants of the lower Mississippi River area, causing higher levels of cancer than would be expected ordinarily. Specifically, we found that (1) the radiation dose estimates projected for Waterford were properly derived and are conservative; (2) a synergistic effect between these low radiation doses and chemical agents has not been scientifically demonstrated and is considered very unlikely; and (3) even if synergism were to occur at this level, the additional dose from Waterford is so low (especially compared to natural background radiation) that it is exceedingly unlikely to cause any measurable enhancement in preexisting effects. 17 NRC at 1083-90.

By letter dated September 14, 1983, the Secretary of the Commission informed the parties that the Commission had declined to review ALAB-732, and that our decision had become final agency action on September 7. Accordingly, we agree with the staff and applicant that this Appeal Board is without jurisdiction to consider Joint Intervenors' request to reopen contention 8/9 — a matter specifically addressed in an

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[13] We reiterate that the cracking and moisture in the foundation mat have been shown to be without safety significance.

earlier decision that is now administratively final. *See Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-530, 9 NRC 261, 262 (1979); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-513, 8 NRC 694, 695-96 (1978).[14]

Even if we still did have jurisdiction over this matter, we would nevertheless be compelled to deny the motion as totally unsubstantiated.[15] In support of their motion to reopen the record on synergism, Joint Intervenors supply only an article from the October 31, 1983, edition of *The Times Picayune/The States-Item*. The article reports on an English television documentary about "[a]larming levels of leukemia and cancer . . . found in children who live near a nuclear power plant [Windscale] in northwestern England." It contains not a single reference to a synergistic relationship between low levels of radiation and chemical pollutants and a possible link to the reportedly higher cancer levels. Moreover, Joint Intervenors themselves offer no such hypothesis.[16]

We also note in passing that it is extremely unlikely that there could be any plausible connection between Windscale and Waterford because of the numerous major design differences in the two facilities. First, Windscale (which is no longer in operation) was a plutonium-production reactor;[17] Waterford is a power reactor. Second, Windscale was air-cooled/graphite-moderated; Waterford is water-cooled/water-moderated. Third, and perhaps most significant, Windscale had an "open cycle" reactor cooling system — *i.e.*, primary coolant air entered the reactor,

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[14] Neither applicant nor the staff addressed whether we have jurisdiction to rule on Joint Intervenors' motion to reopen contention 22. Nonetheless, we conclude that we do. At the time that motion was filed, we had not yet wholly terminated our review of that part of the proceeding *not specifically addressed* in ALAB-732. In other words, had we already completed our review of the Licensing Board's second partial initial decision at the time Joint Intervenors filed their motion to reopen on the cracked slab issue, we would have lacked jurisdiction and would have been obliged to refer the motion to the Commission. *See generally Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-551, 9 NRC 704 (1979).

[15] Thus, because of the complete lack of basis for the motion (as discussed below), we decline to refer it to the Director of NRR — the course we took in *Marble Hill, supra*, 9 NRC at 262.

[16] In ALAB-732, we criticized Joint Intervenors' similar reliance on undocumented newspaper articles on subjects with no ostensible connection to the Waterford facility. *See* 17 NRC at 1089. Such material simply does not provide a legitimate basis on which we can make an evidentiary finding or reopen a record.

[17] We assume that this is the Windscale reactor to which the newspaper article refers. There was, however, another unit also referred to as Windscale, a small carbon dioxide-cooled/graphite-moderated commercial power reactor that operated from 1963 to 1981. *See* IV *International Atomic Energy Agency Directory of Nuclear Reactors* 227-32 (1962); 28 *Nuclear Engineering International* No. 348 at 13 (November 1983). Our belief of an unlikely connection between Windscale and Waterford is unaffected by whichever reactor the newspaper article intended.

cooled the core and moderator, and was discharged directly to the atmosphere through a 400-foot stack;[18] Waterford has a closed-loop cooling system with many barriers (including a containment) between the core and the outside environment. Fourth, Windscale was based on the state-of-the-art design of the 1950s; Waterford's design and more sophisticated instrumentation reflect the experience and technological advances of the past 30 years. *See* 26 *Nuclear News* No. 14 at 116-17 (November 1983); 15 *Nucleonics* No. 11 at 130, 204-05 (November 1957); FSAR §§ 1.0, 1.2, 5.1; Final Environmental Statement (FES), NUREG-0779 (September 1981), § 5.9.2.4.

II.

In LBP-83-27, *supra*, 17 NRC 949, the Licensing Board completed its consideration of this proceeding and authorized the Director of Nuclear Reactor Regulation to issue an operating license to applicant for Waterford 3. In so doing, the Board concluded that applicant's emergency planning brochure is adequate to provide necessary information to the public concerning possible actions in the event of an emergency at Waterford 3. The brochure underwent substantial revisions from its original conception, due largely to the constructive criticism of Joint Intervenors. The Board below thoroughly reviewed the brochure itself and the large record developed on it. Although we may not fully agree with each and every discrete finding of the Board, we find its decision to be well reasoned and supported by the evidence. *See* note 1, *supra*. The entire issue of emergency planning for Waterford has now been exhaustively addressed (*see* LBP-82-100, *supra*, 16 NRC at 1560-68, 1574-89, *as modified*, 16 NRC 1901 (1982), *aff'd*, ALAB-732, *supra*, 17 NRC at 1093-1110), and we see no error warranting corrective action. We therefore affirm LBP-83-27.

Joint Intervenors' motion to reopen contention 22 is *denied*. Joint Intervenors' motion to reopen contention 8/9 is *dismissed for lack of*

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[18] We note that in October 1957 a major fire occurred in the Windscale reactor core itself. As a result, a significant amount of radioactive fission products (mostly iodine) was released directly into the countryside. *See* Atomic Energy Office, "Accident at Windscale No. 1 Pile on 10th October, 1957," presented to Parliament by the Prime Minister by Command of Her Majesty (November 1957); Final Environmental Statement (FES), NUREG-0779 (September 1981), § 5.9.2.3.

jurisdiction. The Licensing Board's second partial initial decision (LBP-83-27) is *affirmed*.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Gary J. Edles
Dr. Reginald L. Gotchy

In the Matter of **Docket No. STN 50-483-OL**

UNION ELECTRIC COMPANY
(Callaway Plant, Unit 1) **December 9, 1983**

The Appeal Board affirms on *sua sponte* review the Licensing Board's second partial initial decision in this operating license proceeding which accepted the State of Missouri's determination that the distribution of potassium iodide and instructions for its use is not necessary for adequate emergency planning.

EMERGENCY PLANNING: GENERAL REQUIREMENTS

The NRC's emergency planning regulations require that a range of protective actions be developed for the public in the area surrounding a nuclear power plant. *See* 10 C.F.R. § 50.47(b)(10).

EMERGENCY PLANS: CONTENT (USE OF RADIOPROTECTIVE DRUGS)

There is no express mandate under emergency planning regulations that protective action include the use of radioprotective drugs. *Id.* and NUREG-0654, FEMA-REP-1, Rev. 1.

EMERGENCY PLANS: FEMA VIEWS

Generally, the Commission bases its decision regarding the adequacy of emergency plans on a review of the findings and determinations made by the Federal Emergency Management Agency (FEMA). 10 C.F.R. § 50.47(a)(2).

DECISION

On October 31, 1983, the Licensing Board issued its second — and final — partial initial decision in this operating license proceeding. LBP-83-71, 18 NRC 1105.[1] No exceptions to that decision were filed. Accordingly, as is customary in such circumstances, we have reviewed it on our own initiative. That review has disclosed no error necessitating corrective action.

At issue in this phase of the case were two related contentions of intervenor John Reed. First, according to Mr. Reed, the radioprotective drug potassium iodide (KI) should be issued to members of the general public living near the Callaway plant as part of the local emergency response plan. Second, emergency information provided by state or local governments to the general public should include instructions regarding the use of KI for thyroid protection if prolonged sheltering becomes necessary in the event of an accident.

The NRC's emergency planning regulations require that a range of protective actions be developed for the public in the area surrounding a nuclear power plant.[2] Neither those regulations nor NUREG-0654 (which is a document designed to provide guidance and criteria for the development of radiological emergency plans) expressly mandates that such protective actions include the use of radioprotective drugs.[3] Generally speaking, the Commission bases its decision regarding the adequacy

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[1] The Licensing Board had earlier issued a partial initial decision resolving, in favor of the applicant, a number of issues relating to quality assurance which had been litigated by the Joint Intervenors, Coalition for the Environment, St. Louis Region; Missourians for Safe Energy; and the Crawdad Alliance. LBP-82-109, 16 NRC 1826 (1982). We affirmed the Board's decision in ALAB-740, 18 NRC 343 (1983), *petition for reconsideration denied*, ALAB-750, 18 NRC 1205 (1983), *as modified*, ALAB-750A, 18 NRC 1220 (1983).

[2] *See* 10 C.F.R. § 50.47(b)(10).

[3] NUREG-0654, FEMA-REP-1, Rev. 1, is the current version of a document entitled "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," prepared jointly in 1980 by the NRC staff and the Federal Emergency Management Agency. It is incorporated by reference into Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," Rev. No. 2 (Oct. 1981).

of emergency plans on a review of findings and determinations made by the Federal Emergency Management Agency (FEMA), which is responsible for reviewing offsite emergency plans.[4] In turn, FEMA leaves to state governments the decision regarding the distribution of KI. A FEMA interim policy guidance statement on the use of potassium iodide, dated December 1, 1982, indicates:

> Each state has a responsibility for formulating guidance to define if and when potassium iodide is used as a thyroid blocking agent for emergency workers, institutionalized persons, and the general public. Where States elect not to include KI in their preparedness posture either for emergency workers or institutionalized persons, the plans should state under whose authority the decision was made and the rationale for the decision.[5]

Similarly, the Federal Radiological Preparedness Coordinating Committee, which is comprised of representatives of numerous Federal agencies, including FEMA, the NRC, and the Environmental Protection Agency, states:

> It is recognized that the decision to use KI for thyroid blocking to protect the health and safety resides with the State and local health authorities. Therefore, with the exception of the NRC licensee's personnel located on-site during the accident, the decision for use of KI during an actual emergency by all other individuals for whom the use of KI is recommended are the responsibility of those authorities. In addition, because the factors bearing on the desirability of stockpiling and distributing KI for thyroidal blocking of the general population within the Emergency Planning Zone for the Plume Exposure Pathway depend heavily on local conditions, this matter is a decision for State and local authorities to make.[6]

The Callaway facility is located in Missouri. That State will make KI available to emergency workers and persons for whom evacuation would not be feasible, but it has decided not to distribute it to the general public. Based on its review of the evidentiary record and existing Commission policy and precedent, the Licensing Board concluded that that decision should be accepted. In this connection, the Board noted that the issue of KI distribution has been litigated in several other licensing proceedings and that "state policies against . . . distribution [to the general public] have not been found contrary to requirements for providing adequate protective measures for emergency planning purposes."[7]

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[4] 10 C.F.R. § 50.47(a)(2).

[5] *See* testimony of Marlee Carroll, Community Planner, Technological Hazards Branch, Natural and Technological Hazards Division, FEMA-Region VII, fol. Tr. 2366, at 2-3.

[6] *Id.* at 4-5.

[7] LBP-83-71, *supra*, 18 NRC at 1109.

The Board also found that, as called for in the Missouri response plans, instructions to the public on in-house sheltering are adequate despite the lack of information on KI.[8]

We see no reason to disturb the Board's determinations. Accordingly, LBP-83-71 is *affirmed*.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

[8] *Id.* at 1112, 1116

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Gary J. Edles, Chairman
Dr. W. Reed Johnson
Howard A. Wilber

In the Matter of **Docket No. 50-537-CP**

UNITED STATES DEPARTMENT OF ENERGY
PROJECT MANAGEMENT CORPORATION
TENNESSEE VALLEY AUTHORITY
(Clinch River Breeder Reactor Plant)

December 15, 1983

After the discontinuance of funding for this facility by Congress, the Appeal Board in this construction permit proceeding, upon motion of the intervenors, terminates as moot all appellate proceedings and vacates the Licensing Board partial initial decision paving the way for issuance of a limited work authorization (LWA). Revocation of the LWA is left to the Licensing Board to determine what conditions, if any, are needed to ameliorate the environmental impacts of site preparation activities.

CONSTRUCTION PERMIT PROCEEDINGS: TERMINATION

Appeal boards traditionally terminate their proceedings on the ground of mootness and vacate the decisions under review when a project is cancelled. *Boston Edison Co.* (Pilgrim Nuclear Power Station, Unit 2), ALAB-656, 14 NRC 965 (1981); *Rochester Gas and Electric Corp.* (Sterling Power Project, Nuclear Unit No. 1), ALAB-596, 11 NRC 867

(1980). *Cf. Puget Sound Power and Light Co.* (Skagit Nuclear Power Project, Units 1 and 2), CLI-80-34, 12 NRC 407 (1980).

ORDER

We have before us an appeal by the Natural Resources Defense Council and the Sierra Club (Intervenors) from the Licensing Board's February 28, 1983, partial initial decision paving the way for issuance of a limited work authorization (LWA) for the Clinch River Breeder Reactor Plant.[1] Briefs have been filed and oral argument was held on September 28, 1983.[2]

On November 23, 1983, the Intervenors filed a motion to terminate the appellate proceedings, vacate the partial initial decision, and authorize revocation of the limited work authorization. They observe that Congress has declined to appropriate additional funds for Clinch River so that the project has been effectively terminated. They contend that all appellate proceedings are therefore moot. Neither the applicants nor the NRC staff objects to the grant of the Intervenors' motion to terminate the proceedings and vacate the initial decision. The applicants, however, believe that, in view of the NRR Director's authority under the Commission's regulations, "there is simply no need for the Appeal Board to authorize the Director to revoke the LWA."[3] On the other hand, the NRC staff argues that, in order to ensure appropriate site redress, any directive to revoke the outstanding LWA should be issued by the Licensing Board as part of its dismissal of the construction permit application.

We grant the motion insofar as it requests termination of appeliate proceedings and vacation of the Licensing Board's partial initial decision. We traditionally terminate appellate proceedings on the

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[1] *See* LBP-83-8, 17 NRC 158.

[2] In ALAB-721, 17 NRC 539 (1983), we denied a request for a stay of the Licensing Board's decision. The Commission made the Licensing Board's decision immediately effective in an unpublished order of May 5, 1983, and the Office of Nuclear Reactor Regulation issued the LWA on May 19, 1983. As a practical matter, most of the site preparation activities authorized by the LWA have already been completed under an exemption granted by the Commission in August 1982. *See* CLI-82-23, 16 NRC 413. The exemption was challenged in court and the Commission's decision was reversed and remanded. *NRDC v. NRC*, 695 F.2d 623 (D.C. Cir. 1982). Site preparation activities went forward, however, because the court declined to stay the Commission's exemption decision. The Commission reaffirmed the grant of the exemption in an opinion issued on January 6, 1983. *See* CLI-83-1, 17 NRC 1.

[3] Applicants' Response to Motion of Intervenors to Terminate the Appeal Proceedings, Vacate Partial Initial Decision, and Authorize Revocation of Limited Work Authorization (December 5, 1983) at 3.

grounds of mootness when a project is cancelled. *Boston Edison Co.* (Pilgrim Nuclear Power Station, Unit 2), ALAB-656, 14 NRC 965 (1981); *Rochester Gas and Electric Corp.* (Sterling Power Project, Nuclear Unit No. 1), ALAB-596, 11 NRC 867 (1980). *Cf. Puget Sound Power and Light Co.* (Skagit Nuclear Power Project, Units 1 and 2), CLI-80-34, 12 NRC 407 (1980). Termination of appellate proceedings for mootness is accompanied by vacation of the decision under review. *Sterling, supra.* In light of the termination of the Clinch River project, grant of the Intervenors' request to terminate the appellate proceeding and vacate the initial decision is warranted.

We agree with the staff, however, that the issue of revocation of the LWA is better left to the Licensing Board, which still retains jurisdiction over the application for a construction permit. We anticipate that the Board will determine if any conditions to ameliorate the environmental impacts of the site preparation activities are needed.[4]

LBP-83-8, 17 NRC 158 (1983), is *vacated* on the ground of mootness; appellate proceedings are *terminated.* In all other respects, the Intervenors' motion is *denied.*

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[4] *See generally Toledo Edison Co.* (Davis-Besse Nuclear Power Station, Units 2 and 3), ALAB-622, 12 NRC 667 (1980) and ALAB-652, 14 NRC 627 (1981). We have ordered the revocation of outstanding authorizations where, unlike the instant case, the Licensing Board no longer had jurisdiction over any portion of the proceeding. *See, e.g., Long Island Lighting Co.* (Jamesport Nuclear Power Station, Units 1 and 2), ALAB-628, 13 NRC 24, 25 (1981); *Sterling, supra.*

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

In the Matter of **Docket Nos. 50-275-OL**
50-323-OL

PACIFIC GAS AND ELECTRIC COMPANY
(Diablo Canyon Nuclear Power Plant, Units 1 and 2)

December 19, 1983

The Appeal Board sets out the reasons for its earlier order denying the motions of the intervenors and the Governor of California to reopen the record on the issue of construction quality assurance in this operating license proceeding.

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

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).

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

A motion to reopen the record in an operating license proceeding, to succeed, must be timely presented, addressed to a significant safety or environmental issue and must establish that a different result would have been reached initially had the material submitted in support of the

motion been considered. *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); *Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear-1), ALAB-227, 8 AEC 416, 418 (1974). *See also Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980).

OPERATING LICENSE: HEALTH AND SAFETY STANDARD

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, is able to and will be operated without endangering the public health and safety. 42 U.S.C. 2133(d), 2232(a); 10 C.F.R. 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).

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

To determine what constitutes a "significant safety issue" for reopening motions predicated on alleged deficiencies in an applicant's construction quality assurance program, the new evidence 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 343, 346 (1983).

APPEARANCES

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 unpublished 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,

[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.

they subsequently conceded that 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 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 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 follow-

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

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

[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*.

ing 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

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

virtue of the sheer size and complexity of the plant, it is inevitable 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 C.F.R. 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 343, 346 (1983).[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

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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 of the heavy burden imposed by *Wolf Creek, supra,* and decisions cited therein.

management that ran both aspects of the program and the same quality assurance manual that governed both activities.

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 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.

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

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[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).

[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, 105-10, 161-62. In the circumstances, Mr. Hubbard's opinion is entitled to little weight and it does nothing to enhance the movants' arguments.

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

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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).

[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

(Continued)

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 time frame 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.

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]

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

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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.

[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 ironworker as evidence of Foley's deficient quality assurance program. According to Mr. Tennyson, such harassment was reported to the Foley project manager but, as far as Mr. Tennyson was aware, nothing was done to curtail it. The record, however, shows that the errant ironworker 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)"].

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 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]

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

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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 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"].

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 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 were adequate), we fail to see how the applicant's decision not to review the work of all the other 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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[22] Tr. 428-40.

[23] *See* ITR 36 and ITR 38.

[24] Tr. 429-31.

[25] *See* p. 1344, *supra*.

[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 fa i-

(Continued)

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 C.F.R. 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] 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

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ure 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 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 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).

the quality assurance criteria. In the Statement of 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]

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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[28] 35 Fed. Reg. 10,498, 10,499 (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 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 C.F.R. 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 C.F.R. 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 movants' interpretation of Appendices A and B — a matter about

(Continued)

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

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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.

[32] *See* BME Affidavit (May 31, 1983) at 9-15; Amarai 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.

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

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

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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 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.

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

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Gary J. Edles
Howard A. Wilber

In the Matter of **Docket Nos. 50-443-OL**
50-444-OL

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1 and 2) **December 20, 1983**

The Appeal Board in this operating license proceeding declines to reconsider its earlier denial of an intervenor's motion requesting recusal by a Licensing Board judge on the ground of bias.

RULES OF PRACTICE: MOTION FOR RECUSAL (OR DISQUALIFICATION)

A claim for disqualification must be raised as soon as practicable after a party has reasonable cause to believe that grounds for disqualification exist. *Marcus v. Director, Office of Workers' Compensation Programs*, 548 F.2d 1044, 1051 (D.C. Cir. 1976). *See also United States v. Patrick*, 542 F.2d 381, 390 (7th Cir. 1976).

RULES OF PRACTICE: MOTION FOR RECUSAL (OR DISQUALIFICATION)

The posture of a proceeding may be considered in evaluating the timeliness of the filing of a motion for disqualification. *Smith v. Danyo*, 585 F.2d 83 (3d Cir. 1978).

APPEARANCES

Diane Curran and **William S. Jordan, III**, Washington, D.C., for the New England Coalition on Nuclear Pollution.

MEMORANDUM AND ORDER

Intervenor New England Coalition on Nuclear Pollution (Coalition) asks us to reconsider ALAB-751.[1] In that decision, we affirmed the denial by Administrative Judge Helen F. Hoyt of a Coalition motion seeking her recusal or disqualification as Chairman of the Licensing Board in this operating license proceeding. That affirmance rested on two independent grounds: (1) The Coalition's averments did not establish disqualifying bias; and (2) the recusal motion was untimely filed. In urging reconsideration, the Coalition maintains we were wrong on both scores.

1. The Coalition's recusal motion was preceded by similar motions filed by intervenors Seacoast Anti-Pollution League (SAPL) and the Attorney General of the Commonwealth of Massachusetts (Attorney General). We affirmed Judge Hoyt's denial of those motions in ALAB-748[2] and ALAB-749,[3] respectively.

In ALAB-751, we stated that "[t]he substance of every example of asserted bias set forth by the Coalition was likewise advanced in one or both of the [earlier] recusal motions . . . ."[4] According to the Coalition, this statement was inaccurate. We are told that the Coalition was the only movant "to address the appearance of bias created by the way in which Judge Hoyt made an *ex parte* contact with the town of Rye, New Hampshire, and then mischaracterized her treatment of Rye representative Guy Chichester in the Licensing Board order of September 8."[5] Further, the Coalition maintains, neither of the prior recusal motions had focused upon the action Judge Hoyt had taken at an August 31, 1983 conference conducted by the Licensing Board in Dover, New Hampshire.[6]

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[1] 18 NRC 1313 (1983).
[2] 18 NRC 1184 (1983).
[3] 18 NRC 1195 (1983).
[4] 18 NRC at 1314.
[5] New England Coalition on Nuclear Pollution Motion for Reconsideration (December 13, 1983) at 3 (footnote omitted).
[6] *Id.* at 2-3.

As to the first matter, the Attorney General's recusal motion contained the express claim that "Judge Hoyt exhibited personal bias and improper judicial behavior by contacting the Town of Rye *ex parte* . . . ."[7] In addition, the Attorney General alluded to the September 8 order,[8] and we were aware of it.[9] Quite true, the Coalition believes that the Attorney General did not deal in sufficient detail with either the *ex parte* contact with Rye or the September 8 order.[10] Be that as it may, the Attorney General had brought our attention to both, and we considered the full implications of each in passing upon the question whether pervasive bias on Judge Hoyt's part had been established.

The Coalition is correct, however, that neither SAPL nor the Attorney General had referred to the August 31 conference. Our implicit representation to the contrary in ALAB-751 thus was in error. The question remains whether that error bears significantly upon the result reached in ALAB-751. We think not.

The August 31 conference was attended by counsel for the Commonwealth of Massachusetts, the State of New Hampshire, the applicants and the NRC staff, as well as by one of the participating town representatives. The Coalition was not likewise represented. This is because it understood the conference to be "for information gathering purposes only."[11] The asserted source of that understanding was an August 29, 1983 telegram sent by the Board to all parties, which requested the presence of the Director of the Massachusetts Civil Defense Agency at the conference and stated:

> The purpose of the conference is to discuss the status of the emergency plans for Massachusetts and the Massachusetts towns, in order to give the Board an idea as to the timing of the remainder of the proceedings. All participants in these proceedings are invited to attend.

In addition, according to the Coalition, a law clerk to the Licensing Board had informed it that "the Board would be discussing the timing of the submission of the Massachusetts plans, and would not be discussing matters substantively affecting . . . [the Coalition] in the proceeding."[12]

The Civil Defense Director appeared at the conference and briefed the Board on the likely completion dates of the Massachusetts regional

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[7] Memorandum in Support of Attorney General Francis X. Bellotti's Motion for Disqualification and Recusal of Judge Helen F. Hoyt (October 28, 1983) at 36 (emphasis omitted).

[8] *Id.* at 34.

[9] *See* ALAB-749, *supra*, 18 NRC at 1199 n.8.

[10] Coalition's Reconsideration Motion at n.2.

[11] Motion by New England Coalition on Nuclear Pollution for Disqualification of Judge Hoyt (November 23, 1983) at 19.

[12] *Ibid.*

and local emergency response plans.[13] In light of that information, Judge Hoyt embarked upon a discussion with counsel regarding the possibility of reducing the time periods for, *inter alia*, the submission of contentions and the conduct of discovery on the Massachusetts plans.[14] But, despite Judge Hoyt's expression of tentative views, no determination was made at the conference; rather, Judge Hoyt indicated that the Board would welcome briefs from the parties on these matters.[15]

The Coalition would have it that, by entertaining the views of applicants' counsel on the scheduling question, Judge Hoyt went beyond the previously announced scope of the conference and, in doing so, "demonstrate[d] the degree of her bias" in favor of the applicants and against the intervenors.[16] We find that claim insubstantial. To begin with, it is not entirely clear to us that the Coalition was justified in assuming that there would be no discussion whatsoever at the conference respecting the timing of the filing of contentions and the conduct of discovery on the Massachusetts emergency response plans. Indeed, quite the opposite inference might have been drawn from the notation in the August 29 telegram that the status of the emergency plans was being discussed "in order to give the Board an idea as to the timing of the remainder of the proceedings." *See* p. 1358, *supra*.[17] But even if it could be said that, by its telegram, the Licensing Board had committed itself to the avoidance of any scheduling discussion at the conference, the fact that that commitment was not observed scarcely establishes bias — let alone pervasive bias — with respect to either the intervenors as a class or the Coalition in particular. Those intervenors represented at the conference were heard orally; *i.e.*, the Board did not provide that opportunity to only the applicants. And, to repeat, *all* parties to the proceeding were specifically invited to file briefs on the scheduling question prior to any ultimate determination by the Board.

Notwithstanding our mistaken belief that the same assertion of demonstrated bias had been advanced in one of the earlier recusal motions, we had independently considered the claim in the context of

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[13] Tr. 1845-61.

[14] Tr. 1855-77.

[15] Tr. 1875.

[16] Coalition's Disqualification Motion, *supra*, at 21.

[17] It appears that the conversation between Coalition's counsel and the Licensing Board's law clerk had taken place at the end of the previous week. *See* NECNP Objection to Improper Board Conduct, Response to Applicants' Position as to Scheduling of Emergency Planning Issues, and Request for Hearing on Licensing Schedule (October 5, 1983) at 1. The Coalition thus should have resolved any inconsistency between the law clerk's advice and the terms of the telegram in favor of the telegram. But there may not have been an inconsistency. While the line between "substance" and "procedure" is not especially bright, scheduling questions might well be taken as purely procedural in character and thus outside the ambit of "matters substantively affecting" the Coalition.

the Coalition's motion and, for the foregoing reasons, had rejected it. The reconsideration motion gives us no cause to alter our prior conclusion on the subject.

2. In determining that the Coalition's recusal motion was late, we took into account that it was filed almost three months after the events upon which the allegations of bias rested, that there was no explanation for the Coalition s failure to file earlier, and that the Board was actively involved in processing the case during the three-month period.[18] The Coalition now argues that the timing of its filing was consistent with the precedent established in federal case law. In particular, it contends that "[t]he crucial factor is not the date of discovery of the bias . . . but the effect of the disclosure on the future conduct of the proceeding" and that the nearly three-month lag in filing "has not jeopardized the conduct of the Seabrook licensing proceeding."[19]

We disagree with the Coalition's contention that the date of discovery of bias does not bear significantly on the issue of timeliness. As we explained in some detail in ALAB-749, and reiterated in ALAB-751, both the federal courts and this agency insist that all requests for disqualification or recusal be filed promptly. The District of Columbia Circuit has summarized the law as follows:

> The general rule governing disqualification, normally applicable to the federal judiciary and administrative agencies alike, requires that such a claim be raised as soon as practicable after a party has reasonable cause to believe that grounds for disqualification exist. It will not do for a claimant to suppress his misgivings while waiting anxiously to see whether the decision goes in his favor. A contrary rule would only countenance and encourage unacceptable inefficiency in the administrative process.[20]

We explicitly acknowledged that the most egregious example of untimeliness is where a complaining party awaits a tribunal's substantive decision before seeking to disqualify the decisional officer. But we carefully explained that the requirement for timely filing was not limited to such situations. We observed:

> [A]ny delay in filing a motion for disqualification or recusal necessarily casts a cloud over the proceedings and increases the likelihood of delay in the ultimate completion of the case in the event recusal or disqualification is warranted and a new decisional

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[18] ALAB-751, *supra*, 18 NRC at 1315-16. *See also* ALAB-749, *supra*, 18 NRC at 1199.

[19] Coalition's Reconsideration Motion, *supra*, at 6.

[20] *Marcus v. Director, Office of Workers' Compensation Programs*, 548 F.2d 1044, 1051 (D.C. Cir. 1976) (footnotes omitted). *See also United States v. Patrick*, 542 F.2d 381, 390 (7th Cir. 1976) ("The law is well settled that one must raise the disqualification of the judge at the earliest moment after knowledge of the facts demonstrating the basis for such disqualification.").

officer must be appointed. Thus, we insist that all requests for disqualification or recusal be filed promptly.[21]

In the absence of mitigating circumstances not present here, rejection of a motion submitted three months after the events purportedly demonstrating bias and containing not a single word of explanation for the delay is fully consistent with established precedent.

We do not disagree with the Coalition that the posture of a proceeding may also be considered in evaluating the timeliness of the filing of a motion for disqualification. *Smith v. Danyo*,[22] cited by the Coalition, illustrates this principle. However, we reject the Coalition's suggestion that our earlier determination failed to take proper account of the posture of the case.

As a threshold matter, we note that in the *Danyo* case the court acknowledged that the actual time elapsed before a motion is filed is a relevant consideration. The court nonetheless determined that other factors were overriding on the facts there present. A three-month delay in *Danyo* was not deemed disabling where the trial judge accused of bias had declared a mistrial, the motion for disqualification was filed well in advance of any new trial date, and no activity in connection with the case was apparently taking place in the interim.[23]

The facts of the instant case are considerably different. During the three-month period before the Coalition's motion was filed, the Licensing Board was actively engaged in the management of both the predecisional aspects of the recently concluded phase of the case and planning the upcoming hearings on offsite emergency planning issues. Perhaps more important, the Coalition was an active participant before the Board during that period. On September 15, the Board reaffirmed its prior oral rulings establishing due dates for the submission of proposed findings of fact and conclusions of law in connection with the hearings concluded in August. Under the schedule established, all submissions except for the applicants' reply findings were tendered before the Coalition's motion was filed. The Coalition filed its proposed findings on October 27. Thus, the Coalition waited essentially until all procedural steps short of decision were completed before asking the Licensing Board Chairman to step down.

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[21] ALAB-749, *supra*, 18 NRC at 1198.
[22] 585 F.2d 83 (3d Cir. 1978).
[23] *Id.* at 86.

During this period, the Board also made rulings and considered various requests regarding the upcoming emergency planning hearings.[24] The Coalition argues that, apart from an October 5 filing[25] and the submission of contentions in conformity with previously established deadlines, it did not "affirmatively approach the Board seeking a favorable ruling."[26] On at least three occasions during the three-month period, however, the Coalition made recommendations, suggestions, or formal requests to the Board regarding the emergency planning phase of the case.[27] While the October 5 filing did seek the appointment of an independent board or special master to rule on certain limited questions surrounding the expected completion date for the Seabrook plant and the *scheduling* of pleadings and hearings on offsite emergency planning issues, at no time (before November 23) did the Coalition indicate that the Board could not examine the substance of pending issues impartially.

In the context of this case, the Coalition's silence on the question of Judge Hoyt's impartiality during the three-month period is significant. On October 7, in connection with its motion for disqualification, SAPL specifically asked the Board to defer all further rulings pending disposition of the motion. The Coalition chose not to respond to the SAPL deferral motion, permitting the inference, at least, that, apart from its October 5 request, it had no views regarding the Board's ability to dispose of pending business impartially. On October 21, the Board denied SAPL's request. The Board's decision should have alerted the Coalition to the need for urgent action. Yet the Coalition waited still another month before filing its motion for disqualification or recusal. And, as we noted in our earlier decision, it never indicated its concerns by way of responding to the motions for disqualification filed by SAPL or the Attorney General of Massachusetts. In our judgment, the Coalition's conduct over the three-month period required some explanation of why it waited until November 23 before calling into question the impartiality of the Licensing Board Chairman.

In its request for reconsideration, the Coalition offers such explanation. It indicates that it wanted to "undertake a thorough review and analysis of the transcript and records of this proceeding and of the

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[24] *See*, for example, the Board's order of November 10, 1983 (unpublished), postponing the December 13 target date for commencement of hearings, and announcing its intent to schedule a prehearing conference in January 1984. *See also* the Board's order of November 15, 1983 (unpublished), denying the petition of John F. Doherty for leave to intervene.

[25] *See* note 17, *supra*.

[26] Coalition's Reconsideration Motion, *supra*, at 7.

[27] *See* letters from Diane Curran to the Board (September 9, 1983, and September 23, 1983) and NECNP Objection to Improper Board Conduct, Response to Applicants' Position as to Scheduling of Emergency Planning Issues, and Request for Hearing on Licensing Schedule, *supra*, note 17.

applicable law" and that "[i]t was also necessary to understand the detail and full implications of Judge Hoyt's improper actions with respect to the dismissal of Guy Chichester as representative of the Town of Rye and the *ex parte* contact with the town."[28] We find such highly generalized averments unconvincing.

Finally, the Coalition objects to what it believes to be an unfavorable comparison with SAPL and the Attorney General. It argues that its request should not be judged by comparison with other parties. It was not. Our reference in our earlier decision to the submissions of the other parties was designed to illustrate two matters. First, there was ample time available for the filing of a thorough and thoughtful request for disqualification well in advance of November 23. Second, any motion for disqualification not filed promptly should have included some explanation for the delay. That such explanation should reasonably have been expected is demonstrated by its inclusion by both SAPL and the Attorney General.

The Coalition's motion for reconsideration of ALAB-751 is *denied*.
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[28] Coalition's Reconsideration Motion, *supra*, at 9-10.

Atomic Safety and Licensing Boards Issuances

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Peter B. Bloch, Chairman
Dr. Jerry R. Kline
Mr. Glenn O. Bright

In the Matter of **Docket Nos. 50-440-OL**
50-441-OL
(ASLBP No. 81-457-04-OL)

CLEVELAND ELECTRIC ILLUMINATING COMPANY, *et. al.*
(Perry Nuclear Power Plant, Units 1 & 2)

December 2, 1983

The Licensing Board dismisses a quality assurance contention, finding that there were no quality assurance deficiencies that seriously call into question applicant's ability to control its electrical contractor, its commitment to the quality of its plant, or the safety of any plant component.

QUALITY ASSURANCE: RESOLUTION OF DEFICIENCIES

Appendix B to 10 C.F.R. Part 50 requires prompt resolution of quality assurance deficiencies. This standard should be interpreted as requiring reasonably prompt resolution of deficiencies.

If a quality assurance deficiency is serious, it must be resolved immediately. On the other hand, less serious deficiencies or minor deficiencies in written procedures may be resolved "promptly" in a matter of days or months.

Furthermore, in reviewing a very large number of deficiencies, a reasonableness standard considers the possibility that there will be some laggards in the race to resolution.

QUALITY ASSURANCE: NUMBERS OF DEFICIENCIES

The number of quality assurance deficiencies identified at a plant is an ambiguous measure of the program's adequacy, in the absence of other interpretive information.

QUALITY ASSURANCE: SIGNIFICANCE OF VIOLATIONS

Although applicant has been found responsible for certain severity Level IV and Level V quality assurance violations, this may merely represent perturbations within an essentially sound system.

QUALITY ASSURANCE: RESPONSIVENESS TO CRITICISM

The Board considered testimony concerning applicant's attitude and its responsiveness to adverse staff findings to be relevant.

PARTIAL INITIAL DECISION
(Quality Assurance Contention)

This Partial Initial Decision decides the remaining aspect of a quality assurance contention, portions of which survived summary disposition.[1] The parties are Cleveland Electric Illuminating Company, *et al.* (applicant or CEI), Sunflower Alliance Inc., *et al.* (Sunflower), Ohio Citizens for Responsible Energy (OCRE) and the Staff of the Nuclear Regulatory Commission (staff).

The genuine issues of fact set for trial were:

> The existence, cause, severity, duration and extent of an alleged instance in which applicant's quality assurance program failed by not properly controlling its electrical contractors.

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[1] Summary Disposition was denied in LBP-82-114, 16 NRC 1909 (1982) and this result was reconfirmed in LBP-83-3, 17 NRC 59 (1983). In LBP-83-74, 18 NRC 1241 (1983), we resolved aspects of this contention resulting from our reopening of the record to receive evidence about two issues. *See* LBP-83-52, 18 NRC 256 (1983). In Memorandum and Order (Procedural Objections and Staff Witness Question), dated August 30, 1983, we resolved two procedural matters raised by Sunflower Alliance Inc., *et al.* (Sunflower).

Whether the alleged deficiencies in properly controlling electrical contractors extend to the proper control of other contractors.

Whether deficiencies in the control of contractor activities have resulted in unsafe conditions at Perry.

Whether applicant has an adequate system for periodically reviewing its program for assuring the quality of contractor performance and ascertaining and correcting deficiencies that have arisen, particularly in systems essential to safe plant operation.[2]

These were the only issues of fact set for trial following a period of very broad discovery rights.[3] Consequently, these issues examine applicant's quality assurance program in the context of a "worst case."[4]

During the public hearing on this issue, held May 24-27, special attention was paid to the findings of the NRC's staff (staff) in Report 81-19, September 24, 1982. It was Report 81-19 that caused us to deny staff's motion for summary disposition. At the hearing, the Board attempted to assure that every important question raised in that report was pursued in sufficient depth so that our record would be complete. In addition, the Board attempted to assist intervenors, who were without counsel, by reasonably pursuing each problem with which intervenors were concerned.

We are convinced, after reviewing the proposed findings of the parties and considering the entire record, that there are no quality assurance deficiencies that seriously call into question applicant's ability to control its electrical contractor, its commitment to the quality of its plant, or the safety of any plant component. We consider Report 81-19 to have been cautious and carefully prepared. The staff witnesses impressed us by their candor and their concern with the safety of this plant. Similarly, we were impressed by the knowledge and candor of applicant's witnesses, Mr. Murray R. Edelman and Mr. Gary R. Leidich.

The construction of Perry is a massive task. We are not surprised that applicant's quality assurance program has detected thousands of nonconformances that have arisen during construction. Nor are we surprised that one of the construction contractors has had problems, including problems in hiring enough quality assurance inspectors and the training of electrical craft personnel. However, we are reassured that applicant

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[2] LBP-82-114, 16 NRC 1909 (1982) at 1917.

[3] LBP-82-15, 15 NRC 555 (1982) at 564.

[4] On November 25, 1983, OCRE informed the Board chairman that it was preparing a motion to reopen the record on quality assurance, based on newspaper reports of improper discharges of quality assurance personnel. The issuance of this decision does not prejudge the merits of the motion for reconsideration. It merely resolves the issues that were fully tried and were currently before us. Should new evidence cast doubt on our conclusions, the conclusions may be revised.

has a quality assurance program that alerted it to most of the L.K. Comstock problems. We also are reassured that the staff has conducted an investigation that identified further problems that needed correction and that applicant was responsive to the staff's findings. There is no indication that there are serious problems that have escaped detection or are not being carefully tracked and resolved.

Intervenor OCRE is concerned about the large number of deficiencies being discovered by applicant. However, we have no reason to believe that the number of deficiencies is abnormal or is indicative of sloppy craftsmanship or of a safety problem in the plant.

OCRE also is concerned that applicant has violated 10 C.F.R. Part 50, Appendix B, Criterion XVI because it has not "promptly identified and corrected" nonconformances. This concern arises because some of applicant's nonconformance reports have taken long periods of time to resolve. For example, twelve reports (only some of which may have been related to Comstock) have been left open for over four years.[5]

We conclude, however, that it is reasonable to expect that applicant would have varying success in the speed of resolving the large number of deficiencies involved. The test of whether matters are being resolved so slowly as to violate regulatory requirements is a test of reasonableness. In this instance, the test has been met: each time intervenor inquired into an apparently lengthy delay, applicant demonstrated that the delay in resolving the matter did not have safety significance.

Although we may have wished for prompter action in resolving nonconformances in some instances, we are convinced that there have been no inordinate delays and that the safety of the plant has not been compromised by delays. Whatever regulatory violations have occurred have been comparatively minor in nature and do not merit the denial or conditioning of a license.[6]

In reviewing the proposed findings of the parties, we found that applicant's position was closest to our own and that its findings would help us

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[5] Tr. 1164.

[6] Although there are some regulatory requirements, essential to safety, whose violation may require denial of a license, there are other requirements that do not have major safety significance and whose breach does not require denial of a license. *Compare Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 528-29 (1973) and *Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), ALAB-161, 6 AEC 1003, 1010 (1973) to *Consolidated Edison Co. of New York* (Indian Point Station, Unit No. 2), ALAB-188, 7 AEC 323, 333-34 (1974) ("Whether licensing can be authorized in the light of existing deficiencies obviously depends on the significance of the deficiencies."). We reject the impractical proposition that any minor violation of quality assurance regulations, regardless of whether the violation calls plant safety seriously into question, would call for denial of a license. We do not believe the Commission intended that fallible human beings, who must administer quality assurance programs, would be held to such an impractical standard.

to explain our personal conclusions about the quality assurance contention. Consequently, in the remainder of this Partial Initial Decision, we use applicant's filing freely, without quotation or attribution, altering it to fit our own style and beliefs.

I. OVERVIEW OF ISSUE NO. 3

A. Sequence Leading to Issues of Material Fact

Applicant filed its operating license application for Perry on June 26, 1980. In February 1981, the NRC published a *Federal Register* Notice of "Receipt of Application for Facility Operating Licenses, Consideration of Issuance of Facility Operating Licenses, and Opportunity for Hearing."[7] This notice provided an opportunity for any person whose interest might be affected by the proceeding to request a hearing and file a petition for leave to intervene. Several intervenor groups and individuals filed petitions in response to the *Federal Register* notice.

By order dated April 9, 1981,[8] the Board made initial determinations concerning party status and scheduled a special prehearing conference pursuant to 10 C.F.R. § 2.751a. The Board convened a special prehearing conference in Painesville, Ohio on June 2-3, 1981, and thereafter issued a special prehearing conference order on party status, contentions and discovery.[9]

Intervenors Sunflower Alliance Inc., *et al.* (Sunflower) and Ohio Citizens for Responsible Energy (OCRE) have litigated Issue No. 3. Although Sunflower is the designated lead intervenor for Issue No. 3,[10] OCRE has also been involved actively.

As originally admitted by the Board, Issue No. 3 stated:

> Applicant has an inadequate quality assurance program that has caused or is continuing to cause unsafe construction.

We defined this issue as being limited to a stop work order issued by applicant and to a related NRC immediate action letter, both of which were issued in February 1978, and to corrective action and any remedial

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[7] 46 Fed. Reg. 12,372 (1981).

[8] Memorandum and Order (Scheduling Prehearing Conference Regarding Petitions for Intervention), appended to LBP-81-24, 14 NRC 175 (1981) at 235.

[9] Special Prehearing Conference Memorandum and Order Concerning Party Status, Motions to Dismiss and to Stay, the Admissibility of Contentions, and the Adoption of Special Discovery Procedures, LBP-81-24, 14 NRC 175 (1981).

[10] *Id.*, 14 NRC at 231; *see* unpublished Memorandum and Order (Concerning Procedural Motions), dated September 17, 1982.

deficiencies related thereto.[11] Despite the limited scope of the issue, in the interest of full disclosure the Board accorded the intervenors broad discovery concerning applicant's quality assurance program.[12]

On October 29, 1982, the staff filed a Motion for Summary Disposition of Issue No. 3. The affidavit supporting the staff's motion stated that applicant had adequately addressed deficiencies relating to the February 1978 stop work order, and that there were no residual QA deficiencies of a serious nature.[13] After considering the filings of the parties, we granted in part the staff's summary disposition motion.

In our summary disposition decision, we indicated that we were concerned with apparent deficiencies in applicant's control of the electrical contractor subsequent to the 1978 stop work order. This concern stemmed from our review of an NRC investigation report and notice of violation arising from an investigation of the electrical area initiated by NRC in October 1981,[14] and related findings in an NRC Systematic Assessment of Licensee Performance (SALP) report dated July 13, 1982.[15] In order to consider the significance of some of the unrebutted factual findings in Report No. 81-19 and the SALP report, we admitted for trial the following genuine issues of material fact:

> The existence, cause, severity, duration and extent of an alleged instance in which applicant's quality assurance program failed by not properly controlling its electrical contractors.
>
> Whether the alleged deficiencies in properly controlling electrical contractors extend to the proper control of other contractors.
>
> Whether deficiencies in the control of contractor activities have resulted in unsafe conditions at Perry.
>
> Whether applicant has an adequate system for periodically reviewing its program for assuring the quality of contractor performance and ascertaining and correcting deficiencies that have arisen, particularly in systems essential to safe plant operation.[16]

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[11] LBP-81-24, 14 NRC at 209-12; Memorandum and Order Concerning the Status of Ashtabula County and Objections to the Special Prehearing Conference Order, LBP-81-35, 14 NRC 682, 687 (1981).

[12] *See* Memorandum and Order (Concerning Late-Filed Contentions: Quality Assurance, Hydrogen Explosion, and Need for Increased Safety of Control System Equipment), LBP-82-15, 15 NRC 555, 556, 564 (1982).

[13] Affidavit of James E. Konklin and Cordell C. Williams in Support of Summary Disposition of Issue No. 3, dated October 22, 1982.

[14] *See* letter dated September 27, 1982, James Keppler (NRC) to Dalwyn Davidson (applicant), enclosing Notice of Violation (September 24, 1982) and Investigation Report 50-440/81-19(EIS); 50-441/81-19(EIS) (Report No. 81-19) (Licensing Board Ex. 3).

[15] Memorandum and Order (Concerning Summary Disposition: Quality Assurance, *Corbicula* and Scram Discharge Volume Contentions), dated December 22, 1982, LBP-82-114, 16 NRC at 1915-17.

[16] *Id.* at 1917.

By admitting these four issues, we were required to explore fully the implications of the staff's electrical investigation and findings, and to determine independently whether any significant deficiencies in applicant's QA program were indicated by applicant's performance in the electrical area.

In our Memorandum and Order (Reconsideration: Quality Assurance), dated January 28, 1983 (LBP-83-3, 17 NRC 59), in which we declined to reconsider our December 22, 1982 Memorandum and Order admitting the four issues of fact, we reemphasized that our primary concern was with applicant's QA overview program as applied to Comstock. We noted that we would only consider other specific nonconformances if we found that management's role in QA has been sufficiently suspect to require that we descend to that further level of detail.[17]

B. Prefiled Testimony and Evidentiary Hearing

Pursuant to our Memorandum and Order (Procedural Matters Affecting the Hearing) of April 18, 1983 (unpublished), direct testimony was filed on May 2, 1983, by applicant[18] and the staff.[19] Neither Sunflower nor OCRE filed testimony or presented witnesses on Issue #3.

As indicated in applicant's prefiled testimony, Mr. Edelman is applicant's Vice President, Nuclear Group. As such, he has the overall management responsibility for the Perry Project. The various Perry Project department managers, including the QA manager, report to Mr. Edelman. He has worked at Perry since 1972 in various management capacities. Mr. Edelman was the Perry QA Manager from 1978 to 1981, and in that capacity was responsible for applicant's QA Management response to the February 1978 stop work order.[20] Mr. Leidich, who is an electrical engineer by degree and training, has worked at Perry since 1975 in various quality assurance and engineering supervisory positions. Mr. Leidich also is currently serving as Secretary of the Nuclear Power Engineering Committee (NPEC) of the Institute of Electrical and

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[17] Memorandum and Order (Reconsideration: Quality Assurance), dated January 28, 1983, LBP-83-3, 17 NRC at 65; *see also* Tr. 1465.

[18] "Applicants' Testimony of Murray R. Edelman and Gary R. Leidich on the Cleveland Electric Illuminating Company's Quality Assurance Program for Control of Safety-Related Contractors at Perry Nuclear Power Plant (Issue #3)," dated May 2, 1983, following Tr. 1031 (hereinafter Edelman/Leidich Testimony).

[19] "Testimony of NRC Region III on the Quality Assurance Issues of Fact Contained in the Licensing Board's Order of December 22, 1982," dated May 2, 1983, following Tr. 1568 (testimony of James E. Konklin, Cordell C. Williams, George F. Maxwell, and Max L. Gildner, hereinafter Konklin, *et al.*, Testimony).

[20] Edelman/Leidich Testimony at 2-3, 7-8.

Electronic Engineers (IEEE), and has participated in developing nuclear electrical standards for IEEE.[21]

In their prefiled testimony, Messrs. Edelman and Leidich provided a general description of the staffing and organization of applicant's QA program, an explanation of the procedures followed in applicant's QA overview of contractors, and a discussion of the application and findings of applicant's QA program in the electrical area. In response to a request by the Board,[22] applicant's direct testimony concerning the electrical area was supplemented at the hearing by Mr. Leidich, who presented a detailed month-by-month historical description of applicant's QA overview of Comstock.[23]

The staff witness panel included four NRC regional inspectors, each of whom has had NRC inspection experience at Perry.[24] Mr. James E. Konklin, the lead panel member, is Chief of a Reactor Projects Section in NRC's Region III office, and is responsible for coordinating and controlling the NRC's inspection and enforcement activities at Perry. Mr. Cordell C. Williams, Chief of the Region III Plant Systems Section, supervises NRC electrical inspections at Perry and was directly involved in the electrical investigation, conducted between October 27, 1981 and March 19, 1982.[25] His name appears on Report No. 81-19 as one of the principal reviewers of that document.[26] Mr. George F. Maxwell, currently an NRC Senior Resident Inspector at the Shearon Harris site, was a Region III Quality Assurance Specialist for Construction from 1977 to 1980 and performed ten inspections at Perry during that period. Mr. Max L. Gildner has been the NRC's Resident Inspector at Perry since 1981.

The staff's prefiled testimony summarized the results of NRC inspections performed at Perry since 1978. The testimony provided details of the staff's 1981-82 investigation and findings and discussed the applicant's corrective action in response to Report No. 81-19.

The Board received limited appearances on May 25, 1983, and May 31, 1983,[27] and conducted an evidentiary hearing on May 24-27, 1983, in Painesville, Ohio. We received a site tour of electrical and other areas on June 1, 1983.

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[21] Edelman/Leidich Testimony at 3-5.
[22] Tr. 1006 (Board).
[23] Tr. 1491-1543 (Leidich); *see* Section III.B., *infra*.
[24] Konklin, *et al.*, Testimony at 2-3.
[25] Tr. 1572 (Williams).
[26] Board Ex. 3, Report No. 81-19, at 1; *see* Tr. 1626 (Williams).
[27] We also granted an unscheduled limited appearance on May 24, 1983. Tr. 1134-36.

C. Governing Standards

Applicant's QA program for safety-related work is governed by the criteria in 10 C.F.R. Part 50, Appendix B, of the Nuclear Regulatory Commission's regulations, and by various industry codes and standards.[28] In deciding the issues of material fact we have particularly considered 10 C.F.R. Part 50, Appendix B, Criterion II (Quality Assurance Program),[29] and Criterion XVI (Corrective Action).[30] We are not aware of any Commission regulatory guidance elaborating upon Criterion XVI's requirement that adverse conditions and nonconformances be "promptly identified and corrected," and the parties have identified none.[31] In the absence of such directly applicable guidance, we reject OCRE's suggestion that 10 C.F.R. Part 2, Appendix C, "General Policy and Procedure for NRC Enforcement Actions," is directly helpful to us in interpreting this language.

In the context of the serious problems addressed in Appendix C, "prompt" may be defined as "immediate." However, this use of language in Appendix C is consistent with our view that we should apply a reasonableness test to determine what is "prompt." If a deficiency is serious, particularly if it has immediate implications for ongoing construction, it must be remedied immediately. On the other hand, less serious deficiencies or minor deficiencies in written procedures may be resolved "promptly" in a matter of days or months.

Furthermore, in reviewing a very large number of deficiencies, a reasonableness standard considers the possibility that there will be some laggards in the race to resolution. Providing the laggards do not themselves constitute serious problems, their existence merely confirms the bureaucratic principle that institutions are unable to resolve everything

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[28] Edelman/Leidich Testimony at 12, Attachment 3.

[29] *See* LBP-82-114, 16 NRC at 1914. In that decision, we referenced what we view to be the relevant portions of Criterion II, namely:

> The quality assurance program shall provide control over activities affecting the quality of the identified structures, systems, and components, to an extent consistent with their importance to safety. . . . The applicant shall regularly review the status and adequacy of the quality assurance program. Management of other organizations participating in the quality assurance program shall regularly review the status and adequacy of that part of the quality assurance program which they are executing.

[30] Criterion XVI states:

> Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to appropriate levels of management.

[31] *See* Tr. 1399-1400, 1594-99.

immediately. Small numbers of relatively unimportant laggards are not of themselves a source of serious concern.

In addition, we note that intervenors are required to do more than simply cite deficiency reports (applicant's or staff's) in support of their quality assurance contention. The number of deficiency reports is an ambiguous measure of the success of a QA program. A low number of findings may indicate either an inactive QA program or a very effective one that prevents recurring difficulties. Likewise, a large number of findings may indicate that a QA program is active or that it has failed to prevent the recurrence of deficiencies.[32] Furthermore, were we to pay excess attention to the number of deficiencies, by itself, we might "create an adverse incentive for reporting deficiencies; and this incentive could seriously impact safety."[33]

II. RELATIONSHIP BETWEEN APPLICANT AND COMSTOCK

Applicant presented extensive testimony about its QA overview of Comstock. Some of the testimony described the characteristics of applicant's QA overview program for controlling safety-related contractors, including Comstock and others. Applicant also gave specific testimony on how their overview program covered the electrical area. This included a detailed review of the major QA findings against Comstock and the corrective actions taken by the contractor.

A. Applicant's General Program

Applicant manages the Perry Project through its Project Organization, consisting of all applicant and consultant[34] personnel at the Perry site. There are now approximately 650 applicant and 700 consultant personnel. Contractors are not part of the Project Organization.[35]

Applicant consolidated its entire project organization at the Perry site in 1978 as part of a major corrective action program put into effect following the 1978 stop work order.[36] The Board finds that the post-1978 management changes, devised by the applicant and the staff, reflect significant organizational improvements.

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[32] LBP-81-24, 14 NRC at 211.

[33] *Id.*

[34] The consultants provide specific expertise or short-term support to applicant. They are "integrated" into the Project Organization. Edelman/Leidich Testimony at 11.

[35] *Id.* at 7.

[36] *Id.* at 8-9, 15-16.

Mr. Edelman presides over the Project Organization.[37] In this role, he has ultimate project responsibility for the quality assurance program. Mr. Edelman testified as to the close organizational and working relationship between his office and those of other senior applicant executives, including the President. Executive communications were formalized as part of applicant's corrective action following the February 1978 stop work order. Applicant instituted formal monthly vice-president meetings and quarterly management meetings with applicant's Chief Executive Officer and President. In addition, applicant established a special QA advisory group which assists Mr. Edelman on key program issues.[38] Also, since 1978 the Perry Quality Assurance Manual has contained a policy statement signed by applicant's President, which describes and commits applicant to a strong, independent QA program for Perry.[39]

The Board concludes from this uncontradicted evidence that applicant's most senior management has been thoroughly involved in the management of the Perry Project, and in particular the quality assurance program. We believe that this type of senior management involvement is a prerequisite to the successful implementation of a nuclear quality assurance program.

Applicant's direct testimony described the organization and staffing of the Perry Quality Assurance Department, the QA systems used by applicant for controlling contractors, and the applicant's management tools used for periodically reviewing the effectiveness of the QA program.[40]

Applicant's Nuclear Quality Assurance Department is headed by the QA Department Manager. He reports to the Vice President, Nuclear Group (Mr. Edelman) and has organizational status and authority equal to that of the managers of the construction, engineering, and operations departments. Under the QA Manager are various QA sections headed by applicant's general supervisors. One of these is the Construction Quality Section (CQS), which has the direct responsibility for QA control of construction contractors such as Comstock. CQS is divided by discipline into four units, one of which is the CQS electrical unit. Separate from CQS is the Quality Auditing Unit, which is responsible for internal audits of the Project Organization as well as contractor audits.[41]

Since 1978 applicant's QA Department has grown from fewer than 50 to approximately 200 personnel. The CQS electrical unit has grown from 2 in 1977 to 12 currently. Applicant's personnel perform "second-line"

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[37] A number of applicant's project management officials (including Mr. Edelman) have significant prior project QA experience. *Id.* at 10-11.

[38] *Id.* at 7-8, 15-16, 23-24.

[39] *Id.* at 14, and Attachment 3.

[40] *Id.* at 8-15, and Attachment 2.

[41] *Id.* at 8, 16, 18-19, and Attachment 2.

surveillance and inspection. "First-line" inspection is performed by the contractors' QA/QC personnel, who currently number in excess of 300. Applicant's QA force has been increased when construction activities have increased. Applicant presented uncontradicted evidence that Perry has one of the largest nuclear plant QA departments in the country, and that as of June 1982 it had the best (lowest) ratio of craft to quality assurance/quality control (QC) personnel of any plant under construction.[42] The QA staff has a large number of certified inspectors and auditors. The rate of turnover of personnel has been low. Mr. Edelman attributed this to applicant's salary structure, to training and promotion of inspectors, and to applicant's success in attracting experienced personnel with local ties.[43] The Board was favorably impressed with the evidence applicant presented regarding applicant's overall QA staffing and organization.

Applicant's QA oversight of individual safety-related contractors begins with detailed reviews of the contractor's written QA program and procedures, which must conform to applicant's QA program. The contractor's program must be approved by applicant before safety-related construction can commence. During construction, applicant continues to review and approve all changes to the contractor's program and procedures.[44]

Applicant's daily oversight of the contractor's QA/QC program implementation is the responsibility of inspectors and quality engineers (QEs) in the Construction Quality Section. The inspectors and QEs are organized by contractor areas, with a responsible QE and supporting inspection staff assigned to each contractor. The inspectors spend 85 to 90% of their time in the field overseeing and inspecting the contractor's QA/QC work. The extent of field surveillance and inspection is intended to be related to the safety significance of the activity, the level of construction activity, previous contractor performance, and the extent to which a new type of work or procedure is involved. The inspection results are reviewed by the responsible QE, who also performs "process audits" in specified areas, as well as other ongoing QA program and procedure reviews. The responsible QE participates with a design engineer and contractor administrator on a "contract team," which meets regularly to review the status of the contractor's program.[45]

Applicant's QA program uses formal documentation/close-out mechanisms, including nonconformance reports (NRs), observation/

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[42] *Id.* at 9, 17, Tr. 1045-54, 1215-17 (Edelman).
[43] Edelman/Leidich Testimony at 9-10, 19.
[44] *Id.* at 13, 19-20.
[45] *Id.* at 9, 16-19, 22; Tr. 1077-83, 1118 (Leidich and Edelman).

surveillance or audit action requests (ARs),[46] corrective action requests (CARs),[47] and stop work notifications (SWNs). Each is recorded by the initiating inspector or auditor, and tracked through the system until closeout. Each applicant and contractor NR is entered into a central, computerized NR tracking system and monitored by an NR coordinator in applicant's QA Department. Applicant's testimony documented the number of NRs, ARs, CARs, and SWNs issued to date in the electrical area, and the total number of such documents issued to all safety-related contractors.[48]

Applicant uses a number of different periodic review mechanisms to overview its formal daily inspection and corrective action program. CQS prepares monthly performance analysis reports (PARs) discussing individual contractor performance. These are based on quantitative information collected by the responsible QEs. Significant PAR information is passed up applicant's management chain.[49]

Of central importance to applicant's QA overview program are quarterly reports[50] prepared by the QA Department manager. These reports, which were a response to applicant's 1978 QA difficulties, provide summaries of contractor QA performance for the quarter. The reports are reviewed at quarterly Chief Executive meetings.[51]

The Quality Assurance Advisory Committee (QAAC), composed of senior CEI managers, the corporate QA managers for applicant's consultants, and an outside QA consultant, separately reviews site QA reports and conducts first-hand reviews as part of applicant's overview program. The QAAC then consults with and advises applicant's Vice President, Nuclear Group, regarding its findings.[52] Mr. Maxwell of the staff indicated that the QAAC was not established in response to an NRC requirement; however, he believes that the committee has been beneficial to the Project.[53]

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[46] When applicant QA personnel identified programmatic or procedural deficiencies not involving plant "hardware," these are documented by CQS personnel as observation or surveillance ARs, or by the Quality Auditing Unit as audit ARs. The Quality Auditing Unit is responsible for the tracking and follow-up of all ARs. A computerized tracking system is used for this purpose. Each Unit is responsible for closing out ARs which it generates. Edelman/Leidich Testimony at 21.

[47] If in reviewing an AR the unit that generated it determines that a serious programmatic problem is involved, that unit changes the AR to a CAR. The purpose of the CAR is to assure that the problem receives increased management attention. All open CARs are identified to applicant's managers and the Vice President, Nuclear Group, on a monthly basis. *Id.*

[48] *Id.* at 20-21; Tr. 1076-77, 1116-22 (Leidich and Edelman).

[49] Edelman/Leidich Testimony at 23; Konklin, *et al.*, Testimony at 20-21.

[50] Assessment of Quality Assurance Program Effectiveness for the Perry Nuclear Power Plant, First Quarter 1979 – First Quarter 1983 (Licensing Board Ex. 2), identified at Tr. 1256, received at Tr. 1259.

[51] Edelman/Leidich Testimony at 16, 24; Tr. 1074-75; Konklin, *et al.*, Testimony at 21.

[52] Edelman/Leidich Testimony at 16, 24; Konklin, *et al.*, Testimony at 22.

[53] Tr. 1781-83 (Maxwell).

Another aspect of applicant's QA overview is its formal auditing program. Applicant created the Quality Auditing Unit in 1980 as an independent QA Department unit reporting directly to the QA Department Manager. This replaced the former auditing arrangement, under which audits were performed by the CQS QEs, along with their other responsibilities. The auditing unit conducts annual audits of safety-related contractors, as well as periodic internal audits of the Project Organization's QA program implementation.[54]

These reviews collectively constitute applicant's periodic review system. Applicant emphasized that its overview mechanisms are not intended to substitute for the formal inspection and corrective action system (*i.e.*, the NR/AR/CAR/SWN system). Further, applicant stressed that periodic QA reports are principally for highlighting problem areas, rather than for detailing program areas that are working well.

In response to a Board inquiry, Mr. Leidich illustrated how applicant's QA process is applied, using the example of electrical cable pulling. The first step described was the pre-pull walkdown inspection of the cable tray or duct bank. Its purpose is to examine for any obstructions that might damage the cable during the pull. In addition to the contractor's pre-pull inspection, applicant may formally identify to the contractor a mandatory hold or witness point to enable applicant's QA/QC personnel to perform a second line inspection prior to cable pulling.[55] The contractor must perform 100% coverage of all cable-pulling activities. If the pull is complex, applicant would also perform surveillance over all pulling activity. This decision would be made by the QE, and would be reviewed by his QA management, including in some cases the QA Department Manager. Both the contractor's and applicant's inspectors prepare inspection reports of their activities, and formally document any deficiencies that are found. That documentation is then reviewed by applicant's QE, and ultimately becomes part of the project's permanent quality records. The QE then prepares reports, generally on a weekly basis, of the status of cable installation activities, including performance evaluations of the contractor. These reports go to the CQS supervisor and then to the QA Department Manager. Information in these reports then is conveyed to senior management through the previously described reporting system.[56]

For each of the inspection steps, there are detailed work and inspection procedures. These procedures receive thorough reviews by applicant design and quality engineers prior to being accepted for use. The indi-

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[54] Edelman/Leidich Testimony at 18-19, 25.
[55] *See, e.g.*, Tr. 1509 (Leidich).
[56] Tr. 1085-89, 1096-97 (Leidich).

vidual inspectors are responsible for documenting compliance with applicable work and inspection procedures.[57]

During the actual cable pull, dynamometers are attached to the cable. These register cable tension during the pull and are read by inspection personnel to assure that the tension is within pre-specified limits. Although the manufacturers' engineering values for cable tensions are conservative[58] any overtensioning is documented on an NR, which then receives engineering review. If over-tensioning occurs, the design engineer may direct that the cables be scrapped or may determine that the cable may be used as is. To determine that a cable may be used as is, a design engineer may perform additional calculations or may consult with the manufacturer concerning the need for additional tests.[59]

Mr. Leidich also described post-pulling inspections. These include meggering tests performed by the contractor's inspectors. Their purpose is to measure for possible cable insulation deficiencies that may have been caused by faulty pulling procedures. After the completion of these tests, the cable is turned over to applicant's inspectors, who perform a review of all documentation. This assures that any deficiencies are properly identified and corrected prior to turnover. At the completion of this second level of review, applicant's nuclear test section performs another review of the cable system, which may include another meggering test. This would be followed by preoperational testing.[60]

In addition, cable pulling is covered by applicant's formal audit program. Audits are performed at least annually and may be performed more often in specified areas, particularly when there is a concern over contractor performance. There may also be increased auditing when a new work activity begins. Audit checklists are used by the auditors, with input from the quality and design engineers.[61]

The staff's direct testimony described the staff's construction inspection program for Perry, and provided a summary of the staff's inspection findings since the beginning of the project. The NRC reviews applicant's written QA program and procedures, as well as those of the contractors. The staff observes, on a sampling basis, the construction and QA activities at the site. This is followed by a review of QA records. The staff's inspections are intended to assure that the Perry QA program is identifying and requiring correction of significant deficiencies.[62] In addition to the

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[57] Tr. 1094-96, 1099 (Leidich).
[58] Tr. 1097-1104 (Leidich).
[59] Tr. 1107-08 (Leidich).
[60] Tr. 1104-07 (Leidich).
[61] Tr. 1089-93 (Leidich).
[62] Konklin, *et al.*, Testimony at 4-5.

staff's routine inspection program, the staff evaluates and investigates allegations and performs special team inspections by regional or headquarter groups such as the Regional Construction Assessment Team (CAT) review performed at Perry in July and August 1982.[63]

From July 1978 to April 1983, the staff spent over 6000 inspector hours on inspections at Perry. The staff conducted 95 inspections and identified 64 noncompliances. There were thirteen noncompliances issued in the electrical area. The total number of noncompliances at Perry was average for construction sites in Region III. The noncompliances identified were not serious, as defined under NRC enforcement policy guidelines. During this period, the staff issued no enforcement orders and imposed no fines.[64] The NRC's 1982 CAT investigation required 464 inspector-hours and included, among other things, a review of applicant's QA overview program, corrective action systems, in-process inspections, and inspector effectiveness. The CAT review concluded that applicant's QA program appeared to be satisfactory.[65] Three NRC Systematic Assessment of Licensee Performance (SALP) reports, covering July 1979 through September 1982, made similar findings about the acceptability of applicant's overall regulatory performance.[66]

When the staff has identified deficiencies, it has considered applicant's corrective actions to be effective. Indeed, Mr. Cordell Williams, who impressed the Board with his candor and concern for the public safety, stated that applicant "tends to go further" than required and is "extraordinarily responsible across the board."[67] Staff witnesses further testified that in their view, all deficiencies identified by the NRC at Perry either have been or will be corrected, so that no unsafe conditions will exist at the time of fuel load or operation.[68]

The staff's prefiled testimony also discussed applicant's QA overview system and stated that the system is adequate to assure the quality of contractor performance, including the identification and correction of

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[63] *Id.* at 5-6.

[64] *Id.* at 6-7, 9.

[65] *Id.* at 10.

[66] *Id.* However, the staff did rate the Perry electrical area "below average" in the 1982 Perry SALP report (SALP 2). The rating was based on the findings of the staff's 1981-82 investigation. *Id.* To avoid a double penalty for findings of Report No. 81-19, and because of the corrective action under way, the staff did not rate the electrical area in the SALP 3 Report. Tr. 1588-89, 1780 (Konklin), 1834-35 (Williams). Staff witnesses testified that during the SALP 2 period seven plants were rated in the electrical area and four of the seven received below average ratings. Tr. 1794 (Konklin). *See* Section V, *infra.*

[67] Konklin, *et al.*, Testimony at 23-24. Tr. 1672 (Williams). *See* Section V, *infra.*

[68] Konklin, *et al.*, Testimony at 27.

any construction deficiencies.[69] The staff testified that it does not believe there has been a loss of control of Comstock or other site contractors by applicant.[70]

The Board has considered the evidence presented[71] concerning the effectiveness of applicant's general QA overview program. Based on this evidence, we find applicant's general program to be an acceptable one. We conclude that applicant's program is comprehensive and provides appropriate assurance that significant construction deficiencies have been and will be identified and corrected, thereby minimizing the likelihood of unsafe conditions at the plant.

B. Chronology of Applicant's Electrical QA Program

Applicant's prefiled testimony summarized applicant's initial selection and QA review of Comstock in 1977, and then discussed applicant's principal QA findings against Comstock, and corrective action taken, since the time Comstock began its work at Perry.[72] At the commencement of the hearing, the Board requested a more detailed "play-by-play" discussion of applicant's overview program in the electrical area.[73]

Applicant answered the Board's request with a detailed presentation by Mr. Leidich.[74] In response to our recommendation,[75] applicant's proposed findings of fact and conclusions of law provided a matrix listing some of the major areas covered by Mr. Leidich's presentation, with accompanying record citations. The matrix summarizes by quarter the number of applicant audits, applicant and Comstock stop work orders, and NRC inspections in the electrical area, and records Comstock QA and craft levels, and selected electrical construction completion levels discussed by Mr. Leidich. Although Mr. Leidich's presentation was prepared on short notice, it provided relevant information that we believe adds weight to applicant's and staff's other testimony. As the matrix

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[69] *Id.* at 20-24. The staff's testimony discussed the applicant's "self-initiated" Institute of Nuclear Power Operations (INPO) evaluation, which found applicant's QA overview program to be satisfactory. *Id.* at 74, 26. At the hearing Mr. Edelman explained the scope of the INPO review, which evaluated applicant's QA program as well as other areas of the project. Applicant entered INPO QA findings on applicant's AR tracking system to assure proper closeout of the programmatic and procedural findings in the Report. Tr. 1260-65, 1400-06, 1485-86 (Edelman).

[70] Konklin, *et al.*, Testimony at 10-14, 25-26.

[71] Sections III.B, IV and V, *infra*, focus on the specific application of the program with respect to Comstock.

[72] Edelman/Leidich Testimony at 26-32.

[73] Tr. 1006-08 (Board).

[74] Tr. 1489-1551 (Leidich).

[75] Tr. 1490 (Board).

reflects, Mr. Leidich documented frequent applicant audits and NRC inspections of the electrical area before and after the staff's 1981-82 investigation. As of September 1981 (*i.e.*, just prior to the commencement of the NRC's 1981-82 investigation), applicant had already conducted forty-six audits of Comstock.[76]

After the initial preparation, in 1974 and 1975, of the specification for the electrical work at Perry, including an "attachment specification" describing electrical QA requirements, applicant in 1976 prepared a prospective bidders list with input from applicant's QA Department. Applicant held meetings with prospective bidders in 1976 and early 1977, and established a qualified bidders list in March 1977. Later in 1977 applicant conducted contractor interviews and site visits and reviewed contractor proposals. In October 1977 applicant conducted a pre-award QA survey of Comstock at Comstock's corporate headquarters, and at the Fermi-2 nuclear site in Michigan where Comstock was performing electrical work, including quality assurance.[77] Applicant awarded Comstock the electrical contract in November 1977.[78]

Applicant's post-award QA review of Comstock procedures began in December 1977. Between December 1977 and October 1978, applicant and Comstock developed Comstock's program and procedures. No safety-related installation work was performed during this period.[79] Applicant's February 1978 stop work order had no direct effect on Comstock since Comstock was not performing work in the field; however, applicant did upgrade the electrical QA attachment specification as part of applicant's overall corrective action program following the stop work order.[80]

In October 1978, Comstock commenced its first safety-related activity with the installation of duct banks and manholes.[81] As summarized in applicant's prefiled testimony, safety-related work performed until mid-1980 in the electrical area was primarily underground cable ductwork, cable tray hanger installation, and field placement of equipment. Few complex electrical installations were completed during this period. For example, less than 1% of the safety-related conduit had been installed as of mid-1980.[82]

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[76] Tr. 1539 (Leidich).

[77] Tr. 1286, 1491-93 (Leidich).

[78] Originally, Comstock was to perform the electrical and QA work, and the major part of the construction as part of a joint venture. The joint venture was dissolved in mid-1980. *See* Edelman/Leidich Testimony at 25-26.

[79] Tr. 1493-98 (Leidich).

[80] Tr. 1495 (Edelman).

[81] Tr. 1497-98 (Leidich).

[82] Edelman/Leidich Testimony, Attachment A.

Mr. Leidich's presentation provided details which demonstrated to the Board that applicant was providing close QA overview of Comstock's activities during this 1978-1980 period.[83] In 1979 alone, applicant conducted thirteen audits of Comstock covering numerous aspects of Comstock's program.[84] This suggests to the Board close involvement in Comstock's activities by applicant. In 1978, 1979, and the first half of 1980, applicant was identifying deficiencies and achieving corrective action with regard to Comstock's QC staffing, electrical cable separation criteria, timeliness of audit closeouts, the need for procedure clarifications, and other areas.[85] The evidence indicates that applicant was adequately aware of Comstock's activities during this period.

Applicant testified that as the more complex electrical installation work increased in the last half of 1980, applicant shifted the emphasis of its QA overview from program and procedure development and review, to surveillance of procedure implementation and field installation activities. During this time, applicant documented Comstock conduit installation problems and took corrective action. Comstock increased and better defined its in-process inspections, and applicant stepped up its installation surveillance.[86] With the benefit of this intensified QA/QC effort, applicant identified a trend of Comstock misinterpretations of drawings and specifications and directed corrective action, including increased craft training.[87]

In September 1980, as a result of an internal CAR, Comstock began an extensive program for upgraded craft training, which has continued to the present. Also in the last half of 1980, applicant continued to press Comstock to increase its QA/QC staffing for upcoming work.[88] In October 1980,[89] applicant met with the President of Comstock and discussed the importance of hiring additional QA/QC staff.[90] Mr. Leidich testified that there was a substantial industry shortage of qualified electrical inspectors in 1980 and 1981, and that Comstock was actively recruiting for inspectors during that period.[91] In November 1980, applicant participated in Comstock craft training sessions. In December, applicant audit-

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[83] Tr. 1497-1510 (Leidich).

[84] Tr. 1500-06 (Leidich).

[85] Tr. 1497-1512 (Leidich).

[86] Edelman/Leidich Testimony at 27.

[87] *Id.* at 27-28.

[88] Mr. Leidich testified that although the inspector/craft ratios were satisfactory in late 1980 and early 1981, applicant was "trying to get the contractor out in front of the installation" in anticipation of 1981 installation activities. Tr. 1512-13, 1519 (Leidich). *See* Tr. 1620 (Williams).

[89] Memorandum and Order (Concerning Scheduling), September 16, 1982 (unpublished), at 3; Tr. 1868-72.

[90] Tr. 1511-13 (Leidich).

[91] Tr. 1513-14, 1521-22 (Leidich); Edelman/Leidich Testimony at 28. *See* Tr. 1645-46, 1855-56 (Williams).

ed Comstock's craft training program and identified areas for improvement.[92]

Comstock did increase its QA/QC staff throughout 1981 in response to CEI's requests; in addition, applicant increased its field surveillance and conducted additional audits of Comstock's surveillance activities and nonconformance system. Mr. Leidich discussed ten applicant audits of Comstock that were conducted in 1981 prior to the commencement of the NRC's 1981-82 investigation. In addition to addressing Comstock's surveillance and NR system, applicant's audits of Comstock reviewed such areas as inspector qualifications, certifications and training; Comstock internal auditing; corrective action documentation; craft training; and the overall implementation of Comstock's QA program. Applicant was identifying procedural deficiencies, and corrective action was being implemented.[93]

Based on the foregoing, the Board concludes that applicant's QA program was actively overviewing Comstock's QA program for the period prior to the commencement of the NRC Staff's 1981-82 investigation. Applicant was identifying deficiencies and requiring appropriate corrective action. Almost all the deficiencies appear to be procedural and not to be significant construction errors. Applicant apparently reported to the NRC and adopted appropriate remedial actions for each instance where items of potential safety significance were detected.[94]

Although intervenors had an opportunity to undertake broad discovery and to cross-examine applicant on its testimony, they have not raised any doubts about the handling of individual deficiencies and have given no specific reasons for doubting the adequacy of the overall pattern of quality assurance activities. There is no reason to believe that the quality assurance program ever was inadequate to detect and correct unsafe conditions.

In November 1981, applicant ordered that Comstock stop safety-related cable pulling. Applicant's witnesses testified that the stop work notification was issued because of the accumulation of Comstock procedural deficiencies and because of concerns raised by a joint NRC/CEI observation at the beginning of safety-related power duct bank cable

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[92] Tr. 1514-15 (Leidich).

[93] Tr. 1518-27 (Leidich); Edelman/Leidich Testimony at 29. In August 1981, at the beginning of its cable termination activities, Comstock itself issued several internal stop work orders as a result of procedural difficulties with the terminations. Tr. 1525 (Leidich).

[94] Applicant filed 10 C.F.R. § 50.55(e) reports in January 1980 (cable tray and conduit hanger gusset plates), Tr. 1506-07; September 1981 (cable tray splice bolt torquing requirements), Tr. 1525-26; October 1981 (cable tray mounting devices), Tr. 1527; and December 1981 (attachment welds on safety-related switchgear), Tr. 1528-29 (Leidich); *see* Tr. 1543-48 (Leidich).

pulling.[95] Applicant required Comstock to review thoroughly its safety-related cable-pulling program and procedures before it lifted the stop work order in January 1982.[96] Applicant subsequently issued stop work notifications against Comstock in December 1981, regarding electrical terminations; in February 1982, regarding techniques for nondestructively examining welds; and in March 1982, regarding potential flammability of motor control center materials.[97]

Mr. Leidich discussed twenty applicant audits of Comstock in 1982. These covered a variety of areas, such as cable tray and conduit installation; raceway separation criteria; corrective actions on cable pulling; document control; storage and maintenance; applicant's annual 18-criteria audit under 10 C.F.R. Part 50, Appendix B criteria; and a follow-up audit to the 18-criteria audit.[98] In addition, applicant issued five corrective action requests to Comstock during 1982.[99]

In 1982 applicant also established a hold point for closeouts of all Comstock NRs,[100] requiring Comstock, prior to closing out any NR, to formally notify applicant QA/QC personnel, who would then review the proposed closeout.[101] In June 1982, as part of Comstock's significant steps to upgrade training, Comstock held craft training workshops in conjunction with the National Electrical Contractors Association and the International Brotherhood of Electrical Workers. The workshops emphasized conduit installation and cable-pulling requirements and reviewed applicable QA requirements.[102] Between January 1981 and July 1982 Comstock gave approximately 15,000 person-hours of training to its craft and QA/QC personnel.[103] Applicant's QA overview continued on an intensive basis in early 1983.[104]

The Board concludes that applicant conducted an intensive QA overview of Comstock from late 1981 through early 1983, and that applicant adequately controlled Comstock's work. Applicant conducted a steady stream of reviews, including at least 25 audits; and took significant corrective action steps during this period, including issuing 4 stop work notifications against Comstock. There is evidence demonstrating that Comstock undertook major corrective action in response to applicant's

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[95] Edelman/Leidich Testimony at 29; Tr. 1527-28 (Leidich).
[96] Edelman/Leidich Testimony at 29; Tr. 1532 (Leidich).
[97] Tr. 1529, 1532, 1534-35 (Leidich).
[98] Tr. 1534-41 (Leidich).
[99] Tr. 1532-33, 1535, 1538-39 (Leidich).
[100] Tr. 1540 (Leidich).
[101] *See* Tr. 1085 (Leidich).
[102] Edelman/Leidich Testimony at 32; Tr. 1537 (Leidich).
[103] Edelman/Leidich Testimony at 28; Tr. 1538 (Leidich).
[104] Tr. 1541-42 (Leidich).

involvement, particularly in the area of QA/QC staffing, and QA/QC and craft training. We note that Comstock's QA/QC staff almost doubled in this period, and that the current ratio of craft to QA/QC is approximately 3 to 1, which indicates close Comstock QA/QC coverage of the work in progress.[105]

III. TIMELINESS OF CORRECTIVE ACTION

The Board received evidence concerning the closeouts of NRs, ARs and CARs. This was an item of initial concern to us in light of statements in Report No. 81-19 and the July 13, 1982 NRC SALP Report which suggested that electrical problems at Perry were not being promptly identified and corrected. Preliminary findings from the Staff's 1982 SALP Report stated:

> Taken individually these findings may not represent major problems, but collectively they reveal deficiencies in the implementation of the quality assurance program in that *problems are not identified and corrected in a timely manner.*[106]

Thereafter, the Staff's September 27, 1982 letter transmitting Report No. 81-19 to applicant stated:

> We are concerned that even though your continuing assessment of the electrical contractor's performance showed degradation of the quality assurance program, you *failed to investigate in a prompt manner* the elements contributing to the poor performance *and require adequate corrective action* to upgrade the program.[107]

Specifically with respect to applicant's corrective action system, Report No. 81-19 at 92-93 discussed a staff review of Comstock responsiveness to applicant audit findings issued between November 1978 and December 1981. That review disclosed "what appeared to be L.K. Comstock's poor performance in closing out applicant audit findings."[108]

Applicant and staff presented extensive testimony concerning the timeliness of Comstock's corrective action in response to NRs, ARs, and CARs issued in the electrical area.

With respect to nonconformances, applicant's prefiled testimony indicated that applicant and Comstock have issued approximately 2000

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[105] Edelman/Leidich Testimony, Attachment A.
[106] SALP 2 Report at 7 (emphasis added). *See* LBP-82-114, 16 NRC at 1916.
[107] Licensing Board Ex. 3, NRC letter to applicant dated September 27, 1982, at 1 (emphasis added).
[108] Licensing Board Ex. 3, Report No. 81-19, at 93.

NRs in the electrical area.[109] Mr. Edelman testified that 240 of the NRs are still open.[110] NRs must be resolved before the plant can go into operation; however, applicant's practice has been to attempt to obtain disposition of NRs within 30 days and to track the status of all nonconforming conditions open longer than 30 days.[111]

Mr. Edelman testified that the timeliness of corrective action implementation depends, in part, on factors such as the type and phase of construction in the area and the projected time for turnover of the item involved.[112] Mr. Edelman stated that the most important QA consideration with respect to open NRs is to have an adequate system to track and identify the status of every NR, and that applicant's NR tracking system accomplishes that purpose.[113] Mr. Edelman also presented uncontradicted testimony that applicant's reviews and audits have not identified an undue delay in the closeout of NRs.[114]

No timeliness problems in connection with the closeouts of NRs were cited by staff witnesses. Mr. Konklin testified that in order to apply the timeliness requirements of 10 C.F.R. Part 50, Appendix B, Criteria XVI, a judgment must be made based on a number of considerations, such as the type of item, the significance of the deficiency, the stage of construction, whether the item would become inaccessible due to construction in the near future, and the hold points that might be involved in the work.[115] Mr. Maxwell testified that IEEE-336 requires applicant to resolve unsatisfactory conditions before operating a system.[116]

Based on the evidence, it is clear to the Board that the closeout of NRs has not been a problem. The intervenors have not raised any serious doubts about the adequacy of the closeout systems. The Board is entirely satisfied that applicant's system is closely tracking the status of NRs at Perry, and that nonconformances are being properly closed out in a manner consistent with their safety significance.

The Board and intervenors also inquired extensively into whether Comstock has corrected applicant ARs and CARs on a timely basis.[117]

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[109] Edelman/Leidich Testimony at 20.

[110] Tr. 1356-57 (Edelman).

[111] Tr. 1162-63 (Edelman). The 30-day time for "disposition" refers to review by the design engineer and a decision as to the appropriate type of corrective action to be implemented rather than to the contractor's final implementation of the specified corrective action. Tr. 1167-69 (Edelman).

[112] Tr. 1163-64 (Edelman).

[113] Tr. 1162-64 (Edelman).

[114] Tr. 1164-66, 1168-69 (Edelman).

[115] Tr. 1596 (Konklin).

[116] Tr. 1597 (Maxwell).

[117] ARs and CARs involve procedural or programmatic deficiencies not involving plant "hardware." A CAR is essentially an escalated AR. *See* note 47, *supra*; Tr. 1279 (Leidich); Tr. 1312-14 (Board); and Tr. 1371 (Edelman).

At the hearing, Sunflower's representative and the Board asked applicant's witnesses to address the statements in Report No. 81-19 regarding Comstock's apparent lack of timeliness in responding to applicant audit findings.[118] Messrs. Edelman and Leidich agreed with the Staff's finding at 93 of Report No. 81-19 that there were excessive open ARs against Comstock as of the time the staff's review was conducted.[119] However, applicant had issued a number of CARs and an SWN to Comstock for lack of responsiveness to applicant audit findings.[120] Mr. Edelman and Mr. Leidich also testified that applicant had recognized underlying problems such as Comstock's QA/QC staffing and training, and that applicant took significant steps to address these areas.[121] We have previously concluded that a significant improvement in Comstock QA/QC staffing and training has indeed been accomplished.[122] Mr. Leidich testified that applicant saw improvements in some areas covered by its audit findings and that in other areas there were lingering problems.[123] Mr. Edelman testified that applicant continues to take any action (*e.g.*, upgrading an AR to a CAR or issuing a SWN) it believes is required to get responsiveness from the contractor.[124]

The uncontradicted evidence is that open ARs and CARs are not a current problem with respect to Comstock.[125] Applicant's prefiled testimony stated that applicant has issued 267 ARs against Comstock.[126] Although there was no evidence as to the precise number of current open ARs, Mr. Leidich testified that the long-standing "problem" ARs against Comstock have now been closed out. As to CARs, as of the time of the hearing, applicant had issued eighteen CARs against Comstock. Only two of these (both of which were issued in 1983) remained open as of the hearing.[127] Since the time of the NRC's 1981-82 investigation, applicant has requested Comstock to respond to all ARs and CARs within five days with an appropriate plan and response schedule, which Comstock has done.[128]

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[118] Tr. 1274 (Licensing Board); Tr. 1283 (Hubbard).
[119] Tr. 1278-79, 1363-64 (Leidich); Tr. 1371 (Edelman).
[120] Tr. 1371 (Edelman). *See* Tr. 1308-11, 1507 (March 1980 CAR); Tr. 1527 (November 1981 SWN); Tr. 1535 (April 1982 CAR); Tr. 1374-75, 1538 (August 1982 CAR) (Leidich).
[121] Tr. 1272-79 (Edelman/Leidich); pp. 1383-84, *supra*.
[122] Pages 1385-86, *supra*; *see* Tr. 1369-70 (Leidich).
[123] Tr. 1279 (Leidich).
[124] Tr. 1371 (Edelman). *See, e.g.*, Edelman/Leidich Testimony at 33 (discussing applicant's responses to Comstock's final inspection backlog).
[125] Tr. 1366-68 (Leidich).
[126] Edelman/Leidich Testimony at 21.
[127] Tr. 1867-68 (Silberg).
[128] Tr. 1375-76 (Leidich).

There was testimony by applicant that the acceptable time for closing out ARs depends again on the circumstances.[129] The Board agrees. The fact that an AR is still open does not necessarily mean the contractor has taken no action. Applicant may still be reviewing the contractor's response, or applicant may have a concern over a particular aspect of the response.[130] Further, the mere existence of an open AR cannot be equated to a safety problem. These matters must be examined in context. We would be concerned if it appeared that applicant was not adequately monitoring the safety significance[131] and status of ARs; however, the record indicates otherwise. Applicant's procedural system,[132] and its use of this system to correct problems, in our view reflect a proper degree of involvement and control. Intervenors have not indicated any evidence that casts doubt on this conclusion.

Two overall conclusions follow from the evidence. First, applicant's NR system has achieved the timely identification and correction of nonconforming conditions in the electrical area. Physical conditions of potential safety consequence are being identified and corrected under the formal NR system. Second, applicant's AR/CAR system has also achieved the proper degree of corrective action. ARs have been identifying procedural and programmatic deficiencies as they have arisen. Although Comstock has not always fully addressed applicant's ARs on a timely basis, when tardiness has occurred applicant has escalated ARs to CARs to resolve the issue at hand. Applicant created the CAR system for just such a purpose. At the hearing it did not appear to the Board that AR/CAR escalation has been improper or gives rise to any safety concerns.[133] Applicant has not hesitated to use CARs, or SWNs, when such escalated corrective action has been appropriate. Moreover, there is no evidence that failures by Comstock to address applicant ARs on a timely basis have resulted in unsafe conditions at the plant.

IV. SIGNIFICANCE OF REPORT NO. 81-19 FINDINGS

Report No. 81-19 indicates that on October 27, 1981, Individual *A* made six allegations to Region III concerning specific aspects of Comstock's activities at Perry. The individual asserted that electrical inspectors had been "intimidated" during a meeting, and also alleged that cer-

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[129] Tr. 1290-91 (Leidich).
[130] Tr. 1391, 1394 (Edelman).
[131] Tr. 1313 (Board).
[132] *See* note 46 *supra*.
[133] Tr. 1314 (Board).

tain procedural violations had occurred in the areas of conduit installation, cable pulling, electrical penetrations, and motor control center storage.[134] The staff conducted a thorough investigation and did not substantiate Individual *A*'s allegations.

Because of the staff's overall responsibility for overseeing the quality of construction, its investigation of allegations about Comstock was expanded into a detailed inspection of electrical hardware procurement, drawing control, electrical cable tray installation, electrical and instrumentation hanger installation, and installed switchgear. Between October 27, 1981 and March 19, 1982, six staff representatives spent a total of 711 hours[135] on the staff's investigation and inspection of the electrical area.[136] In the course of its inspections the staff identified nine items of noncompliance[137] and a number of unresolved or open issues. The noncompliances, most of which were procedural,[138] were assigned comparatively low (Level IV or V) severity levels.[139] The inspections identified no significant "hardware" deficiencies. The staff concluded that the noncompliances did not merit a monetary penalty.[140]

The staff's testimony at the hearing was that the electrical construction difficulties identified at Perry "are not very unusual" within Region III.[141] Mr. Williams noted in response to a Board inquiry that nuclear electrical work is "particularly complex," that there are "many attributes that require inspection," and that "there are many opportunities for error to occur."[142] His overall assessment was that, considering the extent of the areas examined, the items of noncompliance reflected in Report No. 81-19 involved "perturbations within what was essentially a sound system."[143] While in the earlier stage of the investigation the staff raised questions concerning Comstock, and urged applicant to stop Comstock's cable-pulling activities, the staff ultimately found that "the great majority of the documentation and the effort was acceptable."[144]

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134 Board Ex. 3, Report No. 81-19, at 6-29.

135 Based on our familiarity with other staff investigations and inspections, and on the staff's figures concerning the total inspector hours expended to date at Perry, we conclude that the Comstock investigation represented a significant commitment of the staff's time and resources. This is relevant in measuring the significance of the staff's findings, since we would normally expect an investigation of this magnitude to identify at least some areas of deficiencies.

136 Board Ex. 3, Report No. 81-19, at 2. *See* Konklin, *et al.*, Testimony at 12.

137 Board Ex. 3, Notice of Violation.

138 *Id.*; *See* Konklin, *et al.*, Testimony at 12-13; Edelman/Leidich Testimony at 30.

139 Board Ex. 3, Notice of Violation; Konklin, *et al.*, Testimony at 13; Tr. 1812-13 (Williams).

140 Tr. 1774 (Williams); *see* Tr. 1817-18 (Williams).

141 Tr. 1794 (Konklin and Williams); *see* note 66, *supra*.

142 Tr. 1795 (Williams).

143 Tr. 1699 (Williams).

144 *Id.*

We do not believe, based on our review of Report No. 81-19 and the uncontradicted evidence presented at the hearing, that the noncompliances in the Notice of Violation raise serious safety concerns. We inquired about cable separation criteria violations (there were eight found by the Staff) and learned that such violations are not uncommon. Mr. Leidich, who is quite familiar with the IEEE standards and industry practice in this regard,[145] testified that "[i]t is clearly not unusual to see that kind of situation, not only at the Perry project but at any project in the United States."[146] Mr. Williams confirmed Mr. Leidich's explanation and conclusions. He stated that "[t]he experiences at Perry in the area of electrical separation have not been unlike those that we have had at every other site in the region over the last 13 years that I have been in Region III." Mr. Williams testified that he was "certain that most of the work was done correctly."[147]

Similar testimony was given regarding the cable-pulling program. The Board asked whether there was any reason to believe that cable pulls were completed by Comstock without adequate testing. Mr. Williams replied that the chance was "very, very small, if in fact it existed at all."[148] Mr. Leidich testified, without contradiction, that cable over-tensioning is not uncommon, particularly where cable is being pulled around a bend.[149] The Board discussed with staff witnesses the various procedures used for testing safety-related cable, and inquired into the engineering reviews and dispositions that have been used at Perry when cable over-tensioning has occurred. We were particularly interested in use-as-is and scrap dispositions. The staff testified that it closely reviews use-as-is dispositions.[150] Mr. Gildner described an instance in which a large safety-related cable had been over-tensioned. Although it passed subsequent engineering tests, it was nevertheless scrapped. Mr. Gildner's conclusion from this and similar episodes was that "this Licensee does tend to take the conservative approach."

We reviewed with witnesses the sequence leading to applicant's November 1981 SWN against Comstock's cable-pulling program, discussed at 13-15 of Report No. 81-19. Applicant's lead electrical QE, and Region III personnel, were jointly observing a duct bank cable pull. They noted deficiencies in the procedures being followed, and applicant issued an SWN which required Comstock to completely review its cable

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[145] Tr. 1544-51 (Leidich); pp. 1371-72, *supra*.
[146] Tr. 1549 (Leidich).
[147] Tr. 1547-56 (Williams).
[148] Tr. 1632 (Board, Williams).
[149] Tr. 1354 (Leidich).
[150] Tr. 1633-44 (Board, Williams, Maxwell).

procedure.[151] Although we do not take lightly the mistakes Comstock made,[152] at the same time we recognize that the incident occurred at the beginning of a new phase of Comstock's work — power cable pulling through safety-related duct banks.[153] These were not recurring problems. The Board concludes that applicant's QA/QC personnel and the staff jointly identified Comstock's difficulties, including both inspection and craft training deficiencies, at the beginning of the work activity. This indicates that applicant was controlling its contractor and was receptive to staff suggestions. The fact that the staff was also present does not cause us to draw adverse inferences regarding applicant's overview of Comstock.[154]

Inquiry by the Board into other technical areas discussed in Report No. 81-19 also failed to disclose serious problems. Mr. Williams testified that noncompliance 5(a)(2) of the Notice of Violation, involving motor control centers, was a procedural problem, "easily corrected," and not surprising. The staff finds "problems like this one at all of our plants when they are at this stage of construction."[155] One of the NRC noncompliance findings, 2(a),[156] relating to an alleged violation of the 270° conduit bend criterion, apparently involved an error of interpretation on the part of the staff.[157]

In our review of Report No. 81-19 prior to the hearing, we were particularly concerned over statements at 94-95, to the effect that applicant had failed to exercise overview and control of Comstock in 1981, and that "CEI had failed to identify the findings of this investigation independent of the NRC." The staff's conclusion in Report No. 81-19 was based on its review of various applicant overview documents showing repeated months of below-standard performance by Comstock in 1981.[158]

We stated, at the summary disposition stage, that we could draw no meaningful inferences from applicant's below-standard ratings of Comstock without a better understanding of applicant's overview program and its implementation. In light of our findings and conclusions regarding applicant's and Comstock's programs, set forth in previous sections of this opinion, we no longer retain a serious concern. In a more perfect world, problems between a licensee and a contractor would be more quickly remedied. However, we have no reason to believe that there are

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[151] *See* pp. 1384-85, *supra*.
[152] Tr. 1661 (Board, Williams).
[153] Tr. 1276, 1283.
[154] Tr. 1659-60 (Williams).
[155] Tr. 1695-1701 (Williams).
[156] Board Ex. 3, Notice of Violation at 2.
[157] Tr. 1668, 1778 (Williams).
[158] Board Ex. 3, Report No. 81-19, at 95.

any safety problems at Perry as the result of this less-than-desirable period for correction. Consequently, we conclude applicant's overview and control of Comstock prior to the Staff's 1981-82 investigation was adequate. Although the Staff has indicated in Report No. 81-19 and SALP 2, as well as in testimony,[159] that Comstock's problems seemed unduly persistent, applicant in its performance ratings of Comstock and its stepped-up audits and surveillance of the contractor, recognized the problems and took adequate corrective action.

Applicant's and staff's prefiled testimony set forth persuasive evidence concerning applicant's positive attitude and actions in responding to the findings of the staff's 1981-82 investigation.[160] Mr. Williams testified that "in nearly every instance, in fact all instances that I can recall, an appropriate corrective action was initiated upon notification by me and/or my inspectors on site."[161] He also testified, in response to a question from OCRE's representative regarding the February 10, 1982 meeting between applicant and Region III on preliminary findings from the Staff's investigation, that

> The Licensee's -- I suppose we are talking about his attitude, if you will, was one of cooperation. He demonstrated professional competence. He demonstrated general willingness to get on with correcting the issues that we mutually agreed needed correcting. He demonstrated a willingness to assist the regulator, to the extent that it was possible, in establishing the status of his activities and by that I simply mean, they were willing to provide all records and as many bodies as we need to track through their system to get things in order.
>
> As I have indicated before -- and perhaps others of this panel have been a benefactor of that to the extent they allowed you to come onto the site and plow through all of the records -- it is an open book. By my experience, and I participated in a number of these, that rarely happens.[162]

The Board concludes from the foregoing that the staff's 1981-82 investigation and inspections disclosed no serious inadequacies in applicant's QA/QC overview and control of Comstock. The noncompliances the staff found were largely procedural. None revealed unsafe conditions in the electrical area. Many of the difficulties were associated with the first phase of a major new work activity, where "start-up" deficiencies may be more likely.

Most of the staff's findings represented problems that are seen at other nuclear plants at similar stages of construction. Moreover, the

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[159] *See, e.g.*, Tr. 1623-24, 1656, 1817 (Williams).

[160] *See e.g.*, Edelman/Leidich Testimony at 30-32; Konklin, *et al.*, Testimony at 15-20.

[161] Tr. 1587 (Williams).

[162] Tr. 1769-71 (Williams). *See* Tr. 1861-62 (Gildner).

staff's investigation and inspections were broad in scope and did not, considering their extent, find a disproportionate number of noncompliances. Of the noncompliances found, all were of a relatively low severity level. Applicant's and Comstock's corrective actions were responsive to the staff findings, sometimes exceeding the strict bounds of the staff's findings. In short, applicant has withstood not only the Staff's thoroughgoing scrutiny but our own.

V. MISCELLANEOUS – ISSUANCE OF PARTIAL INITIAL DECISION

The Board has determined that this Partial Initial Decision should be issued prior to the completion of evidentiary hearings on other issues and that the Partial Initial Decision should be made immediately effective for purposes of appellate review.

The Board's authority in this regard is based on the NRC's Rules of Practice. Appendix A to 10 C.F.R. Part 2 authorizes the Board to hear issues separately and issue separate decisions in those separate hearings.

> The Commission or the Atomic Safety and Licensing Board may consider on their own initiative, or a party may request the Commission or the board to consider, a particular issue or issues separately from, and prior to, other issues relating to the effect of the construction and/or operation of the facility upon the public health and safety, the common defense and security, and the environment or in regard to antitrust considerations. If the Commission or the board determines that a separate hearing should be held, the notice of hearing or other appropriate notice will state the time and place of the separate hearing on such issue or issues. The board designated to conduct the hearing *will issue an initial decision, if deemed appropriate, which will be dispositive of the issue(s) considered* at the hearing, in the absence of an appeal or Commission or Appeal Board review pursuant to §§ 2.760 and 2.762, before the hearing on, and consideration of, the remaining issues in the proceeding.[163]

The Appeal Board has held that a licensing board action is appealable if it "disposes of at least a major segment of the case."[164] There can be no dispute that Issue #3 is a major segment of the case.

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[163] 10 C.F.R. Part 2, App. A, § II(c)(1) (emphasis added).

[164] *Toledo Edison Co.* (Davis-Besse Nuclear Power Station), ALAB-300, 2 NRC 752, 758 (1975). *See also, Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 1), ALAB-696, 16 NRC 1245, 1256 (1982); *Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-690, 16 NRC 893, 894 (1982); *Nuclear Engineering Co.* (Sheffield, Illinois, Low-Level Radioactive Waste Disposal Site), ALAB-606, 12 NRC 156, 160 (1980).

Licensing boards in other proceedings have routinely made partial initial decisions immediately effective,[165] and Appeal Boards have routinely taken jurisdiction over exceptions filed from partial initial decisions.[166] While the Appeal Board might defer briefing of an appeal "so as to avoid piecemeal or concurrent review,"[167] that is a choice which rests with the Appeal Board based on its control of its docket and need not affect this Board's actions.

The Board is, of course, aware of an unpublished Appeal Board order in *Consumers Power Co.* (Big Rock Point Nuclear Plant), dated October 4, 1982, in which the Appeal Board stated that the *Big Rock* proceeding, involving a spent fuel pool license application, did not appear to warrant more than one initial decision. Three partial initial decisions had already issued and the Appeal Board anticipated more. The Appeal Board also deferred briefs on exceptions to one of the decisions and tolled the time for filing exceptions on others. The *Big Rock* order is not applicable here. Apart from the legal principle that unpublished decisions are not generally to be relied upon,[168] the Appeal Board in *Big Rock* was simply observing that in the particular facts involved, numerous partial initial decisions were not warranted. The Appeal Board recognized that "sound management of some proceedings requires the issuance of more than one initial decision" and that NRC regulations "do not preclude the issuance of partial initial decisions."[169] The only criterion stated by the Appeal Board was that partial initial decisions "should dispose of a major segment of the case."[170] Since the quality assurance issue is "a major segment of [this] case" and since a timely appeal decision might avoid an unnecessary delay in this proceeding should more hearings on quality assurance be necessary, we believe that a partial initial decision is appropriate here.

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[165] *See, e.g., Union Electric Co.* (Callaway Plant, Unit 1), LBP-82-109, 16 NRC 1826 (1982); *Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), LBP-82-100, 16 NRC 1550 (1982); *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), LBP-82-55, 16 NRC 225 (1982); *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), LBP-82-3, 15 NRC 61 (1982).

[166] *See, e.g., Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-726, 17 NRC 755 (1983); *Consumers Power Co.* (Big Rock Point Nuclear Plant), ALAB-725, 17 NRC 562 (1983).

[167] *Limerick, supra,* 17 NRC at 759 n.9.

[168] *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-592, 11 NRC 744, 745 (1980) *See also Cincinnati Gas and Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit 1), LBP-82-47, 15 NRC 1538, 1547 (1982) (unpublished order given no weight).

[169] Order at 2.

[170] *Id.*

VI. CONCLUSION

The uncontradicted evidence is that applicant's quality assurance program has provided adequate overview and control of Comstock's activities at Perry, and that applicant's program has prevented, and will continue to prevent, unsafe conditions at the plant. We therefore conclude that there is no serious safety issue that requires us to undertake further inquiry into applicant's QA control of Comstock or other safety-related contractors at Perry.

ORDER

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 2nd day of December 1983,

ORDERED

1. The sole remaining issues of material fact admitted under Issue #3 in this proceeding, concerning the adequacy of applicant's quality assurance program for the control of safety-related contractors at Perry, are found to be without merit and are dismissed.

2. Pursuant to 10 C.F.R. § 2.760(a) this is a partial initial decision that will constitute final action of the Commission forty-five (45) days from the date of issuance unless exceptions are taken pursuant to § 2.762 or the Commission directs that the record be certified to it.

3. Exceptions to this decision or designated portions thereof may be filed with the Commission, in the form required by § 2.762(a), within ten (10) days after service of this decision.

4. To pursue an appeal, briefs in support of a party's objection also must be filed, within thirty (30) days after filing the exceptions (or forty days in the case of the staff of the Nuclear Regulatory Commission). The brief must comply with the requirements of § 2.762.

5. Within thirty (30) days of the service of the brief of the appellant (40 days for the staff), parties may file opposing or supporting briefs or supporting briefs that comply with the requirements of § 2.762(c).

6. Filings that do not comply with the rules governing appeals may be stricken.

THE ATOMIC SAFETY AND
LICENSING BOARD

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Jerry R. Kline
ADMINISTRATIVE JUDGE

Glenn O. Bright
ADMINISTRATIVE JUDGE

Bethesda, Maryland

Cite as 18 NRC 1398 (1983) LBP-83-78

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

John F. Wolf, Chairman
Frank F. Hooper
Gustave A. Linenberger, Jr.

In the Matter of

Docket Nos. STN 50-522
STN 50-523
(ASLBP No. 75-279-08-CP)

PUGET SOUND POWER AND LIGHT COMPANY, *et al.*
(Skagit/Hanford Nuclear Power Project, Units 1 and 2)

December 13, 1983

The Licensing Board grants Applicants' motion to withdraw their application and terminate the proceedings.

MEMORANDUM AND ORDER

Under the date of November 23, 1983, the Applicants (Puget Sound Power and Light Company, Portland General Electric Company, Pacific Power and Light Company, and the Washington Water Power Company) filed a Withdrawal of Application in the above entitled proceeding and a Motion for Order Approving Withdrawal of Application and Terminating Proceeding.

In a letter, dated November 23, 1983, Mr. Robert V. Myers, Vice President, Engineering Operations, Puget Sound Power and Light Company, advised Mr. Nicholas D. Lewis, Chairman, Energy Facility

Site Evaluation Council, 4224 Sixth Avenue, S.E., PY-11, Olympia, Washington 98504, that "our application no. 81-1 for the Skagit/Hanford Nuclear Project is hereby withdrawn . . ."

Chairman Lewis, of the Energy Facility Site Evaluation Council, in a telephone conference, has advised this Board that the Council has received the Notice of Withdrawal of the Application for Site Certification No. 81-1 by Puget Sound Power and Light Company, *et al.*, and will process it in accordance with its regulations.

The NRC Staff in responding to the Applicants' request for withdrawal of the construction permit application and termination of the proceedings stated in part:

> There is no apparent problem with respect to site restoration at the Skagit/Hanford site. The land in question is owned by the Department of Energy (DOE), and the Applicant has an agreement with DOE as to the manner in which the land will be restored. The only work the Applicant performed affecting this land was the digging of certain exploratory trenches and wells. Where DOE does not have a use for these excavations, they are being back-filled. This work is expected to be completed by February 1984.

None of the parties, save the NRC Staff, has responded to the Applicants' Motion for an order approving the withdrawal and termination of the proceedings. There is nothing in the record to show that any party or the public interest will be harmed by granting this motion.

Accordingly, it is

ORDERED

That the Applicants' motion to withdraw the application and terminate the proceedings is granted without prejudice.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

John F. Wolf, Chairman
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 13th day of December 1983.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Peter B. Bloch, Chairman
Dr. Jerry R. Kline
Mr. Glenn O. Bright

In the Matter of **Docket Nos. 50-440-OL**
50-441-OL

CLEVELAND ELECTRIC ILLUMINATING COMPANY, *et al.*
(Perry Nuclear Power Plant, Units 1 & 2)

December 20, 1983

The Licensing Board denies intervenor's motion to reopen discovery.

RULES OF PRACTICE: DISCOVERY

Reasonable discovery deadlines, subject to good cause for subsequent filing of discovery requests, may be established and adhered to. Delay between a deadline and a hearing is not by itself ground for generally reopening discovery.

MEMORANDUM AND ORDER
(OCRE Motion to Reopen Discovery)

Ohio Citizens for Responsible Energy's (OCRE's) November 15, 1983 motion to reopen discovery is denied.

This Board established fair discovery deadlines on certain admitted issues pursuant to guidance given to us by the Commission.[1] This is consistent with the introductory language in 10 C.F.R. § 2.740(b), which permits discovery to be limited by Order of the Board. It also is consistent with Section 2.711, which permits the Board to reduce time limits when there is a good reason to do so.

OCRE admits that "[a]t the times they were imposed, these restrictions were reasonable."[2] However, it feels that the time for hearing is now far removed from what was originally expected and it feels that this constitutes materially changed circumstances requiring us to rethink our previous restrictions.[3]

OCRE's arguments mistake our purpose for limiting discovery. This is potentially a very complex proceeding. New contentions may be admitted for good cause at any time. Even completed decisions of the Board may be reopened. In fact, at this very time OCRE is seeking to admit a new contention and it is also seeking to reopen the hearing record on quality assurance. Under these circumstances, thoughtful hearing management requires that matters that can be completed, be completed, so that they will not interfere with other matters that may arise. Another way of putting this thought is that

> the purpose of a discovery cut-off date is to require a party to complete as much discovery as is feasible before that date. The fact that Sunflower will obtain additional information in the future will permit it to argue that it has good cause for late-filing of interrogatories with respect to that material, providing that the information was not previously available to it.
>
> We will not deprive [a party] of its fair opportunity to seek discovery of matters not previously known to it, but that is not a reason to extend the deadline on matters already known to it.[4]

We have adhered to the principle that additional discovery, beyond discovery deadlines, would be available upon a showing of good cause. In one telephone conference, in August 1982, we stated that, "[t]he Board in setting a target understands that there may be good cause for exceeding these deadlines. We would not expect them to be exceeded

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[1] *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981) at 456 states that "the boards, in consultation with the parties, [should] establish time frames for the completion of both voluntary and involuntary discovery."

[2] OCRE's Motion at 1.

[3] Given the substantial time that has elapsed since discovery has closed, we think it appropriate that applicant file, during January 1984, either an update of its answers or a statement that no update is necessary.

[4] Unpublished Memorandum and Order (Concerning Request to Extend Discovery on Issue #1), dated October 8, 1982, at 1.

without good cause."[5] In another telephone conference, in November 1982, we stated that, "[a]fter considering the arguments, we have decided to set a January 31 cut-off date on initial discovery requests on issues 13 through 15 subject to a showing of good cause for late filing."[6]

Under the circumstances, we are surprised that OCRE was dissatisfied by the seven-day period we permitted for follow-up interrogatories. This is the first we have heard of the difficulty, to which we would have given a sympathetic ear had it been raised in a timely fashion. Although we are aware that discovery responses may be complex, we did not analyze OCRE's problems on these specific matters to determine whether it needed more time. Had we been asked to consider the difficulty of the task, we would have given serious attention to the request. However, even at this time OCRE phrases its problem in generalities, without reference to particular documents or the scope of its problem of analysis and we cannot be sure from this filing whether good cause for an extension of time would have existed had a timely motion been filed.

OCRE's reliance on *Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-196, 7 AEC 457 (1974) is entirely misplaced. The Licensing Board in that case did not exercise its authority to set a discovery deadline applicable to all the parties. Had it set such a deadline, the uncertainty that existed in that case concerning the admission of contentions makes it uncertain whether a deadline prior to the preliminary hearing would have been appropriate. Furthermore, the Board granted *subsequent* discovery to other parties, indicating a lack of reciprocity or fairness in its actions. That case is not instructive here because our deadlines have been reasonably set for all parties and are, and have always been, subject to exceptions for good cause.

There are some possible confusions afloat which we would like to clear up. First, questions asked at a hearing must be relevant and material. A party must be able to explain their relevance. By contrast, discovery may be used to ask questions that may lead to the discovery of relevant material. At the hearing, questions may no longer be asked merely because they may lead to the discovery of relevant material. Second, termination of discovery by a deadline does not prohibit a party from obtaining subpoenas for witnesses or documents to be produced at trial. For example, OCRE might like to assure itself that when it delves into analytical conclusions relied on by another party that witnesses will be unable to plead lack of memory but will be able to refer to the documents from which they formed their opinions. Of course, OCRE will

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[5] Tr. 753.
[6] Tr. 800-01.

have to meet the standards applicable to the issuance of a subpoena and will have to be able to resist a motion to quash, as in the *Zion* case that OCRE cites, but it should not feel that it is precluded from seeking subpoenas by a discovery deadline.

ORDER

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 20th day of December 1983,

ORDERED

Ohio Citizens for Responsible Energy's November 15, 1983 motion to reopen discovery is denied, without prejudice to its filing discovery requests accompanied by a showing of good cause for late filing.

THE ATOMIC SAFETY AND
LICENSING BOARD

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Jerry R. Kline
ADMINISTRATIVE JUDGE

Glenn O. Bright
ADMINISTRATIVE JUDGE

Bethesda, Maryland

Cite as 18 NRC 1404 (1983) LBP-83-80

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Peter B. Bloch, Chairman
Dr. Jerry R. Kline
Mr. Glenn O. Bright

In the Matter of **Docket Nos. 50-440-OL**
50-441-OL

CLEVELAND ELECTRIC ILLUMINATING COMPANY, *et al.*
(Perry Nuclear Power Plant, Units 1 & 2)

December 23, 1983

The Licensing Board admits a late-filed contention concerning the reliability of diesel generators.

RULES OF PRACTICE: LATE-FILED CONTENTION

An intervenor that has demonstrated its ability to contribute to the development of the record on a particular contention need not also promise to provide expert witnesses or outline their testimony.

RULES OF PRACTICE: LATE-FILED CONTENTION

By adopting a schedule for discovery, the Board may minimize the potential for delay of the proceeding and reduce the negative impact of this criterion for late-filing.

MEMORANDUM AND ORDER
(New Contention on Diesel Generators)

Ohio Citizens for Responsible Energy's (OCRE's) September 26, 1983 Motion to Resubmit its Contention #2 (Motion) shall be granted. However, our review of the basis for the contention persuades us that it should be simplified[1] and admitted into this proceeding in the following form:

> *Issue #16.* Applicant has not demonstrated that it can reliably generate emergency onsite power by relying on four Transamerica Delaval diesel generators, two for each of its Perry units.

Although this contention no longer states that a third, independently manufactured diesel generator must be ordered for each of the Perry units, as the submitted contention did state, OCRE will have the opportunity to establish the validity of its contention and to demonstrate what relief may be appropriate, including the addition of a third diesel generator. However, Cleveland Electric Illuminating Co., *et al.* (applicant) will be permitted either to demonstrate the invalidity of the contention or that OCRE's concerns have been resolved by appropriate action, in compliance with 10 C.F.R. Part 50, Appendix B, General Design Criterion 17 and applicable guidance.

I. BASIS FOR THE CONTENTION

Although this contention must meet the five criteria of 10 C.F.R. § 2.714(a)(1) before it is entitled to substantive consideration,[2] we find it useful to discuss OCRE's basis for the contention before we address the late-filing criteria.

The event which triggered the filing of OCRE's motion was the August 12, 1983, failure — during a load test — of the main crankshaft of the #102 Electrical Diesel Generator of the Shoreham Nuclear Power

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[1] The authority to simplify and focus contentions is derived from 10 C.F.R. § 2.714(e).

[2] We need not decide the merits of OCRE's argument that we should admit this contention because applicant obtained dismissal of its Contention 2 (which it is resubmitting) by a misstatement. However, applicant did not conceal any facts. Although its argument may have been somewhat misleading, OCRE had all the information available to it during the special prehearing conference that it has now, since it relies for this argument on FSAR § 8.3.1.1.3.2. OCRE's Motion at 2. We note that the key question for availability of onsite power is whether Perry can achieve safe shutdown. *Compare* OCRE's Motion at 2 to NRC Staff Response to OCRE Motion to Resubmit Rejected Proposed Contention 2, October 6, 1983 (Staff Response) at 4, *citing* SER §§ 8.3.1 and 9.6.3. (Our record is not clear on whether applicant can rely on its High Pressure Core Spray dedicated diesel generators to achieve safe shutdown, even if both the larger diesels are unavailable.)

Station. That event was followed by an inspection of the crankshafts on the #101 and #103 Electrical Diesel Generators, and each of these was found to have "cracks in locations similar to that of the break in the #102 crankshaft." All three electrical diesel generators at Shoreham were supplied by Transamerica Delaval.[3]

OCRE's Motion does not rely entirely on these remarkable events at Shoreham. It relies as well on reported deficiencies in Perry diesel generators, which also are manufactured by Transamerica Delaval. It states that the eleven deficiencies are "harbingers of troubles to come."[4]

Applicant correctly states that the mere listing of deficiencies does not provide a basis for a contention, since the reporting of deficiencies may merely indicate the correct operation of a quality assurance system.[5] However, the Nuclear Regulatory Commission's Staff (staff) has concluded that the crankshaft failure and "many minor problems" in Transamerica Delaval generators constitute an "abnormally high" rate of problems.[6] It also is concerned about the adequacy of the quality assurance program of Transamerica Delaval,[7] and has changed its conclusion about the adequacy of the basis for OCRE's contention, currently concluding that it has a basis.[8]

Furthermore, we note that a number of the problems in Perry's generators appear to be related to design problems. Deficiency Analysis Report (DAR) 044 concerned a problem in the design of the system for lubricating the turbocharger thrust bearings.[9] DAR 079 involved potential leakage of a check valve in a seismic event, and we are unable to tell from the DAR whether a design problem occurred. DAR 081 is a design problem, the choice of a mounting location for the governor lube oil cooler. DAR 083 concerns "inadequate Code Data Reports," and we are unable to tell from the DAR whether or not this may indicate a lack of thoroughness in Transamerica Delaval's application of Code provisions. DAR 089 concerns nonconforming piping welds, but the DAR does not disclose whether this was a design problem or a manufacturing problem. DAR 099 may have resulted from a failure by the designer to consider the clearance that would be necessary for proper installation of a cap

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[3] Staff Response, Attachment E, "Summary of September 2, 1983 Emergency Diesel Generator Meeting," September 21, 1983 at 1.

[4] OCRE's Motion at 4 n.1.

[5] LBP-81-24, 14 NRC 175 at 211. Applicants' Answer to Ohio Citizens for Responsible Energy Motion to Resubmit Its Contention #2, October 3, 1983 (Applicant's Answer).

[6] Darrell G. Eisenhut, "New Information Concerning Transamerica Delaval (TDI) Emergency Diesel Generators, Board Notification 83-160," October 21, 1983 (Board Notification) at 1.

[7] *Id.* at 2. *See also id.* at Enclosure 5 (letter transmitting Notice of Violation).

[8] NRC Staff Supplemental Response (Based upon New Information in Board Notification BN-83-160), October 27, 1983 at 2, 2-3.

[9] For a discussion of these DARs, *see* Applicant's Answer at 12-14 and the referenced attachments.

screw. DAR 101 may have been caused by improper choice of a material. DAR 109 may have occurred because of an improper or incomplete specification of the grade of electrical wiring. DAR 117 apparently resulted from a design failure to comply with the ASME Code provisions governing pipe supports. DAR 139 involves a possible failure to use Class 1E power as required by the regulations.

We note that the serious failure at Shoreham also involved improper design of the crankshafts.[10]

We do not consider it appropriate to consider at this time affirmative defenses raised by applicant in affidavits. Whether or not applicant's quality assurance program has been adequate to detect design or manufacturing problems in the Delaval generators is a matter to decide after discovery has occurred, not before. Furthermore, we do not even have a description of how applicant has attempted to assure the quality of the *design* of the Delaval generators.

We conclude that OCRE has set forth the basis for its contention with sufficient specificity to gain admission of this issue to the proceeding.

II. GOOD CAUSE FOR LATE FILING

After consideration of each of the five factors set forth in 10 C.F.R. § 2.714(a)(1), we find that the balance of these factors weighs in favor of the admission of OCRE's contention.

OCRE filed shortly after the Shoreham incident, which is the kind of event that brings a potential problem graphically to mind and causes wise people to rethink their positions. The event has had that effect on both the staff and on OCRE. The fact that other parts of the jigsaw puzzle of inadequate quality assurance were previously available does not detract from the significance of this new information. OCRE had good cause for late filing.

We find that the second and fourth factors, considered together, also favor OCRE's contention. The Appeal Board recently castigated counsel for another applicant for an unbalanced presentation of an argument that the staff could adequately represent an intervenor's interest.[11] In its decision, the Appeal Board said:

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[10] Applicant's Answer to "NRC Staff Supplemental Response," December 16, 1983 (Turk/Swansiger Affidavit, ¶¶ 5-6).

[11] *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3) ALAB-747, 18 NRC 1167, 1173-77 (1983).

> The annals of NRC adjudications reflect that the position taken by staff on a specific safety or environmental issue (in the fulfillment of its role as the protector of the general public interest) often is at odds with the views espoused by an intervenor seeking to vindicate either its personal interest or its independent perception respecting where the public interest lies. Indeed, it was doubtless in recognition of the potential for such divergence that the Congress elected to provide hearing rights to private citizens and organizations in Section 189 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2239.[12]

We note that applicant's rather novel suggestion that it can adequately represent OCRE's interests was unsupported by authority. We consider this argument to fall *a fortiori* because of the just-referenced authority that the staff, which is responsible for serving the public interest, cannot adequately represent OCRE.[13]

The third factor, the extent to which OCRE may be expected to participate in the development of a sound record, weighs in OCRE's favor. In this instance, OCRE has laid before the Board evidence suggestive of a pattern of design deficiencies. Had this evidence not been brought to us, we would have remained ignorant of the problem. Furthermore, OCRE reached a plausible conclusion about the implications of the Shoreham incident, based on a reasonable interpretation of available evidence, before the staff reached that same conclusion. This represents considerable sophistication and diligence. We recognize that OCRE's greatest drawback as a party is that it has not yet presented any witnesses to this Board and has not made any promises to do so on this issue. This represents a weakness with respect to the third factor, but not a fatal one — particularly because the staff position makes it likely that there may be some divergence of opinion that OCRE may help to develop for the Board.[14]

The fifth factor, broadening the issues or delaying the proceeding, works mildly against admission of this contention. To mitigate the risk of delay of the proceeding, the Board adopts the following filing schedule:

1. Briefs on the regulations and guidance applicable to this issue will be simultaneously filed by January 20, 1984, with replies permitted by February 3, 1984. Service of the brief, but not the reply, should be by express mail.

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[12] *Id.* at 1175. *See also* 18 NRC 1175 n.25: "[I]n cases where there are no other intervenors, the fourth factor may always favor a grant of a late intervention petition."

[13] The staff's argument, Staff Response at 7-9, was addressed directly by the Appeal Board in the WPPSS case, cited above, and we find it to be entirely without merit.

[14] We do not interpret *WPPSS, supra*, to require an intervenor to indicate testimony it will present if it has established its ability to contribute to the record in other ways. *See* the concurring opinion of Mr. Edles, 18 NRC at 1182-83.

2. The last discovery request, subject to good cause for an extension of time or for late filing, must be made by April 6, 1984. Parties should conduct discovery so that all follow-up interrogatories may be filed by that target date.

In light of these actions, designed to manage this phase of the proceeding, the effect of the broadening of the issues and the potential for delay is expected to be minimal.

ORDER

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 23rd day of December 1983,

ORDERED

Issue #16, concerning the reliability of generators supplied by Transamerica Delaval, shall be admitted into this proceeding. The schedule discussed in the memorandum for the filing of briefs and completion of discovery is hereby adopted.

THE ATOMIC SAFETY AND
LICENSING BOARD

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Jerry R. Kline
ADMINISTRATIVE JUDGE

Glenn O. Bright
ADMINISTRATIVE JUDGE

Bethesda, Maryland

Cite as 18 NRC 1410 (1983) LBP-83-81

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Peter B. Bloch, Chairman
Dr. Kenneth A. McCollom
Dr. Walter H. Jordan

In the Matter of

Docket Nos. 50-445
50-446
(Application for Operating License)

TEXAS UTILITIES GENERATING COMPANY, *et al.*
(Comanche Peak Steam Electric Station, Units 1 and 2)

December 28, 1983

The Licensing Board finds that applicant has not demonstrated the existence of a system that promptly corrects design deficiencies and has not satisfactorily explained several design questions raised by the intervenor. The Board suggests the need for an independent design review and requires applicant to file a plan that may help to resolve the Board's doubts.

QUALITY ASSURANCE: DESIGN

Appendix B to Part 50 of the regulations requires that there be a quality assurance system that will promptly identify and correct deficiencies in the design of the plant. Applicant may not delay design review until the plant is nearly complete and claim that it is thereby complying with this regulatory requirement.

QUALITY ASSURANCE: INDEPENDENT DESIGN REVIEW

The Board issues criteria for an independent design review that would satisfy it, including specifications governing the independence and qualifications of the review group, rules assuring organizational independence during the review, reliability measures for the review, sampling concerns, the scope of the review (including in-depth consideration of each of the intervenor's concerns), methods of documenting and presenting findings, provisions for review of findings and provisions for hearings concerning the findings.

EVIDENCE: EXPERT QUALIFICATIONS

Allegations should be responded to in a reasoned manner. General assurances by experts, even if the experts be better qualified, are not satisfactory responses to detailed engineering arguments by a qualified engineer.

EVIDENCE: EXPERT OPINION

A statement by an engineer that a matter need not be considered because of unexplained and otherwise unsupported "engineering judgment" is an unsatisfactory explanation in response to an engineering argument.

RULES OF PRACTICE: FINDINGS OF FACT

Unless the Board has required that arguments be previously filed or disclosed, there is no prohibition restricting a party from making new arguments in findings of fact.

RULES OF PRACTICE: REFERRAL TO THE APPEAL BOARD

Because of the potential expense of complying with an order suggesting the need for an independent design review, the Board expressed a willingness to refer its decision to the Appeal Board. It also established a deadline for motions for reconsideration.

TECHNICAL ISSUES DISCUSSED

U-bolts in pipe supports, cinching down
SA-307 steel in friction connections
U-bolts, local stresses on pipes

Pipe support stability
Stability of pipe supports
American Welding Society Code, applicability to nuclear plant
AWS Code, applicability to nuclear plant
Free-end displacement, pipes and pipe supports
Thermal stresses in pipe supports
U-bolts, failure from overtorquing
Torquing of U-bolts
Over-tensioning of U-bolts, adequacy of field inspection
Field inspection of U-bolt tensioning
Stiff pipe supports
Beta factor for tube-to-tube welds
Recapping of welds
Engineering error, significance of
Calculation error, significance of
Concrete stresses, allowable
LOCA forces on upper lateral restraint beam
Wall-to-wall supports, expansion stresses
Slab-to-wall supports, expansion stresses
Floor-to-ceiling supports, expansion stresses
Expansion stresses, pipe supports
Richmond inserts
Axial torsion, Richmond inserts
Quality assurance, organizational interfaces.

MEMORANDUM AND ORDER
(Quality Assurance for Design)

[The parties are prohibited from informing anyone about the *existence or content* of this Memorandum and Order prior to 12 noon Eastern Daylight Savings Time, December 28.]

The record before us casts doubt on the design quality of the Comanche Peak Steam Electric Station (Comanche Peak), both because the Texas Utilities Generating Company, *et al.* (applicant) has not demonstrated the existence of a system that promptly corrects design deficiencies and because our record is devoid of a satisfactory explanation for several design questions raised by the Citizens Association for Sound Energy (CASE). We suggest that there is a need for an independent design review and we require applicant to file a plan that may help to resolve our doubts.

The concerns that led to this decision were introduced into the proceeding by two engineers, Mark A. Walsh and Jack Doyle, who worked for applicant for a combined total of less than two years. During that time, they acquired doubts that they have brought to the Board's attention. Because of the limited ability of these two individuals to observe deficiencies in such a mammoth undertaking as the construction of a nuclear plant, the failure to provide logical explanations for several of their allegations raises questions about the adequacy of design of the entire plant. The purpose of the plan we are requiring applicant to file is to assist this Board in resolving those questions.

I. APPLICABLE REGULATIONS

It is applicant's position that "Appendix B does not address inadequate designs but rather addresses the conformance of installed hardware and the inspection thereof to the design."[1] We conclude that this position is unacceptable. The applicant and staff, which agrees with it, have adopted a fallacious interpretation of Appendix B, and CASE, while not entirely correct, has urged a more logical interpretation.[2]

We begin by accepting the staff's interpretation of the applicable regulations, up to a point. General Design Criteria 1 and 4, in Appendix A of 10 C.F.R. Part 50 are applicable. In relevant part, with emphasis supplied, they provide:

> Structures, systems, and components important to safety shall be *designed* . . . to quality standards commensurate with the importance of the safety functions to be performed.
>
> • • •
>
> Structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with [design, normal and accident conditions] . . . .

The quality assurance implications of these general design criteria are set forth in NRC regulations: Appendix B to 10 C.F.R. Part 50. We interpret Appendix B to be a sensible, integrated regulatory system for requiring that both the design and construction of a nuclear plant must

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[1] Applicant's Findings at 27.

[2] *Compare* CASE's Proposed Findings of Fact and Conclusions of Law (Walsh/Doyle Allegations), August 22, 1983 (CASE's Findings) at Chapter XXV to NRC Staff's Proposed Findings of Fact in the Form of a Partial Initial Decision, August 30, 1983 (Staff's Findings) at 8-14 and to Applicant's Proposed Findings of Fact in the Form of a Partial Initial Decision, August 5, 1983 (Applicant's Findings) at 18-28 and to Applicant's Reply to CASE's Proposed Findings of Fact and Conclusions of Law (Walsh/Doyle Allegations), September 6, 1983 (Applicant's Reply) at 9, 12-14. (*See also* Tr. 6675-80.)

be scrutinized to assure that all conditions adverse to quality, including design deficiencies, are promptly identified and corrected.

Our tour through Appendix B begins with the Introduction, which provides that an applicant must have a quality assurance plan for *design* and construction of its nuclear plant. We do not consider it fortuitous that design is listed first. Quality assurance for design logically precedes quality assurance for construction, which conforms construction to design. We find that this theme recurs throughout Appendix B.

Criterion I of Appendix B specifies the establishment of "*the* quality assurance program," which shall assure that "*activities* affecting the safety-related functions have been correctly performed." (Emphasis added.) Nothing in this section is limited to construction activities. It encompasses all activities affecting safety, including design activities.

Criterion II requires that the quality assurance program be established "at the earliest practicable time" and that "[t]he applicant shall *regularly* review the status and adequacy of the quality assurance program."[3] This concern about the timeliness of quality assurance is echoed in Criterion XVI, which requires that "conditions adverse to quality [be] . . . promptly identified and corrected." Criterion XVI also contemplates the identification and correction of the causes of significant deviations from quality; it requires the reasonably prompt identification, documentation and correction of deficiencies.[4]

The need for prompt identification of deficiencies is consistent with 10 C.F.R. § 50.55(e)(1), which requires that the holder of a construction permit "shall notify the Commission of each [significant] deficiency found in *design* and construction, which, were it to have remained uncorrected, could have adversely affected the safety of operations of the nuclear power plant. . . ."[5] It is apparent that fulfillment of the obligation to report design deficiencies to the Commission requires that an applicant have an ongoing quality assurance program for design and that its program must have the capacity to spot, track and resolve significant design deficiencies on an ongoing basis.[6]

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[3] Emphasis added.

[4] *See Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 & 2), LBP-83-77, 18 NRC 1365, 1368-69, 1372-73 (1983). (The Board decided that a quality assurance contention should be dismissed on the merits because deficiencies had been corrected in a reasonably prompt manner, considering the seriousness of individual deficiencies and the small number of deficiencies cleared after delays of more than just a couple of months.)

[5] Emphasis supplied. The wording of the section has been abridged to increase its conciseness while still reflecting its intent.

[6] Arguably, § 50.55(e)(1)(ii) is restrictive because it only requires a report of "[a] significant deficiency in *final design* as approved and released for construction . . . ." (Emphasis supplied.) However, "final design" should be interpreted to be consistent with industry usage, reflected in the following definition

(Continued)

The importance of design control also is recognized in Appendix B, Criterion III. The first paragraph of that criterion recognizes that design documents have a commanding place in the quality control system because those documents "include provisions to assure that appropriate quality standards are specified . . ." The first sentence of the third paragraph states that design control measures "shall provide for verifying or checking the adequacy of design."

The fourth paragraph of Criterion III recognizes the "iterative process" for the design of plants. It provides a method for making field changes in design. It states:

> Design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design and be approved by the organization that performed the original design unless the applicant designates another responsible organization.

We interpret this provision as intending to assure that whatever design changes are made be of high quality. Furthermore, that quality, which affects the entire process of construction, was intended to be subject to all the requirements for an ongoing quality assurance program.

We reject the view, propounded by the staff, that "the regulations don't have a time sequence built into them as to when you have to run an analysis."[7] Applicant is incorrect in believing that it is permitted an indefinite period of time to catch errors committed early in the design process because, "in the later stages of design review" it will have highly experienced and capable engineers check the system once again.[8]

It is our view that the regulations require timely identification and correction of errors. We reject the view that the promptness requirement of the regulations applies to construction deficiencies and not to design deficiencies. Such a view necessarily rests on an illogical interpretation of the regulations; it would require us to believe that the Commission sought prompt correction of construction deficiencies, defined as a failure to comply with design documents that are themselves exempt from the need for prompt correction of deficiencies. In that view, quality assurance is a scholastic pursuit not related to the actual quality of the plant. A preferable view is that both construction and design deficiencies

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of "final design" in ANSI N45.2.11-1974, § 1.4: "Approved design output documents and approved changes thereto." Consequently, documents used to construct the plant are final design documents and deficiencies in those documents, as approved and released for construction, are covered by § 50.55 reporting requirements.

[7] Tr. 6676.

[8] Applicant's Findings at 25. *Compare* to ANSI N45.2.11-1974, § 11.5, requiring that "[a]udits should be conducted on a routine basis to establish the adequacy of and conformance to the design quality assurance requirements."

must be identified, reduced to writing, and corrected with reasonable promptness.

II. BACKGROUND

Contention 5 in this proceeding states:

> The Applicants' failure to adhere to the quality assurance/quality control provisions required by the construction permits for Comanche Peak, Units 1 and 2, and the requirements of Appendix B of 10 C.F.R. Part 50, and the construction practices employed, specifically in regard to concrete work, mortar blocks, steel, fracture toughness testing, expansion joints, placement of the reactor vessel for Unit 2, welding, inspection and testing, materials used, craft labor qualifications and working conditions (as they may affect QA/QC) and training and organization of QA/QC personnel, have raised substantial questions as to the adequacy of the construction of the facility. As a result, the Commission cannot make the findings required by 10 C.F.R. 50.57(a) necessary for issuance of an operating license for Comanche Peak.

This contention is very broadly worded and has been broadly interpreted by the Board.[9] We have interpreted it to apply to quality assurance for design of Comanche Peak and also have permitted CASE to raise questions concerning particular design deficiencies alleged not to have been caught by the design control program.

A. Relevant History of the Walsh/Doyle Concerns[10]

On July 28, 1982, Mark A. Walsh made a limited appearance statement in which he expressed a range of concerns about the design of pipe supports for Comanche Peak.[11] Mr. Walsh has a B.S. in Civil Engineering from Wayne State University, Detroit, in 1976 and had five years and three months engineering experience prior to June 18, 1982, when he voluntarily resigned his employment as a group leader in a Comanche Peak technical support group.[12]

Subsequent to his limited appearance, Mr. Walsh appeared as a witness for CASE.[13] Mr. Walsh's written limited appearance statement was identified and admitted into evidence, together with several attachments.[14]

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[9] Tr. 714.
[10] For this section of the opinion we rely in part on Staff's Findings.
[11] Tr. 2712-18.
[12] CASE Exhibit 659A.
[13] Tr. 3074-3188, 3197.
[14] CASE Exhibit 659, 659 A-H, CASE Exhibit 668 (and attachment).

Following conclusion of the July hearing session, CASE requested and the Board issued a subpoena to enable CASE to depose Mr. Jack Doyle, who was described by CASE as having information supporting Mr. Walsh's allegations and otherwise challenging the design of pipe supports at Comanche Peak. Mr. Doyle is a non-degreed engineer with over thirty years of experience in stress, design and field engineering, including about 8.5 years in various aeronautical and aerospace engineering projects. He has spent in excess of three years in the design and analysis of pipe supports and pipe support systems for nuclear plants and has additional experience in the petrochemical and construction industries. He has designed pipe supports by hand (overlapping assumptions) and computer. From August 1981 to June 1982, Mr. Doyle and Mr. Walsh worked for the same pipe support group at Comanche Peak.[15]

Prior to the resumption of hearings on September 13, 1982, applicant and staff prefiled rebuttal testimony on the allegations of Mr. Walsh.[16] CASE submitted the deposition of Mr. Doyle as his direct testimony[17] and later introduced supplemental direct testimony for Mr. Walsh and Mr. Doyle.[18]

At the September 1982 hearing session, Mr. Doyle was called as a witness by CASE.[19] Mr. Doyle's written direct testimony consisted of his deposition, which was identified and admitted into evidence,[20] and his written supplemental testimony.[21] In his testimony, Mr. Doyle also expressed concerns regarding the design of pipe supports for Comanche Peak. Some of these concerns were similar to those of Mr. Walsh.

At those September 1982 hearings, applicant presented its prefiled rebuttal testimony on Mr. Walsh's allegations[22] and provided additional written rebuttal testimony on Mr. Doyle's allegations.[23] Applicant's witnesses were experts in the area of (1) the ASME Code (Mr. Reedy), (2) structural engineering (Mr. Scheppele and Mr. Finneran), (3) pipe support engineering and the Structural Design Language (STRUDL) code

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[15] CASE Exhibit 669A, Attachment 1.

[16] Applicant's Prefiled Testimony of witnesses Scheppele, Reedy, Chang, Finneran and Krishnan, Applicant's Exhibit 142; Staff's Prefiled Testimony of witnesses Chen and Tapia, marked for identification as Staff Exhibit 201.

[17] Tr. 3631-4010, CASE Exhibit 669.

[18] Supplemental Testimony of Mark A. Walsh, CASE Exhibit 668; Supplemental Testimony of Jack Doyle, CASE Exhibit 683.

[19] Tr. 3622-4012, 4705-56.

[20] CASE Exhibit 669, 669A, as corrected by CASE Exhibit 669-1, together with attachments to that testimony, CASE Exhibit 669B.

[21] CASE Exhibit 683, together with attachments to that testimony, CASE Exhibit 683A through K.

[22] Applicant's Exhibit 142, Tr. 4766.

[23] Applicant's Exhibit 142F, Tr. 4784.

(Dr. Chang), and (4) pipe stress analyses (Mr. Krishnan). These witnesses were subject to extensive cross-examination and Board questioning.[24]

The staff presented its panel of Dr. W. Paul Chen and Mr. Joseph Tapia[25] in rebuttal to the allegations of Mr. Walsh and Mr. Doyle. Their testimony consisted of prefiled direct testimony[26] and additional oral examination.[27] However, since the Board was dissatisfied with the staff's preparation, it interrupted the cross-examination of these witnesses before cross-examination was completed, and the staff's direct testimony was never admitted into evidence.[28]

Following the conclusion of the September hearing session, the staff formed a Special Inspection Team ("SIT") to investigate and evaluate the Walsh/Doyle concerns. The SIT's work occurred from October 13, 1982 to January 18, 1983. The results of its work are found in Inspection Report 82-26/82-14, dated February 15, 1983 ("SIT Report").[29]

The SIT Report documents the special inspection of applicant's pipe support engineering program, in response to concerns expressed at the July and September 1982 hearings by Walsh and Doyle. SIT identified nineteen broad areas of concern expressed by Walsh and Doyle, determined the design status of the pipe supports used as examples of these concerns, evaluated the validity and safety significance of each concern, inspected the design procedures and practices of the applicant's pipe support design organizations, and inspected a sample of 100 pipe support designs that had passed through the complete design review process.[30]

Prior to the resumption of the hearing in May 1983, witnesses Walsh and Doyle, who had not been given an opportunity to comment on the SIT Report prior to its publication, filed additional written testimony.[31] Mr. Doyle's testimony raised new concerns regarding pipe support design, clarified his earlier testimony, and criticized the SIT Report analyses and conclusions in numerous respects. Mr. Walsh's testimony identified for the record certain documents.

In anticipation of the May 1983 hearings, the staff pre-filed the SIT Report and written testimony of the SIT members regarding the con-

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[24] Tr. 4832-5305.
[25] Tr. 5326.
[26] Staff Exhibit 201.
[27] Tr. 5351-56.
[28] Tr. 6401-02.
[29] Staff Exhibit 207.
[30] Staff Exhibit 207 at 12.
[31] *See* "Surrebuttal Testimony of Jack Doyle, Witness for Intervenor CASE," April 26, 1983; "Supplementary Surrebuttal Testimony of Jack Doyle, Witness for Intervenor CASE," May 9, 1983; "Surrebuttal Testimony of Mark Anthony Walsh, Witness for Intervenor CASE," May 4, 1983.

cerns of witnesses Walsh and Doyle,[32] as well as supplemental testimony regarding the concerns raised by witnesses Walsh and Doyle and the NRC Construction Appraisal Inspection Report (CAT) for Comanche Peak.[33]

At the May 1983 hearing session, the staff presented its prefiled written testimony. The staff's witnesses were the primary SIT members: Spottswood Burwell (Project Manager, NRC Division of Licensing); Dr. W. Paul Chen (Manager, Stress Analysis Unit, Systems Engineering Department of the Energy Technology Engineering Center); Joseph I. Tapia (NRC Reactor Inspector, Region IV); Robert G. Taylor (NRC Resident Reactor Inspector at Comanche Peak); Dr. Jai Raj N. Rajan (Mechanical Engineer, NRC Division of Engineering). These witnesses were subject to extensive cross-examination and Board questioning.

Subsequent to the May 1983 hearing, Mr. Tapia and Dr. Chen filed affidavits concerning items that the staff felt it was unable to respond to in the course of the hearing.[34] On November 4, 1983, CASE responded with affidavits of Mr. Walsh and Mr. Doyle.[35]

We also requested filings from the parties concerning applicable welding codes at Comanche Peak and concerning the applicability of the staff's position on stiff pipe supports (Board Notification 82-105A) to the Walsh/Doyle matters. The parties filed briefs in response to these requests.

B. Qualifications of Witnesses

Applicant has argued that we should place substantially more weight on the expert testimony offered by its witnesses and by staff's witnesses because they are so much better qualified than CASE's witnesses.[36] This we decline to do. Although we find that applicant's witnesses are better

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[32] *See* NRC Inspection Report 50-445/82-26, 50-446/82-14 (Staff Exhibit 207); "NRC Staff Testimony of Spottswood Burwell, W. Paul Chen, Joseph I. Tapia, Jai Raj N. Rajan, and Robert G. Taylor Regarding Concerns Raised by Mark A. Walsh and Jack Doyle."

[33] *See* "NRC Staff Supplemental Testimony of Spottswood Burwell, W. Paul Chen, Joseph I. Tapia, Jai Raj N. Rajan, and Robert G. Taylor Regarding the Concerns Raised by Mark A. Walsh and Jack Doyle, and the NRC Construction Appraisal Inspection Report for CPSES."

[34] Affidavit of Joseph I. Tapia and Affidavit of W. Paul Chen (October 14, 1983).

[35] The only aspects of those affidavits utilized in this decision are Mr. Doyle's discussion of torsional moments in Richmond inserts and his discussion of the shield wall thickness near the upper lateral restraint. Both matters are fully covered in previous testimony (Tr. 6886-6911, NRC Staff Response to CASE's Motion for Reconsideration, December 14, 1983 (Staff Response) at 14; *see, e.g.*, Tr. 6018-34; Staff Response at 15). Consequently, we have not treated these portions of the affidavit as new evidence but as permissible argument and we have rejected applicant's request for an opportunity to submit a reply. We informed applicant of our ruling with respect to torsional moments by telephone on December 15, 1983. Subsequently, we realized we also would utilize the Doyle affidavit concerning wall thickness and that applicant would not be permitted to reply for the same reason.

[36] Applicant's Findings at 10.

qualified, in that they have more schooling and have risen to more prestigious places in their profession, we found Mr. Walsh and Mr. Doyle to be field-wise engineers. Many of their points are valid, as reflected throughout the SIT Report, which often stated that applicant had identified the Walsh/Doyle concerns independently or that its design review process could be counted on to identify some of the matters and cure them. Our criterion for weighing Walsh/Doyle concerns against other testimony is that we required a reasoned explanation that supported the safety of the systems challenged by Walsh and Doyle. If we were satisfied that a reasoned explanation had been provided we accepted it. Otherwise, we were unable to find that a preponderance of the evidence favored the applicant's case.

In some instances, applicant or staff urged us to accept a conclusion because of "engineering judgment." However, we do not consider it satisfactory to present engineering judgment without any explanation. Engineers should be able to explain the reasons for their judgments. An inability to provide an explanation beyond the bald statement of "engineering judgment," erodes this Board's confidence in the validity of the statement.[37]

Although we disagree with the significance of the qualifications of applicant and staff witnesses, we agree that applicant has stated them accurately. Consequently, we adopt applicant's statement, which we set forth as Attachment A to this memorandum.[38]

C. Extra-Record Materials

We previously decided that CASE would not be permitted to supplement the record in this proceeding in order to make up for possible deficiencies of proof that it noticed when it was preparing its findings.[39] We considered the motion to supplement the record to be an untimely attempt to reopen the record.

However, when applicant and staff filed their findings we were surprised to see an argument that CASE was barred from relying both on extra-record evidence and on *new arguments.*[40] With respect to extra-record evidence, applicant and staff are correct. However, their assertion about new arguments is unsupported by cited authority and seems to be incorrect. This Board has not previously required any filing of

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[37] [Footnote deleted. *See* LBP-84-10, 19 NRC 0000 (February 8, 1984), *slip op.* at 13-15, 37.]

[38] Attachment A is derived from Applicant's Findings at 3-10.

[39] LBP-83-55, 18 NRC 415 (1983).

[40] Applicant's Reply at 1-3; Staff's Findings at 2-3.

Walsh/Doyle arguments and we have no knowledge of any reason to preclude new arguments. At the close of the evidence, it is up to applicant to argue that it has sustained its burden of proof and up to the intervenor to argue its own view. We know of no valid reason to foreclose new arguments.

Furthermore, when it comes to considering the safety of a nuclear plant, we think it important to consider any argument that may be made. If the safety of applicant's plant is not assured, even from arguments not previously thought of by the intervenor, then the safety of the public is not assured. There is no reason to think that potential accidents have all been described in arguments previously made.[41]

III. EVIDENCE CONCERNING QUALITY ASSURANCE FOR DESIGN

A. The Iterative Design Process

Applicant states that, "[a] substantial portion of the allegations raised by CASE concerns the design of individual pipe supports."[42] In response to these allegations, applicant provides some particular responses, but it also relies on a description of its iterative design process. Applicant's own description of that process is helpful in reaching an understanding of the methods that it employs:

> The process for the design of piping and supports is iterative in nature. In fact, it is unrealistic to expect to design piping and supports to satisfy all applicable requirements the first time through the process. Such an iterative design approach is employed throughout the nuclear industry, and is utilized in the design of other nuclear components as well. Briefly, the design of an individual support begins with an initial design based on the known initial piping stress analysis. When it is impractical to construct the support as originally designed, a new support scheme is required and an update of the original piping analysis will be performed. This process continues until the final as-built analysis confirms the adequacy of both the piping and supports. (Applicant's Exhibit 142 at 33-34; Tr. 4969, 5184, 7155-57.)

> The iterative design process was described by Applicants and is summarized in NRC Exhibit 207 at 14-16. As described therein, the process focuses upon a piping "stress problem" which consists of a designated length of pipe for which a pipe support is an accessory that cannot be designed separately from the length of pipe. The steps in this iterative design process are, as follows:

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[41] We note that the rules anticipate the possibility of new arguments by intervenors. This is undoubtedly a reason that applicant, which has the burden of proof, is given the opportunity to reply to intervenor's findings. 10 C.F.R. § 2.754(a)(3).

[42] Applicant refers us to CASE Exhibit 659B.

1. A conceptual design for a length of pipe is prepared using the piping plan and elevation and/or isometric drawings for the plant.

2. An initial pipe stress analysis on the conceptual piping design is performed to calculate the forces and types of loads on proposed supports on the conceptual piping design.

3. The description of the acceptable piping layout (including the proposed support locations with accompanying directions of restraint and magnitude of forces) is sent to one of the three support design groups.

4. During installation of the supports, field engineers are available to authorize changes to support designs as necessary to produce a usable design.

5. Once piping and some of the accompanying supports are installed, a QA inspection of the as-built dimensions of the piping and installed pipe supports is performed. The drawings utilized at this step are then stamped "as-built verified" and transmitted as a package to the appropriate piping stress analysis organization (Gibbs & Hill or Westinghouse) for a preliminary stress analysis.

6. The pipe stress analysis organization conducts its preliminary stress analysis, adjusting the piping stress problem for any new factors which impact on the pipe or support stresses. The stress problem is rerun to determine new stresses in the pipe and new loads on the pipe supports.

7. The stress package is then returned to the appropriate design group, which reviews the new piping loads to determine whether the particular hanger is still appropriate. Supports which are found to be satisfactory are stamped "vendor certified" and if found to be unsatisfactory are modified and a new as-built design package is sent to the pipe stress analysis organization.

8. Upon completion of installation of all supports, a stress problem package (incorporating changes to the supports since the problem was last run) is prepared and provided to the pipe stress analysis organization for reanalysis. A pipe stress problem will be rerun if the new as-built configuration impacts the pipe stresses.

9. This package is once again returned to the appropriate design group to determine whether any supports need be modified as a result of the new stress problem and if so, will be modified and returned once again to the pipe stress analysis organization until all pipe stresses are acceptable and all pipe supports are vendor certified to the loads developed in the last run of the stress problem.

(Applicant's Exhibits 142 at 33-35, 150 and 151; NRC Exhibit 207 at 14-16; Tr. 5286-91, 7152-54.)

The above described as-built program is established in accordance with the requirements of NRC I&E [inspection and enforcement] Bulletin 79-14 (NRC Exhibit 201C; Applicant's Exhibit 142 at 34-35.)

Further, Applicants have at least two processes in place to check the validity of the *final* vendor certification process.[43] The first is a design control group within the pipe support engineering organization on site which is responsible for randomly sampling final vendor certified drawings to assure satisfaction of applicable requirements. Second, Applicants audit the vendor certification process and final designs from both a programmatic and technical viewpoint. (Tr. 7143, 7173-75.) Accordingly, . . . adequate controls are in place to assure the effectiveness of the iterative design process.[44]

B. Analysis

Applicant would have us accept its iterative design process in fulfillment of regulatory requirements because of "two processes in place to check the validity of the final vendor certification process."[45] Applicant's witnesses testified that nonconformance reports covering design deficiencies need not be completed until the end of the iterative process.[46] Similarly, staff would have us accept the process because "Applicant's iterative design review process has the *capability* [emphasis in original] to identify and correct pipe support design deficiencies prior to or during the Applicant's As-Built Verification Program."[47]

The reason we reject these arguments is that we do not consider it proper for applicant to wait until the end of its design process to attempt to locate and correct design errors.[48] For reasons we discussed in detail above, Appendix B requires that the process for correcting errors be reasonably prompt. Waiting until the end of the design process does not satisfy this requirement. There should be quality assurance for design as part of the iterative process, not just a QA inspection of construction, as provided in Step 5.[49]

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[43] The Board interprets the "final vendor certification process," for which there is a validity check, to be Step 9 in the iterative design process, set forth above.

[44] Emphasis supplied. Applicant's Findings at 19-21. *See also* Staff's Findings at 15-17, which are similar but are somewhat more detailed in some respects.

[45] Applicant's Findings at 21.

[46] Tr. 5185 (Reedy); Tr. 5186 (Finneran). This excerpt from the transcript establishes as well that applicant knew in September 1982 that CASE was concerned that Appendix B, Criterion XVI, applied to design deficiencies.

[47] Staff's Findings at 17, *citing* Staff Exhibit 207 at 16.

[48] Applicant's argument that it has complied with I&E Bulletin No. 79-14 is an incomplete answer to whether it has an appropriate program for assuring the quality of design. That bulletin addresses a concern that "inspection by I&E and by licensees of the as-built configuration of several piping systems revealed a number of nonconformances to design documents which could potentially affect the validity of seismic analyses." The Bulletin attempts to assure that as-built information is utilized in pipe stress analyses. I&E Bulletin No. 79-14 (1979) at 1.

[49] The only mention of prompt quality assurance in Applicant's Findings is a vague reference to "internal checks in that process." Applicant's Findings at 28. However, applicant has not demonstrated how those checks work and it has continually belittled the importance of such checks by belittling CASE's identification of errors in documents that have not undergone the final vendor certification

(Continued)

The case before us provides ample justification for the promptness requirement of Appendix B, though it is not up to us to decide whether or not the rules of the Commission are appropriate.[50] We find that it is important that Mr. Walsh and Mr. Doyle were able to provide many "preliminary design drawings" indicating potential problems — because applicant had no quality assurance process for *promptly* identifying, tracking and resolving those problems.[51]

An interesting example in which a nonconformance tracking system would have been useful is with respect to problems of instability in pipe supports. Although this concern is one of CASE's,[52] we think applicant accurately describes the concern, as follows:

> CASE's witnesses expressed a concern that certain pipe supports, the designs for which they observed in their positions in the STRUDL Group, were unstable. Specifically, they alleged that certain types of supports could be characterized as three-bar linkages which would be unstable if the supported piping was able to rotate within the box frame or U-bolt attaching the pipe to the support. Further, other instances of instability could arise even where such gaps did not exist initially but were created by movement or deformation of the U-bolt or by insufficient friction of the box frame on the supported piping. (CASE Exhibits 669 at 95-104, 669B, Attachments 4 and 13. *See also* CASE Exhibit 659H at 1; Tr. 3103-05, 3109.)[53]

Instability problems were known to applicant by April 1981.[54] Mr. Doyle, while he was working within applicant's STRUDL Group (from August 1981 to June 1982), explained the problem of instability to Mr. Terry Curlin, who appears to have had some form of supervisory responsibility for pipe support design.[55] Furthermore, an incident of serious instability was known to and corrected by the applicant.[56] Nevertheless, it was applicant's practice to handle instability problems on Component Modification Cards (CMC) and not on nonconformance

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process. Mr. Reedy did state that two pipe support contractors comply with Appendix B but his testimony is not persuasive because he does not believe that Appendix B requires NCRs for design deficiencies until after the iterative process is completed. Tr. 5187, 5185. (The staff also is not concerned about quality assurance for design prior to completion of the vendor certification process. Tr. 5407-08 (Mizuno, staff counsel).)

[50] If the application of a Commission regulation would be inappropriate in this case, an exception may be applied for under 10 C.F.R. § 2.758(b).

[51] There are many instances of problems in "preliminary design drawings" in the SIT Report, and Staff's Findings at 22 characterized the scope of the problem as being "many" such problems. We agree with the staff characterization of this problem but reach a different conclusion about its significance.

[52] *See* CASE's Findings, III-1, citing CASE Exhibit 669B, items 4C to 4H, 4I and 4J, 4-O and 4-P, 4Q and 4R, 11YY though 11BBB and CASE Exhibit 669 at 95-105 (Doyle).

[53] Applicant's Findings at 45.

[54] CASE Exhibit 669A at 21-22 (Mr. Doyle). Note that the transcript refers to Mr. Curlin but CASE's findings, at III-2 refer to Mr. "Curtin." The Board is not certain what the correct spelling of the name may be.

[55] Testimony of Mr. Finneran (Tr. 4889).

[56] CASE Exhibit 669A at 24 (Doyle).

reports (NCRs).[57] A consequence of this difference in documentation is that there was no prompt effort made to identify analogous problems elsewhere in the plant,[58] there was no trending of similar deficiencies,[59] and there was a breach of applicant's obligation to determine the cause of the condition of instability and to take steps to "preclude repetition," as required by 10 C.F.R. Part 50, Appendix B, Criterion XVI.

The absence of a nonconformance tracking system for design may also have led to the feelings of personal dissatisfaction felt by Mr. Walsh and Mr. Doyle. These engineers were assigned to applicant's Structural Design Language (STRUDL) Group,

> a subgroup within the Site Stress Analysis Group ("SSAG"). The entire SSAG is a service organization with no responsibility for the design of pipe supports. The STRUDL Group's function is to develop a mathematical model of pipe supports based on information provided by the pipe support design organization, to conduct an analysis using the STRUDL computer program employing the data provided, and to return the results of that computer analysis to the designer. (Applicant's Exhibit 142 at 9-10.) The STRUDL Group performs only a service function and is not organized or called upon to evaluate the results of its computer analyses.[60]

As members of the STRUDL Group, Mr. Walsh and Mr. Doyle worked on many design documents. As engineers, they became concerned that many of these documents had deficiencies. Although they were not responsible for correcting those deficiencies, they were concerned that those deficiencies be cured so that the safety of the nuclear plant would not be jeopardized. However, there was no process by which those concerns could be evaluated and resolved in a thoughtful and appropriate manner. Despite the fact that some of their observations were potentially valuable, applicant was procedurally deaf to their concerns. There also was no way for Mr. Walsh and Mr. Doyle to find out whether their particular concerns were being attended to, a fact that applicant has used in this proceeding to try to cast doubt on the credibility of their testimony.[61] In addition, there also is no way for us to determine at this time the extent to which applicant has made corrections in its designs

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[57] Mr. Finneran testified that a CMC was issued on the potentially unstable support identified in 1981 but that an NCR was not written. Tr. 4890-93.

[58] Tr. 4893 (Finneran).

[59] We are not aware of any program by which applicant trends "deficiencies" found in CMCs.

[60] Applicant's Findings at 16-17; *see also* SIT Report at 10. For the purpose of this discussion, we accept applicant's description of the STRUDL Group and see no need to address CASE's claim that the group's responsibilities exceeded what applicant states. *Compare* CASE's Findings, Chapter XXIV.

[61] *See, e.g.*, Applicant's Findings at 45: "CASE's witnesses had only a limited knowledge by virtue of their limited roles in the entire design process for pipe supports and were unaware of measures beyond their scope of responsibility to identify and correct unstable supports."

solely under pressure from this litigation rather than as part of its routine design process.[62]

C. SIT Findings

The SIT's failure to appreciate the need for a quality assurance system to promptly resolve design deficiencies led it to be too gentle with applicant. The period of inspection for the SIT Report was October 13 to December 2, 1982.[63] At that time, one year and ten months after the first CMC on instability, applicant had "no explicit design guidelines address[ing] overall stability"; it was relying on "the normal iterative design and review process,"[64] which contains no procedures that require any consideration for stability problems.[65] In addition, applicant had only "*begun* to assess the stability of non-rigid box frame supports."[66] Although applicant has now undertaken to assess all such supports for stability, the SIT found it had not yet decided which of three design options to employ.[67] Apparently this problem is still handled under applicant's design modification process rather than its nonconformance monitoring system. In one pipe analysis group, the design modification process had not even progressed to the point that pipe support instabilities could be quantified.[68] With respect to the changes that were promised, applicant's failure to deal promptly with the stability problem required that the NRC staff would have to come back to verify that the promised changes were completed.[69]

Furthermore, applicant told the SIT that it did not need to conduct a stability reassessment of the use of non-rigid U-bolt supports.[70] The SIT Report erroneously accepted applicant's argument that if U-bolts on

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[62] Although the SIT Report stated in several places that applicant had independently identified a Walsh/Doyle concern in its design process, the report contains no documentation substantiating that the discovery was independent of the Walsh/Doyle allegations. Mr. Chen clarified the meaning of the SIT Report statements somewhat. Tr. 6661. We interpret his statement (in response to a wordy and somewhat confusing question from the Board) to indicate that he was not sure whether the design process would have found these problems were it not for Mr. Walsh and Mr. Doyle.

[63] SIT Report at 2.

[64] *Id.* at 28.

[65] We are not reassured by the SIT's reliance on "standard industry design practice" as an excuse that permits applicant to do without any guidelines on pipe stability. *Id.*

[66] *Id.*

[67] *Id.*

[68] Applicant's Findings at 13 n.6, *citing* Tr. 7091-92. We reject applicant's suggestion that the percentage of instabilities would be the same within the group that has not analyzed its supports as it is within the first two groups. There is no particular reason to accept that kind of generalization prior to completion of the design review.

[69] *Id.*

[70] *Id.* at 29.

these supports were cinched down on the pipe those U-bolts "will not become loose during service life" and the concern "about the instability of the non-rigid U-bolt supports is resolved."[71] There is no indication in our record of what discussion or documentation persuaded the staff that the cinching down of U-bolts was an adequate resolution of this problem.

We agree with CASE that "the mere fact that a friction on a point of a U-bolt exists does not indicate that the friction is sufficient to prevent rotation under the most adverse design conditions. . . ."[72] We have no analyses before us that establish the adequacy of the friction forces developed by a cinched-down U-bolt. Furthermore, the applicant uses SA-307 steel in U-bolts. This material has *no* design allowable under the applicable American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) provisions[73] when it is used in a friction type connection.[74] The reason there is no allowable for friction type connections using SA-307 steel is explained in note 1 to the applicable table. The note[75] states:

> Friction type connections loaded in shear are not permitted. The amount of clamping force developed by SA-307 bolts is unpredictable and generally insufficient to prevent complete slippage.

This argument did not confuse the Board, differentiating us from applicant.[76] We were persuaded by this rather straightforward argument that SA-307 bolts cannot be relied on in a U-bolt to cinch down a pipe and prevent its rotation by the use of friction.[77] The fact that this material was incorporated into the U-bolts is not surprising, since they were not initially designed to be cinched down and to develop friction forces to hold the pipe. What appears to have happened, according to this information, is that applicant's engineers have adopted an impermissible fix for a stability problem that was identified by Mr. Walsh and Mr. Doyle.

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[71] *Id.*

[72] CASE's Findings at III-7.

[73] Conformance to the July 1974 and winter 1974 Addenda Editions of the ASME Boiler and Pressure Vessel Code (ASME Code) is mandatory. 10 C.F.R. § 50.55a(d). *See* § 3.2.2 of the applicant's FSAR and § 3.2.2 of the Safety Evaluation Report for Comanche Peak (September 3, 1974).

[74] CASE Exhibit 752 contains page 387 of Appendix XVII of the ASME Code. That page contains a table concerning "Allowable Bolt Tension and Shear Stresses."

[75] *Id.* at 388.

[76] Applicant's Reply at 15 found this argument confusing.

[77] We also accept Mr. Doyle's testimony that the thermal expansion of pipes will cause cinched-up U-bolts to yield so that, after many cycles of heating and cooling, the frictional forces generated by the U-bolts will be reduced. CASE Exhibit 763 at 13-14, *citing* CASE Exhibit 669B (Doyle) at 318-21.

D. Conclusion

We do not consider the "iterative design process" to be satisfactory fulfillment of the Appendix B Part 50 requirement to promptly identify and correct design deficiencies. Although Gibbs & Hill apparently has identified some gross instability problems in the course of its participation in this process, the iterative design process does not assign to Gibbs & Hill the responsibility to review each support for stability.[78] Furthermore, the iterative design process has no promptness requirements other than that it be completed before the plant is completed. It is unsatisfactory for: "trending" deficiencies, recording problems spotted by individual employees, or seeking to determine and eliminate the causes of deficiencies.

In this section of our memorandum, we have discussed one engineering problem with respect to which compliance with Part 50 would have been helpful. In our review of other engineering problems raised by CASE, we have become convinced that there are other problems, some of which are discussed later in this memorandum, that would have been addressed in a more timely fashion and might have been resolved more appropriately if applicant had a formal, prompt system for quality assurance of design. An extreme example is that in 1981 the staff conducted an audit of weld designs at Comanche Peak that ultimately led to the discovery of 382 supports that did not meet minimum ASME Code requirements for fillet welds.[79] These changes, which required structural alterations, were documented on CMCs and not NCRs,[80] with the consequence that there apparently was no attempt to identify the cause of this error or to prevent its repetition.

Applicant and staff would have us decide that applicant's stability reassessment program will resolve the stability problem, but we are unable to accept this suggestion. The program's procedures have not been presented to the Board and the program is in the control of the "highly qualified" engineers who were responsible for the review of others whose work has been characterized by applicant and staff as "somewhat knowledgeable" and "somewhat inexperienced."[81] Although these individuals are undoubtedly qualified, competent engineers, we

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[78] Tr. 6721 (Chen "believes" he has seen such analyses); Tr. 7015-17 (it is Taylor's "understanding" that Gibbs & Hill looks for gross error). There is no direct testimony on this point from Gibbs & Hill or from applicant's design group personnel.

[79] SIT Report at 51, *citing* Inspection No. 99900531/81-01 (November 17-20, 1981); *see* CASE's Findings at V-7.

[80] *Id.*

[81] Tr. 7167-69 (Vega and Finneran); Tr. 4962-65 (Mr. Finneran); Tr. 6406 (Mr. Taylor).

are not content to rely entirely on their work to correct problems that have arisen under their supervision and control.

Having found applicant in noncompliance with Appendix B, we must decide what implications that has for this proceeding. Those implications are discussed below.

IV. SPECIFIC DESIGN PROBLEMS

In addition to questions about the quality assurance program for design, CASE has raised many specific design problems, presented to the Board in detail. CASE's Findings, which contain the discussion of these problems, is a document that is two inches thick and that is filled with technical arguments and citations to codes, regulations and testimony (and to some extra-record material).

We appreciate the difficulty that the opposing parties faced when confronted by this document. In places, it is in error. In other places, it is overly rhetorical or irrelevant. However, it reflects the work of two qualified engineers and cannot readily be discounted. To be sure that it is appreciated, it must be read. To be sure that the Board not be misled by it, applicant needed to respond to it. It is our observation that there are several places in this document where valid points are made, without adequate rebuttal elsewhere in our record. The design errors, indicated on the present state of our record and pointed out by CASE, cause us to be concerned about the quality of design of Comanche Peak.

To appreciate the significance of the deficiencies that this Board is about to note, it is important to realize that Mr. Walsh and Mr. Doyle were only two people, with limited access to design documents even within their sphere of responsibility, which was participation in the STRUDL Group. With this limited window on the design process, any problems that they spotted and that applicant did not resolve may have implications for the quality of design of the remainder of the plant. To be sure, the pipe support design groups involved in the questioned activities were not involved in other design processes. To that extent, the Walsh/Doyle observations lack generality. However, applicant's inability to spot and resolve pipe support design problems has possible implications for the remainder of the plant.

A. Previously Discussed Problems

In two previous decisions, we have discussed design allegations made by Walsh/Doyle. In LBP-83-33, 18 NRC 27 (1983) we concluded that the ASME Code did not require the analysis of thermal stresses which

occurred within pipe support members as the result of LOCA environmental conditions. We also concluded that free-end displacement, defined as forces exerted on the supports because of the expansion of the pipes and as forces exerted on the pipes because of the expansion of the supports, would need to be considered. Thus, we partially dismissed one of the Walsh/Doyle design concerns.

In LBP-83-63, 18 NRC 759 (1983) we found that applicant had complied with the ASME Code in its analysis of supports manufactured from A-500 Steel but that it had not demonstrated that its pipe supports have adequate safety margins, considering that there was a 15% error in the code allowable for that grade of steel. We required that applicant submit an analysis demonstrating the safety margins for limiting cases in which A-500 Steel was used and that it attempt to "quantify the *combined* effect of errors in code values . . . and other variations typically covered by safety factors." *Id.* at 764 (emphasis in original).

In this opinion, above, we have already addressed specific design arguments dealing with pipe support instability and with the use of U-bolts as friction connections. With respect to instability, there seems to be agreement by applicant with the substantive position taken by CASE. Applicant has undertaken to correct conditions of instability. Hence, the only problem we found in that general area of instability was the adequacy of the design quality control process to contribute to the identification and correction process in a timely fashion. We did find a design problem, however, with respect to one aspect of instability: the use of SA-307 steel in friction connections. We conclude from the evidence that this is a design error, in contradiction to the ASME Code. Applicant has not demonstrated the validity of cinching of U-bolts made of SA-307 steel as an adequate design correction for the purpose of preventing rotation.

In the following sections of our memorandum we will deal with further design problems, with emphasis on applicant's errors. This organization of our decision is not intended to overlook the fact that there are areas in which we would sustain applicant. However, based on our record, we consider design error to be sufficiently prevalent to require independent means of assuring ourselves of the quality of design of Comanche Peak.

B. Stresses on Pipes Caused by Cinching Up U-Bolts

We have already discussed why SA-307 U-bolts may not exert enough force on a pipe to constrain rotation. However, CASE's U-bolt allegations go beyond that narrow concern. We have not discussed whether the pretensioning of the U-bolts and the thermal expansion of the pipe

might overstress the bolt. Furthermore, note 1 to Table XVII-2461.1-1 of the ASME Code does not exclude the possibility that the U-bolt could exert sufficient clamping force on the pipe to cause substantial local stresses on the pipe. To the contrary, the note calls the amount of clamping force "unpredictable" and allows the possibility that substantial clamping force may be exerted.

1. CASE's Findings

CASE's Findings on this point are instructive:[82]

> The problem associated with cinching up the U-bolts is that this establishes *three* mechanisms for inducing stress into the pipe wall and the U-bolt instead of the *one* which was anticipated. The original mechanism which was anticipated was the loads as listed in the output from the pipe stress run (the original design load). The two additional mechanisms are: (1) the stress induced into the U-bolt and the pipe by the torquing of the nuts to cinch up the U-bolt; and (2) the stress resulting from heating of the piping system (radial expansion) which, regardless of how little, will result in a differential temperature between the pipe and the U-bolt with a subsequent tension induced on the U-bolt, a compression on the pipe, and some bending in the member which restrains the U-bolt.
>
> The stresses and displacement for the U-bolt, pipe, and involved structures are therefore dependent on the three mechanisms involved — not merely the loading as listed by the Pipe Stress Group (the original design load).
>
> In the case of severe thermal constraint as is depicted in CASE Exhibit 669B (Attachment to Doyle Deposition/Testimony), items 14D through 14M and Item 12N, the thermal constraint induced stress may exceed all other considerations such as the problems of mass on the pipe and mechanically induced loads. However, for a proper analysis, it is again the summation of *all* factors which induce stress and/or displacement which must be considered.
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> In the May 4, 1983, Surrebuttal Testimony of Mr. Doyle (CASE Exhibit 763 at 11-12) it is proved by the use of standard mathematical means that the stresses developed due to the Applicants' cinching procedures alone mean that the stress levels will exceed manufacturer's allowables, as determined by converting load to stress . . . .

CASE then proceeds to review detailed calculations through which Mr. Doyle alleged that the force on the U-bolt from torquing alone will be either 8472 pounds, which exceeds its allowable, or 5333 pounds, which is just below its allowable.[83] Mr. Doyle also presents detailed calculations of the amount of thermal expansion that would occur even if

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[82] CASE's Findings at IV-8, IV-12–IV-14.
[83] *Id.* at IV-13, IV-14.

900-degree insulation surrounded the pipe and clamp; he points out that these stresses are additive to the mechanical stresses from torquing.[84] The principal effect that Mr. Doyle expects is failure of the U-bolt itself, representing a failure of the clamp, a transfer of loads to other supports and a change in the fundamental frequency of the piping system.[85] However, he also is concerned about the effect of induced loadings on piping.[86] These loadings are required to be considered by ASME Code § NB-3645, "attachments" which requires the design of external attachments to pipe in a way that will avoid a flattening of the pipe, excessive localized bending stresses or harmful thermal gradients in the pipe wall.[87]

2. *Analysis*

Mr. Doyle's detailed calculations are not answered on our record. Instead, applicant relies on the SIT Report,[88] which cites "analyses performed by the Special Inspection Team" and "calculations performed by the Special Inspection Team" but never introduced into the record.[89] Consequently, we conclude that Mr. Doyle's concerns about excessive stresses on the U-bolts may be valid.

The SIT was satisfied that applicant could ignore thermal movement in the unrestrained direction of 1/16 inch or less.[90] It also was satisfied that the maximum radial growth of U-bolts would be less than 1/32 of an inch and that this would be acceptable.[91] However, in the absence of any direct challenge to Mr. Doyle's calculations and in the absence of any data supporting the staff's position, the applicant's burden of proof has not been met.

Furthermore, the staff's principal witness on pipe supports, Dr. Chen, admitted that the SIT Report never analyzed the load combination which is the basis for Mr. Doyle's testimony.[92] The basis for this omission was "engineering judgment and usual industry practice."[93] However, we cannot accept this generalization in light of the specific calculations tendered by Mr. Doyle. Applicant has the burden of proof of demonstrating that its plant has been designed within applicable code

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[84] *Id.* at IV-16.
[85] *Id.* at IV-17.
[86] *Id.* at IV 15.
[87] Neither applicant nor staff have discussed Code interpretation in this context.
[88] Applicant's Findings at 49.
[89] SIT Report at 30, 33.
[90] *Id.* at 30-31.
[91] *Id.* at 32-33.
[92] Tr. 6742.
[93] *Id.*

allowables. It is not free to rely on judgment or practice to answer particularized engineering arguments. It must demonstrate that those allowables have been met. While engineering judgment must necessarily be employed in designing a nuclear plant, we expect the basis for engineering judgment to be explained on our record and we are unable to accept bald, unsupported statements of judgment.

In this instance, we also are troubled by an apparent inconsistency in staff's position. Staff asserts that the overtensioning of U-bolts can be detected by field inspection.[94] However, the field inspection referred to will occur prior to the heating of the pipe and obviously under conditions where seismic forces cannot be observed.[95] Hence, the inspection will be useless to assure that the U-bolt will perform adequately under conditions of combined load.

The amount of force with which U-bolts are cinched down may lead to further complications, relating to Board Notification 82-105A. Pages IV-4 and IV-5 of that Notice state:

> The dynamic interaction between the pipe and pipe clamp is a complex design problem. From a design standpoint, there are many uncertainties that could affect the actual system response such as consideration of total support system flexibility, mechanical non-linearities, construction and installation tolerances, and uncertainties in the dynamic loading itself. It is beyond the scope of this report to discuss the clamp-to-piping responses to these various factors. However, the report will focus on those local dynamic effects on the piping that can be attributed primarily to the clamp attachment that, in general, are not explicitly evaluated by piping designers.
>
> The computer programs used for piping dynamic analyses generally consider the pipe as a lumped mass system connected by structural elements with cross-sectional properties equivalent to that of a pipe defined at the center line of the structural element. Piping supports are modelled as springs (or infinitely rigid elements) which are connected to the centerline of the structural elements. Thus, localized pipe stresses due to clamp-pipe interaction are not computed using this lumped mass-spring piping system analytical method. Clamp-induced loads on the pipe should be evaluated as a locally distributed or a concentrated load on a cylindrical shell using an appropriate method of analysis. The resulting local stresses should be added to the stresses calculated by the lumped mass-spring piping model which calculates only beam bending modes.
>
> During dynamic applied loadings, local pipe stresses induced by the pipe clamp could be significant depending on several factors including clamp to pipe surface contact, load magnitude and frequency, and support orientation to pipe.
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> It has recently been established by the staff that certain designs rely on a preload of the clamp onto the pipe in order to achieve large stiffness requirements in the

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[94] SIT Report at 32; Tr. 6742 (Chen). *See also* Applicant's Findings at 49 (overtightening would cause stripping).

[95] Tr. 6746 (Chen); *see* CASE's Findings at IV-18.

clamp. The large stiffnesses are needed to assure that the clamp will not lift off the pipe during dynamic loadings. When the stiffness requirements become large, the required preload also becomes large resulting in a radially compressive load on the pipe.

The resulting local membrane and bending stresses in the pipe due to the preload when properly applied is deflection limited and, thus, self-limiting. Local yielding of the pipe can reduce the preload condition which caused the pipe stress to occur. The preload is a unique situation which should be evaluated further because large deformations of the pipe resulting from an initial preload application could be further increased when the piping is brought to hot conditions. In addition, subsequent reapplication of the preload to correct for preload relaxation could cause a ratcheting effect in the pipe wall.

The Board's first concern about this notice is that there are about twenty stiff pipe supports at Comanche Peak.[96] The staff's concern, which is very similar to CASE's concerns about pipe supports, applies to these supports, for which localized pipe stresses have been ignored. Unlike the staff, we consider these supports to fall within CASE's concern even though these particular supports have not been identified by it. We find that, despite the fact that CASE has been arguing that localized pipe stresses from supports must be considered, applicant failed to identify supports with respect to which CASE was clearly right. Engineers who were sufficiently sensitive to plant safety would have realized that the only reason for thinking CASE's concerns to be unfounded was that the "soft" supports did not generate enough force. These same engineers would have realized that this reason for lack of concern in the identified supports was a real concern for other supports.

But our concern goes further. CASE has stated, in testimony that has not been specifically rebutted, that certain "soft" box frames may generate a thermal expansion force of almost fourteen tons, most of which will be seen by the pipe.[97] It has also stated that the prestressing of U-bolts may generate a force of between 5333 pounds and 8472 pounds.[98] These forces are not vastly different from those mentioned in the Board Notification.[99] Consequently, we have no factual basis for accepting staff's testimony, including the testimony of the principal author of the Board Notification, that the stiff clamp-derived concerns of the Notification are inapplicable to "soft supports" at Comanche. The record does not provide specific analysis to rebut the substantial loads calculated by

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[96] Affidavit of W. Paul Chen (November 4, 1983) at 4.

[97] CASE Exhibit 763 at 14-15; CASE's Findings at IV-17.

[98] CASE Exhibit 763 at 11-12; CASE Exhibit 669B at 10.

[99] Board Notification 82-105A notes with concern preloading stresses of 5104 psi and 5169 psi, with respect to ITT Grinnell supports.

Mr. Doyle. To us, the concerns derived from the stiff-clamp context have not been demonstrated to be inapplicable here.[100]

The Board Notification provides us with still another reason to be concerned. The Notice found that ITT Grinnell does not calculate piping stresses because that is the responsibility of the piping designers.[101] That accords with our understanding of how the iterative pipe design process works generally at Comanche Peak, with one word of caution. We do not think the iterative design process places the responsibility for calculating local pipe stresses on any group, including Gibbs & Hill. Consequently, we are not aware of any evidence that these forces were considered in the pipe design process at Comanche Peak. This is a problem similar to our concern about pipe support stability, which we found above did not fall within any group's assigned responsibilities until the applicant decided to undertake a stability reassessment program.

C. American Welding Society (AWS) Code

CASE alleges that there are criteria for welding design that are not specified anywhere within the ASME Code and it suggests that the most authoritative source for those criteria is the AWS Code.[102] CASE offers its Exhibit 716, consisting of Section XI of the Pipe Support Engineering (PSE) Guidelines. We find that the cited document references American Welding Society Code D1.1, as CASE says it does; furthermore, that document does contain procedures for welding pipe to pipe. However, applicant acknowledges that it sometimes *refers* to the AWS Code,[103] contesting only whether it is legally required to apply its provisions. Hence, the true debate is over the extent to which AWS Code concerns are met at Comanche Peak and not over whether that Code "applies," in the sense of formal adoption of that Code by the Commission. Provisions of the AWS Code are relevant to a decision about whether ASME Code provisions have been "supplemented or modified as necessary to assure a quality product," as required by General Design Criterion 1.

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[100] *But see* Chen Affidavit at 3 ("Stresses imposed by conventional U-bolts and box frames are significantly lower than that which may be potentially induced by the stiff pipe clamps"); and Affidavit of David Terao (stresses from stiff clamps are "significantly higher" than for conventional clamps).

[101] Board Notification 82-105A at V-22. *See also* CASE Exhibit 669 (Doyle) at 318-21.

[102] CASE's Findings, Chapter V.

[103] Applicants' Brief Regarding Board Inquiry into Applicability of AWS and ASME Codes to Welding on Pipe Supports at Comanche Peak, October 28, 1983 (Applicant's AWS Brief) at 7.

1. CASE's Specific Allegations

CASE lists the following AWS Code provisions as applicable to non-nuclear facilities and, by inference, to nuclear facilities:[104]

> (1) pre-heat requirements for welds on plates over ¾ inch thick, (2) drag angle and work angles (which limit the space allowed for the welder to function), (3) Beta factor for tube-to-tube welds, (4) multiplication factor and reduction factors for skewed "T" weld joints, (5) limitations on angularity for skewed "T" joints, (6) calculations for punching (actually a reduction factor for the weld) shear on step tube joints, (7) lap joint requirements, (8) design procedure for joint of tube to tube with Beta equal to 1.0, (9) calculation for effective throat of flair bevel welds, (10) limitations on weld sizes relative to plate thickness, etc., etc.

CASE states that a portion of the SIT Report, which sets forth applicant's criteria for a combination bevel and fillet partial penetration weld indicates that applicant has now adopted the Beta provisions cited by Mr. Doyle almost two years ago.[105] However, the SIT Report does not mention the date that applicant adopted these criteria so it is not clear, in light of applicant's statements that the AWS Code does not apply to Comanche Peak, to what extent the Comanche Peak plant complies with the Beta requirement.[106] Although the staff has conducted an inspection to ASME Appendix XVII requirements, this is not directly responsive to this argument about AWS requirements, including the Beta requirement.[107]

CASE also has a more specific point related to criteria apparently adopted by applicant pursuant to a September 1982 study by Korol and Mirza.[108] Mr. Doyle's testimony questions whether NPSI rear brackets (three examples of which are listed in the testimony) and two specifically described supports, offered as examples, comply with the Korol and Mirza criterion of a width ratio at least as great as 0.6.[109] CASE also references Mr. Doyle's testimony that the SIT incorrectly evaluated weld sizes on two drawings because those drawings show ¼ inch fillet welds when the minimum weld requirements are 3/8 inch or 5/16 inch.[110]

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104 Case's Findings at V-3 to V-4.
105 *Id.* at V-4.
106 *See* SIT Report at 49.
107 *See* SIT Report at 50-51 concerning staff inspections that have been conducted.
108 SIT Report at 50.
109 CASE Exhibit 763 at 26.
110 CASE Exhibit 763. (There is a typographical error in CASE's Findings at V-6 which causes one of the support numbers to differ from the number cited by the SIT Report but it is our understanding that Mr. Doyle was referring to the same supports as were referenced by SIT.) We note that the SIT Report does not state the dimensions of welds or the criteria applied, so there has been no direct response to the specific complaint that CASE has made.

CASE also faulted the SIT Report for erroneously finding, without conferring with CASE, that a particular support number did not exist.[111]

Another important point made by CASE is that the SIT Report states that 382 supports were modified, in some unspecified way. CASE infers that the method of repair was "recapping," which is unacceptable.[112] Since there was no NCR prepared on this matter, we are not sure whether there is any construction record documenting the method of complying with the CMC; however, even if such a record exists, our record is devoid of a response to this concern.

2. *Analysis*

Applicant's principal response to the CASE concerns is that it uses "*qualified*" (emphasis in the original) welding procedures, pursuant to ASME Code Subsection NF-4311, which states that:

> Only those welding processes which are capable of producing welds in accordance with the welding procedure qualification requirements of Section IX and this Subsection [subsection NF] shall be used for welding Component Support materials or attachments thereto. [ASME Code Section III, Subsection NF-4311.][113]

Applicant contrasts this qualified welding process to the prequalification of procedures incorporated in the AWS Code.[114] It points out that even the AWS Code permits deviations from its provisions for "successful qualification" conducted by the contractor[115] — a point conceded by CASE.[116]

Applicant also has listed for the Board each of the AWS criteria listed by CASE, finding for us the Code sections that were referenced. With respect to the tube-to-tube punching requirement and the Beta requirement, applicant references the SIT's finding of adequate tube-to-tube joint designs[117] but does not rebut any of the Doyle testimony,[118] discussed above, concerning: (1) specific joints that do not meet AWS design requirements, and (2) specific design measurements that do not meet AWS requirements. With respect to the effective throat for flare bevel welds, applicant is correct in its comparison of its own proce-

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[111] CASE's Findings at V-6, *citing* CASE Exhibit 669B, items 13X and 13Y.
[112] Tr. 6249, 6261-62 (Doyle); Tr. 7957-58 (Compton).
[113] Cited exactly from Applicant's AWS Brief at 10.
[114] *Id.* at 11-12.
[115] *Id.* at 13.
[116] CASE Exhibit 669 (Doyle) at 116, 118.
[117] Applicant's AWS Brief at 16.
[118] CASE's Findings at V-5 to V-7 contain the specific testimony that was not responded to.

dures[119] to the AWS Code; accordingly, applicant has satisfied the Board that there is no problem there.

Applicant does not respond at all to seven different AWS criteria advanced by CASE because "the AWS Code expressly excludes them from applicability to welding procedures which are qualified by tests."[120] The problem with this response is that it leaves the Board in the dark as to which of these Code provisions has been demonstrated nonapplicable because of specific qualifying tests. Since these criteria, advanced by CASE, represent reference material that is suggestive for plant design, we think it incumbent on the applicant to carry its burden of proof that each criterion has been properly considered in its qualification procedures.

With respect to one of the AWS criteria, "drag angle and work angles (which limit the space allowed for the welder to function)," — referred to by applicant as "groove angles"[121] — we have special curiosity. We cannot imagine how applicant may have performed qualification tests to bypass this criterion. Arguably, this would have required the use of very large or odd-shaped welders to see if they could function adequately in smaller work spaces.

Applicant's answer with respect to weld cracking also is unacceptable. CASE alleges that the repair of undersized welds apparently was done by performing a cap weld.[122] Applicant answers that the ASME Code requires "the qualification of every welding procedure by extensive testing and examination to assure adequate strength and integrity of the weld." However, applicant has not responded to CASE's concern about cap welds and has not stated that the method for repair of undersized welds, by adding additional weld material, has been qualified by test. When CASE presents us with specifics, we are not satisfied when applicant responds with generalities.

We are concerned that specific matters raised by CASE as falling within the AWS Code, may not have been properly addressed by applicant in the design of Comanche Peak. Applicant has not carried its burden of proof on this set of issues.

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[119] CASE Exhibit 716 at 7.

[120] Applicant's AWS Brief at 15.

[121] Applicant's AWS Brief at 16.

[122] At CASE's Brief, V-7 to V-8, a variety of record and extra-record materials are cited. We have considered only the Doyle testimony and the Compton testimony. Although Mr. Doyle has modestly stated that he is not a welding "expert," he has demonstrated enough knowledge of welding codes and requirements for us to give his testimony some weight.

3. *Analysis of the Staff's Response*

The staff attempted to respond to the Board's concerns about the AWS Code by filing the affidavit of Dr. Jai Raj N. Rajan, who has a Ph.D. with a major in fluid mechanics from Duke University.[123] This affidavit adds two considerations not raised by applicant: (1) the statement by Dr. Rajan that compliance with the ASME Code and with the AWS Code produces welds of comparable strength but that the Codes have different conceptual approaches,[124] and (2) the following statement concerning the nature of qualification procedures:

> Qualification of welding procedures involved testing or examination of a sample of welds which must be fabricated by the construction organization (for ASME) in accordance with the procedure to be qualified, in order to assure that the weld possesses the required properties for its intended application.

He also clarified the relationship between the two Codes, stating that several (but not all) of the criteria cited by Doyle are not explicitly provided for in the ASME Code.[125]

4. *Conclusion*

The essential conflict among the parties is whether the qualification of welds has been adequate to assure that each of CASE's concerns, stemming from the AWS Code, has been taken care of. It is clear that if the qualification procedures cover these matters or provide reasons for ignoring them, then CASE's argument is without merit. However, the AWS Code contains provisions intended to embody sound welding practice and all our record contains is generalizations that boil down to the fact that the AWS Code and ASME Code have different approaches. Pursuant to the ASME Code, a sample of welds has been tested in a qualification program, but the characteristics of that sample of welds and of the qualification program have not been discussed; nor does our record contain a logical basis for concluding that each of the AWS concerns have been obviated by qualification tests.

We are sympathetic with applicant's and staff's desire to avoid such a complex task of proof. We ourselves are not anxious to undertake such a burden, either. However, we cannot accept an argument that well-recognized welding standards, embodied in an industry code, may be

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[123] NRC Staff Response to Board Question Regarding Applicable Welding Codes at CPSES, October 18, 1983 (Staff's AWS Brief).
[124] Rajan Affidavit at 4-5.
[125] Rajan Affidavit at 3.

waived because of a qualification program about which we are totally in the dark.

On balance, after considering all the arguments on this subject, we find that applicant has not met its burden of proof on the principal thrust of CASE's AWS concerns.

D. Upper Lateral Restraint Beam

CASE has called into question the safety of the upper lateral restraint beam, whose primary purpose is to help to resist blowdown loads that may exist within the steam generator in the event of a LOCA.[126] The CASE allegation is that when the beam is heated during a LOCA it will expand about 0.24 inch, creating a free-end displacement between the steel beam and the adjacent concrete.[127] This constraint of free-end displacement must be considered by applicant in the design of its plant,[128] but CASE alleges that applicant's analysis of the upper lateral restraint was incorrect.

We find that CASE's allegations about an incorrect analysis of the upper lateral restraint are meritorious. CASE's first concern was that applicant made an error in its graphical technique (iterative analysis) for analyzing the upper lateral restraint. All parties agree that there was an error, in that the graphical technique was not carried to its proper conclusion but was truncated, apparently without any explanation or notation on the design drawing.[129]

It is our conclusion that the truncation of the graphical technique was an engineering error. Applicant's engineer commenced an analysis of the beam and frame structure that sequentially assumes that one end of the beam is locked and the other is released, thereby redistributing the moments in the beam.[130] Although applicant's engineer knew how to carry out this analysis properly,[131] he did not do so. Had he done so, the criterion the engineer set for his own analysis would have been exceeded;[132] and the analyst himself considers this to have been an error.[133]

Applicant and staff have attempted to excuse this error on two grounds: that it was committed in documents prepared for a hearing

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126 Tr. 6038 (Vivirito).
127 *See* CASE's Findings at XIX-6.
128 *See* LBP-83-33, 18 NRC 27 (1983).
129 Tr. 6052-53 (Vivirito); Tr. 6051-54, 6057, 6189-92 (Chen).
130 Tr. 6189 (Chen).
131 Tr. 6190 (Chen).
132 Tr. 6026-27, 6175 (Doyle).
133 Tr. 6193 (Vivirito report of conversation with the analyst).

and was not representative of what the analyst would have done if this were a real design drawing about to be used for plant construction, and that reanalysis shows that the upper lateral restraint is safe. We reject both of these explanations.

We consider applicant's assertion about the differential care paid to hearing documents and construction documents to be wholly without merit. Mr. Vivirito said:[134]

> You must understand, . . . that the calculations that you are seeing here are not design calculations to implement construction. The design calculations were prepared in 1975. These are merely to illustrate that the walls will indeed relieve the stresses.
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> The degree to which you would be concerned with the accuracy of these calculations, since they are not actually calculations that are going to result in construction, are not the same as when you are preparing something and you are going to build it. . . .

The first error in this logic is that calculations done for confirmatory purposes, as these were, can result in a decision about whether or not to reconstruct a portion of the plant. Whenever such calculations are required, it is because questions have been raised; and those questions must be analyzed in a serious fashion. The second error in this logic is that this analysis was prepared for possible NRC use, related to Walsh/Doyle contentions, and should have been done with care because of the applicant's responsibility to prepare full and accurate records. Furthermore, these records were shown to NRC investigators and an error was likely to result in embarrassment for Gibbs & Hill. We reject applicant's position that less care was required for this document than for other design documents.

We also are concerned that applicant's analysis used incorrect wall thicknesses, under circumstances where there is no indication that the thicknesses employed in the analysis would have produced conservative results.[135] This error in wall thicknesses, which the staff found to be an offsetting error, was nevertheless an error.[136]

Another concern of ours is that applicant too-readily concluded that the 14,000 kips strain resulting from the 0.24-inch expansion of the upper lateral restraint beam was within the capacity of the concrete walls.[137] Industry codes applicable to concrete do not support this

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[134] Tr. 6055-56.

[135] Tr. 6052-54; *see* Tr. 6183 (Doyle) (one wall is much more rigid and the other more flexible).

[136] *Id.*

[137] Tr. 6041-50 (Vivirito).

assertion, as one-time stresses of this kind exceed code values but are not covered by the codes.[138] In the event of a LOCA, the upper lateral restraint beam will expand approximately 0.24 inch. Since this expansion will be constrained by the concrete shield walls, the force on the walls is dependent on the stiffness of the beam and the walls. Under applicant's stiffness assumptions the force on the wall would be some 14,000 kips.[139] A force of 14,000 kips is above the design allowables for the shield wall and CASE contends that the wall could fail. The applicant's witness, Mr. Vivirito, testified that in his judgment the effects on the wall would be minimal, that local cracking of the concrete would relieve the expansion stresses and they would drop to zero,[140] and that NRC guidelines do not cover self-limiting stresses.[141]

Since applicant has not introduced into our record any calculations of the effects of beam expansion on the wall, considering them unnecessary,[142] we were faced with balancing the engineering judgments of CASE's and applicant's witnesses. Consequently, we requested the staff witness, Dr. Chen, to look into the matter for us.

In Dr. Chen's opinion neither the applicant nor the intervenor is correct. He does not agree with applicant that the local deformation of concrete would be sufficient to relieve the expansion stresses; instead, he concludes that a load of 14,000 kips would exceed the design load of the walls, as reflected in applicant's calculations. However, Dr. Chen is of the opinion that the applicant has overestimated the stiffness of the walls and that a more reasonable value for wall stiffness would lead to much lower stresses, well within the allowable wall stresses. But the complex calculations required to demonstrate the lower wall stiffness have not been done.[143] Furthermore, CASE's witness, Mr. Doyle, disagrees with Dr. Chen's conclusions about wall stiffness.[144] On balance, therefore, we are unable to accept these lower stiffness values.

Dr. Chen also would approve the design of the upper lateral restraint beam because he believes applicant has used more conservative assumptions about LOCA forces than are necessary. Applicant assumed that the LOCA-induced heat-up of steel in the beam and the LOCA pressure spike in the steam generator would be simultaneous, a condition under

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[138] Tr. 6847 (Vivirito).
[139] Tr. 6048 (Vivirito); Tr. 6061 (Chen); CASE Exhibit 761C at 5 (Doyle).
[140] Tr. 6049 (Vivirito).
[141] Tr. 6071 (Vivirito).
[142] Tr. 6072 (Vivirito), *but see* CASE's Findings at XIX-9, *citing* Tr. 6044-45 (Vivirito) concerning uncertainties in the properties of concrete.
[143] Chen Affidavit at 13-14.
[144] Tr. 6029. Doyle Affidavit at 9-12, summarizing Mr. Doyle's earlier testimony about wall thickness.

which both the concrete and the steal beam itself might fail.[145] However, the staff believes that these thermal and pressure forces will not coincide during a LOCA,[146] a position it asserts without presenting any evidence concerning possible LOCA scenarios. Because of the lack of supporting evidence, we decline to accept this conclusion, particularly without providing other parties with the opportunity for cross-examination on this entirely new evidence.

In the face of the possibly conflicting engineering viewpoints of three different parties, we conclude that applicant has not demonstrated the adequacy of its analysis of the upper lateral restraint beam. This conclusion contributes to our lack of confidence in the design of Comanche Peak.

E. Errors Concerning Generic Stiffness Values

Mr. Doyle alleged that applicant's use of generic stiffness values for supports does not adequately represent actual stiffness values for the purpose of calculating piping system seismic response. The SIT found that applicant had not demonstrated "that supports designed in accordance with Applicant's criteria and guidelines have sufficient stiffness to assure that they do not adversely affect the response of the piping system."[147] Additionally, Mr. Doyle correctly argued that Component Cooling Water Support No. CC-1-107-008-E23R had been incorrectly analyzed because the deflection calculation did not include the potential rotation of the plate.[148] Although subsequent analysis and redesign may have attenuated these concerns,[149] we find that CASE correctly identified these problems, and their subsequent resolution does not eradicate our concern that these design problems were present.

F. Differential Seismic Displacement

CASE alleges that there should be a slip joint in all large frames that span a corridor or go from floor to ceiling. The Pipe Support Engineering (PSE) guidelines acknowledge this principle. Nevertheless, the designs of two PSE floor-to-ceiling service water supports identified by Mr.

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[145] Chen Affidavit at 12, stating that both the concrete and the steel beam itself might fail if these conditions were simultaneous.

[146] *Id.*

[147] SIT Report at 40-41.

[148] *Id.* at 41.

[149] Chen Affidavit at 21-26. We do not decide whether this complex stiffness study, which has not been subject to litigation, used appropriate assumptions concerning deflections of U-bolts and flexibility in base plates and concrete anchorages. *Id.* at 22 n.11; *see, e.g.*, Doyle Affidavit at 14-20.

Walsh were inconsistent with these guidelines and have been redesigned.[150] No explanation has been provided about how this deviation from design guidelines could have arisen and we have no knowledge about the frequency with which such deviations may occur.

We note that, in the absence of a system for promptly correcting design deficiencies, applicant identified the deficiency in the PSE supports in late 1981[151] but the two other pipe analysis groups were not directed to follow the PSE guidelines until January 19, 1983.[152] Although these groups may not have designed wall-to-wall or floor-to-ceiling support frames, they apparently are authorized to do so and their procedures should have been revised more promptly.[153]

Applicant's approach to the design of wall-to-wall and floor-to-ceiling supports, including nonconformance with PSE guidelines and failure to revise guidelines of other groups promptly, contributes to our lack of confidence in its approach to the design process.

G. Component Cooling Water Support

Mr. Doyle correctly alleged that Support No. CC-2-008-709-A43K exceeded applicant's guidelines for maximum deflection. The reason for the error was a mistake in numerical calculations.[154] The result of catching the error is that the plate for the bracket was increased in thickness from ½ inch to 1½ inches and the weld to the plate was increased from 3/16 inch to 5/16 inch.[155] Although the design verification process was not yet completed when this error was found,[156] we do not adopt the SIT's assertion that this error would have been caught in the ordinary design process, regardless of whether this had been a CASE allegation. This design, required by regulations to be of the same quality as an initial design, had a numerical deficiency that produced a deficiency in actual construction. We simply have no way of knowing whether or not errors pointed out by CASE would have been caught in the ordinary design process.

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150 Tr. 3142; SIT Report at 26.

151 *Id.*

152 SIT Report at 25.

153 *Id.* at 25. The SIT reports that it "was informed" that the other pipe support groups had not designed these large frame supports. However, the source of the information was not provided to the Board and the SIT apparently did no verification of this matter. *Id.*

154 *Id.* at 40-41.

155 Chen Affidavit at 1-2; SIT Report at 41.

156 SIT Report at 41-42.

H. Richmond Insert

1. Testing

CASE had alleged that Richmond Insert assemblies (Richmonds) at Comanche Peak were not adequately designed.[157] With respect to one aspect of this allegation, the design of 1½-inch-diameter Richmonds, the SIT Report vindicated the CASE allegation by finding that applicant's use of a safety factor of two for Richmonds was insufficient because "there are no deflection test data for 1½-inch Richmond inserts in shear loading."[158] Consequently, the staff required further testing.[159] The staff considers the further testing to be adequate.[160]

The extent of this design deficiency is accurately depicted in the following portion of the Staff's Findings,[161] which we adopt as our own:

> The allowable tension loads for the 1½-inch Richmond anchor insert were established by the Applicants based on a factor of safety of two of the ultimate load as determined from actual tension test results. Allowable shear loads were set equal to the allowable tension loads and reduced by a factor equal to the ratio of the manufacturer's allowable load values (about 0.83). Shear load allowables for the 1½-inch insert would have a factor of safety of about 2.4 based on the assumption that the shear test ultimate is equal to the tension test ultimate. However, there was no empirical support for this assumption since no shear tests had been conducted on the 1½-inch size at the time of the SIT's inspection. Moreover, published allowable loads in the Richmond Screw Anchor Company Bulletin No. 6 are based on a factor of safety of three. As a result, the Applicants' shear load allowables for the 1½-inch insert are 50 percent higher than the value recommended by the manufacturer. ([SIT Report at 19.]) The SIT found this reduction in the factor of safety to be of concern, since these factors establish a reserve capability which will account for the possibilities of overload and understrength. Such possibilities may be due to variations in material dimensions, variations in construction procedure implementation, simplifications in calculation procedures, effects of erection tolerances, and disregard of secondary stresses (including thermal stresses). (*Id.* at 22.) In sum, the Applicants' non-inclusion of the thermal stress component in the design of supports utilizing 1½-inch Richmond inserts was not desirable where the manufacturer's recommended safety factor was not also being utilized.
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> The SIT also found that the Richmond Screw Anchor Company's published allowable shear values for the 1½-inch diameter Richmond insert were extrapolated from shear tests on the 1¼-inch diameter insert. Although the published allowable values are theoretically valid, standard industry practice requires that testing be performed to confirm the values. In addition, the shear tests conducted on the ¾, 1, and

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[157] CASE Exhibit 659 at 4; Tr. 3154 (Walsh).
[158] SIT Report at 18; *see also id.* at 19-21.
[159] *Id.* at 18.
[160] Tr. 6411-12, 6436 (Tapia).
[161] Staff's Findings at 37-39.

1¼-inch inserts do not fully model the configuration of the anchor assembly used with a 1-inch thick washer between the wall and the support frame. This washer introduces a bending moment in the bolt which is not reflected in the shear test results. ([SIT Report at 19-20.])

Applicants have stated that ACI 349-80, "Code Requirements for Nuclear Safety Related Concrete Structures," an industry standard not adopted by the NRC as a regulatory requirement, allows a factor of safety of two for concrete inserts. However, the ACI standard specifies load factors and capacity reduction factors and requires consideration of the forces caused by thermal effects under accident conditions. In addition, the ACI standard requires a testing program far broader than that which has been carried out for the Richmond inserts. ([SIT Report at 20.]) For these reasons, the Board agrees with the SIT that ACI 349-80 does not permit Applicants to utilize a factor of safety of two in these circumstances.

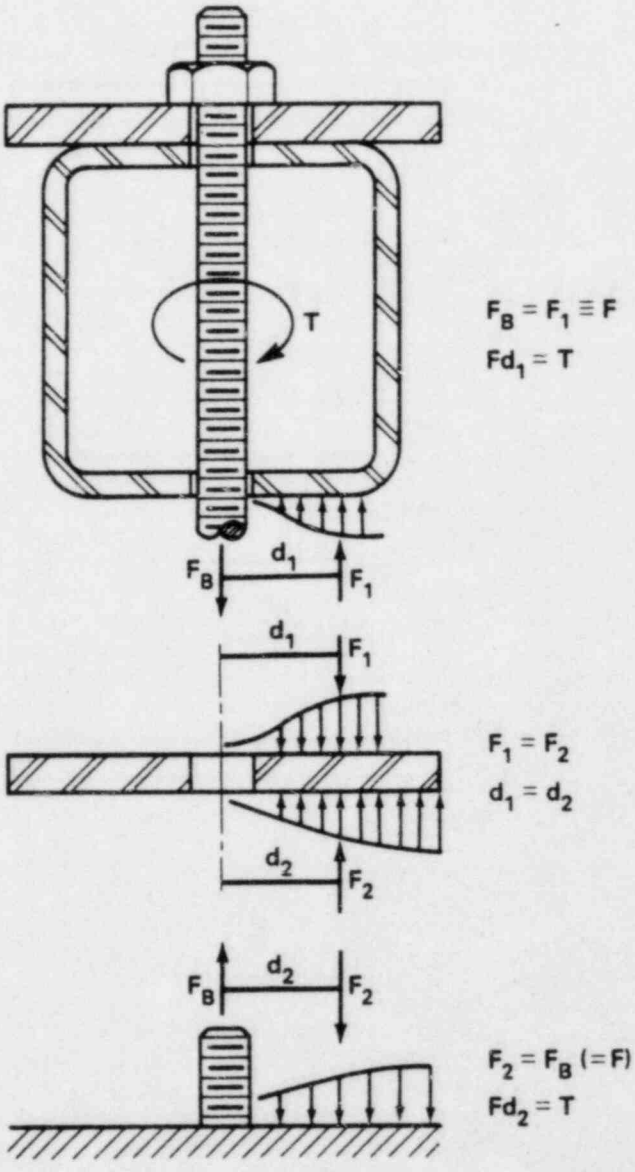
The Board concurs in the SIT's original determination that because of the uncertainties introduced by the test modeling, considered together with the limited test data available, the use of a factor of safety of three at another nuclear power plant utilizing Richmond inserts, and the strict requirements of ACI 349-80 before a safety factor of two may be employed, that an insufficient basis existed for the use of the factor of safety of two for the 1½-inch Richmond insert. This was especially true since Applicants disregard loads resulting from thermal expansion of the attached support, and bending moments introduced by the 1-inch thick washer. ([SIT Report at 19-21.])

We are concerned that applicant had inadequate reason to apply a safety factor of two to the Richmond insert, in the absence of tests. We have no reason to believe that this problem, identified by the SIT, would have been found in the normal design process. This design problem contributes to our lack of confidence in design processes at Comanche Peak.

2. *Axial Torsion in Richmond Inserts*

CASE also is concerned about the ability of the Richmond to resist axial torsion. The concern is important because the Richmond was tested without being connected to a steel member that could induce torsion into the bolt. Consequently, the safety of the Richmond depends in part on the test described in subsection 1, above, and in part on the engineering analysis of the effects of torsion on the bolt.

The nature of this problem may be understood by reference to Figure 1. The figure shows three cross-sections of a Richmond. The top view shows the upper section of the bolt, the nut that is threaded on the bolt, the upper washer and an end-view of a tube-steel member that is being bolted to the wall. The middle view shows the lower washer. The bottom view shows the bottom portion of the bolt as it enters the concrete, represented by a cross-hatched area. Since the views are


T
$F_B = F_1 \equiv F$
$Fd_1 = T$
F_B
d_1
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F_1
$F_1 = F_2$
$d_1 = d_2$
d_2
F_2
F_B
d_2
F_2
$F_2 = F_B\ (= F)$
$Fd_2 = T$

FIGURE 1

schematic, it is not important that the length of the bolt in the top view and in the bottom view exceed the width of the lower washer. In practice, the bolt would be made snug-tight, so that there would be no space separating the steel member, the lower washer and the concrete wall.

Here, with emphasis added to reflect points of divergence from the views of Mr. Doyle, is how Dr. Chen describes this concern:[162]

> To calculate the tension force in the bolt of the Richmond insert assembly resulting from torsion in the tube steel, the Applicants use the formula $T = Fd$. In this computation d is taken as 2/3 of one half of the width of the washer. This is an acceptable method for computing the bolt force if a linear distribution of forces along the bottom of the lower washer is assumed.[163] Mr. Doyle questioned the accuracy of this method. He noted that the flat surface of the tube steel was smaller than the bottom of the washer, and indicated that the distance to use in computing the moment should be 2/3 the distance from the bolt to the edge of the flat portion of the tube steel. He stated that this was smaller than the d used in Applicants' calculations and would thus result in a larger F for a given moment. Thus, the tension in the bolt would be larger than that calculated by Applicants. The Board stated that it wished to have the SIT's evaluation of this newly-identified issue (Tr. 6831); accordingly this was an open item at the hearing.
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> In [Figure 1] . . . torsion in the tube steel (T in the figure) is resisted ultimately by forces of compression in the concrete and by a balancing tension in the bolt. Because of the relative stiffness of the lower washer in comparison to the tube steel and the fact that the bolt is "snug," *rotation of the assembly will occur primarily about the edge of the tube steel. Hence,* the compressive force on the concrete *will extend fully to the edge of the washer.* Therefore, a linear distribution is an appropriate description of this compressive load. For such a distribution the resultant for purposes of computing the moment can be represented by a concentrated load (F_1) at 2/3 the distance from the bolt centerline to the edge of the lower washer (d_2).
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> An equal and opposite compressive force acts on the bottom surface of the lower washer. This force must be resisted by an equal and opposite force on the top surface of the washer. This force is in turn the result of the downward force exerted by the tube steel. Since the assembly is in equilibrium the forces on the lower washer must be equal, F_2 must equal F_1, and the moments must be equal, *i.e.*, $F_1 \times d_1$ must equal $F_2 \times d_2$. Since the surface over which the force from the tube steel acts is smaller than the top surface of the washer, the force distribution on the top surface cannot be linear. This non-linear distribution between the bottom of the tube steel and the top surface of the lower washer is shown in Figure 1. Thus, the moment of the non-linear distributed forces will be equal to the moment of forces linearly distributed at the bottom of the washer: $F_1 \times d_1 = F_2 \times d_2 = F \times 2/3$ of ½ the width of the washer.[164]

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[162] Chen Affidavit at 8-11.
[163] [Footnote 2 omitted.]
[164] [Footnote 3 omitted.]

. . .

Because of the relative stiffness of the lower washer as compared to the tube steel, and because the bolt is "snug," *the assembly will tend to pivot about the edge of the washer and there will be a linear distribution of forces along the lower surface of the washer.* Accordingly, the resultant is accurately represented by a concentrated load at 2/3 the distance from the bolt centerline to the edge of the lower washer.

Mr. Doyle disagrees with Dr. Chen's representation in Figure 1 of a triangular distribution of the compressive forces between the concrete and the bottom of the washer. He further argues that "[r]egardless of how snug the assembly is installed, the fact remains that there is no continuity between the tube/bolt and lower washer"; hence, "the transfer of the moment (torque) into a couple can only occur . . . (from the reaction) at the upper surface of the washer at the tangent on the tube and the bolt."[165]

We agree with Mr. Doyle.[166] We are convinced that (1) Dr. Chen's assumed distribution of forces on the bottom of the washer is incorrect, and (2) that the use of such a force distribution is of no value in determining the tension in the bolt resulting from a torque on the tube.

We conclude that the applicant and staff have erred in calculating the tension in the bolt. It further appears that this is a type of error that is not caught by the applicant's iterative design process. We are not able to decide whether the error will significantly affect the design of the pipe supports. If the potential difference in the load on the bolt were to amount to a factor of two, as stated (without contradiction in the record) by Mr. Doyle,[167] bolt-allowable stresses might well be exceeded.

This state of the record reflects adversely on the adequacy of the design of Comanche Peak.

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[165] Doyle Affidavit at 8. *See also* Tr. 6894-6911 and surrounding testimony for a full discussion of this point.

[166] We discount the testimony of Mr. Reedy, who attempted to justify applicant's analysis primarily because it complies with industry practice that is less precise than the aeronautical engineering to which Mr. Doyle is accustomed. Mr. Reedy admitted, however, that he has no knowledge of how the industry analyzes this particular problem outside of Comanche Peak itself. Tr. 6905-31, especially Tr. 6921-22. We find Mr. Reedy's testimony about industry practice to be largely irrelevant to determining the correct length of the moment arm. In light of the lack of importance he placed on the problem and his failure to explain his reasons, we reject his assurance that "the moment arm will finally reach the transfer point that the Staff said they would use as their assumption." Tr. 6911. We note that Mr. Reedy never responded to Mr. Doyle's testimony that because this is not a welded connection there will be a "minute but existing elongation in the bolt," causing a gap between the tube steel and the washer. Tr. 6900-01.

[167] Tr. 6903 (Doyle)

I. Organizational and Design Interfaces

At various places in this opinion, we have expressed concern that members of the STRUDL group were unable to report design nonconformances and that certain design problems — such as the assurance that there is stability in pipe supports — may not have been clearly assigned to any one engineering organization. With the exception of these specific findings, however, we find that the CASE concerns about organizational and design interfaces are not justified and we adopt the following Staff Findings on this subject:[168]

> Messrs. Walsh and Doyle expressed their concern that because the iterative design process is so complex, the interfaces between the Applicants' various design groups are inadequate. As evidence of the allegedly inadequate interfaces, Messrs. Doyle and Walsh stated that each of the three pipe support organizations were using different design approaches, and that another approach was used by the onsite civil/structural design group charged with the design of cable tray and conduit supports. For example, they noted that each of the organizations appeared to be using different section property values for tube steel members (CASE Exhibit 654, p. 5), and different design criteria for the consideration of frictional loads between pipes and supports (CASE Exhibit 659H, p. 5). Messrs. Doyle and Walsh seem to feel that had the design basis inputs and interfaces been adequate, these differences would not have occurred. They further state that since such differences have occurred, the Applicants have violated NRC regulations, as well as standards endorsed by the NRC, including ANSI N45.2, "Quality Assurance Program Requirements for Nuclear Power Plants." (*See, e.g.*, Tr. 2973, 3706, 3852, 3864, 3925, 6984-85). Messrs. Walsh and Doyle also stated that they believed that internal interfaces within the SSAG [Site Stress Analysis Group] were inadequate, since there was no clearly delineated line of communication and responsibility in the Applicants' engineering guidelines, in violation of ANSI N45.2.11 (Tr. 6984-87, 6989).
>
> The Board disagrees with Messrs. Doyle's and Walsh's conclusions about the Applicants' organizational and design interfaces in the pipe support design area. It is true that there are differences in design approaches between the Applicants' three pipe support design organizations. These differences appear to be the outgrowth of the Applicants' utilization of three separate pipe support design organizations.[169] An early decision was made by the Applicants that pipe support designs would be contracted out to companies who are in the business of designing and fabricating pipe support components. In order to satisfy ASME Code requirements and to set a basis for competitive bidding between the companies, it was necessary to provide them with the overall design criteria to be met. The Gibbs and Hill document which accomplishes this objective was Specification MS-46A. Contracts for the design of pipe supports at CPSES [Comanche Peak] were awarded to ITT-Grinnell and NPSI. In addition, Applicants created what became the PSE, which also utilized Specification

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[168] Staff's Findings at 17-20.

[169] [Footnote 18 in original:] The Applicants also employ a fourth organization for the design of structural supports for cable trays and conduits (NRC Staff Exhibit 207, p. 12).

MS-46A. Since neither Specification MS-46A nor the ASME Code dictate in detail the means by which an engineer is to satisfy the design criteria, differences in engineering approaches occurred between the three parallel pipe support groups. (Staff Exhibit 207 [SIT Report], p. 12; Applicants' Exhibit 142, p. 9).

The fundamental issue for this Board to resolve is whether these differences in design approaches represent a safety or engineering concern, or if they violate any NRC regulations, Staff guidance or other NRC-endorsed standard. The Board believes that ANSI N45.2, and N45.2.11 in particular are relevant in resolving this issue. The overall purpose of ANSI N45.2.11 is to assure that each design organization has a clear, documented scope of responsibility and that there are documented paths for communication when the responsibility shifts from one organization to the other or is shared by both. N45.2 is a general requirement document essentially equivalent to Appendix B of 10 C.F.R. 50 while N45.2.11 is specific to those[170] design controls requirements contained in Criterion III of Appendix B and N45.2. The NRC has endorsed N45.2 via Regulatory Guide 1.28, and endorsed N45.2.11 via Regulatory Guide 1.64. (Staff Exhibit 207, p. 12).

The evidence establishes that each of the three pipe support design organizations has its own specific scope of responsibility since each has been assigned the responsibility for a specific group of supports. (Staff Exhibit 207, p. 13; Applicants' Exhibit 142, p. 9). There is no need for cross-communication between the three groups since they share no common, in-line design responsibility. Furthermore, the lines of communication between the Applicants, Gibbs and Hill, and each pipe support design organization are clear and documented. (*Id.*) There is also no need for internal interfaces within a design or support organization, under ANSI N45.2.11. (*See, e.g.,* Tr. 6987-89). Even if we believed that interfaces between the SSAG, and the STRUDL subgroup were necessary under ANSI requirements, we seriously doubt whether there would be any safety significance with regard to CPSES, in light of the clear evidence that the pipe support design groups are well aware that they are ultimately responsible for assuring that pipe supports meet all applicable NRC and ASME Code requirements (Tr. 6989-92).

The Board concludes that the Applicants have adequately defined and documented the responsibilities and paths of communications between Gibbs & Hill and the pipe support design groups. No NRC regulation has been violated, and the programmatic objectives of Subsection NA of the ASME Code, N45.2 and N45.2.11 have been satisfied. (Staff Exhibit 207, p. 13.)

In reaching these conclusions, we do not wish to minimize the difficulty applicant may have created, for design control purposes, by adopting this multiple organization approach. However, we see no prohibition of the approach, providing that applicant's design quality assurance program is able to accommodate these differences. Obviously, the difficulty for

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[170] The Board chu[illegible] the staff document because of our belief that Criterion III is not the only design co[illegible]l requ[illegible] found in Appendix B.

quality assurance is somewhat increased; but the approach is not prohibited.

V. CONCLUSION

This Board has faced the difficult task of analyzing a complex record containing many technical assertions about civil engineering, a field in which none of the members of this Board is specially trained. Furthermore, we would note that even for a qualified civil engineer, just a few of these issues can require extensive analysis over a period of months.[171]

Nevertheless, we have carefully analyzed those aspects of the record that have been most significant or that appeared on initial impression to be the most troubling. This analysis has persuaded us that the record before us casts doubt on the design quality of Comanche Peak, both because applicant has failed to adopt a system to correct design deficiencies promptly and because our record is devoid of a satisfactory explanation for several design questions raised by intervenors. Given the limited time frame in which Mr. Walsh and Mr. Doyle had the opportunity to make observations of the Comanche Peak design program, the lack of an adequate explanation for their allegations raises serious questions about the adequacy of the design of the remainder of the plant.

At this juncture, we think it wise to pause and consider the seriousness of the design problems we have seen, for an appreciation of the seriousness of those problems is essential in order to attach proper consequences to them in this proceeding.[172] We consider the absence of a program to correct design deficiencies promptly to be a serious deficiency, mitigated only slightly because it was acquiesced in by the Nuclear Regulatory Commission's staff. However, the principal consequence of

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[171] Mr. Tapia and Dr. Chen took over four months to address the open items left from our May hearing.

[172] The relationship between the seriousness of a violation and the consequences of that violation was recently discussed in the following language in *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 & 2), LBP-83-77, 18 NRC 1365 (1983) at 1368 n.5:

> Although there are some regulatory requirements, essential to safety, whose violation may require denial of a license, there are other requirements that do not have major safety significance and whose breach does not require denial of a license. *Compare Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 528-29 (1973) and *Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), ALAB-161, 6 AEC 1003, 1010 (1973) to *Consolidated Edison Co. of New York* (Indian Point Station, Unit No. 2), ALAB-188, 7 AEC 323, 333-34 (1974) ("Whether licensing can be authorized in the light of existing deficiencies obviously depends on the significance of the deficiencies."). We reject the impractical proposition that any minor violation of quality assurance regulations, regardless of whether the violation calls plant safety seriously into question, would call for denial of a license. We do not believe the Commission intended that fallible human beings, who must administer quality assurance programs, would be held to such an impractical standard.

this deficiency is that applicant, the staff and this Board must now be especially careful to determine that quality assurance standards for design have been met at the conclusion of the construction process. For this purpose, we intend to continue to conduct an efficient proceeding, mindful of the need not to impose undue costs or delays on applicant, but we will not be especially concerned about meeting applicant's construction targets. A consequence of applicant's chosen method of assuring design quality is that this Board's task with respect to the pending quality assurance contention has been partially deferred to a later stage of the design process. We consider care in performing our job to be of paramount importance.

With respect to the design deficiencies we have noted, we would first caution that there were aspects of applicant's case that we would have decided in a fashion that was favorable to applicant, and the absence of a discussion of those issues does not necessarily indicate that we have doubts. Our decision to stop where we did was based on our conclusion that there were enough deficiencies that we could not be satisfied by the quality of design reflected on our record.

We acknowledge that almost all of the specific design deficiencies we have noted may, on further proof and analysis, be shown to be of little or no consequence. We recognize that applicant, faced a difficult task in responding to the numerous, detailed comments made by CASE. It may well be that the absence of proof that would satisfy this Board was a consequence of a litigation strategy that relied on applicant's ability to persuade this Board to accept the testimony of applicant and staff witnesses because of their more impressive credentials. In describing the kind of Proposed Findings we required of the parties, we attempted to stress the need for logical explanations that covered all the material in our record and that explained why we should reach the conclusion sought by the party. In this instance, CASE heeded our advice better than applicant and staff and we therefore had no choice but to decide these issues as we have.

In assessing the next step in this proceeding, we urge applicant to abandon its belief that its difficulties with this Board are related to the lack of continuity of Board members.[173] If applicant were to persist in that belief, it likely would find this Board unreceptive to its reargument of old grounds. We have studied the record in this case and believe that applicant must realize that its principal difficulty has been its inability to submit rigorous, logical answers to opposing proof.

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[173] *See* Applicants' Identification of Issues and Proposal to Establish Hearing Schedule (December 3, 1983) at 2.

We shall ask applicant to propose a plan to affect the Board's level of confidence in its design process for Comanche Peak. Staff walkdowns that cover design issues may be helpful to us because of the acquired knowledge of staff,[174] but limited staff resources suggest the need for supplemental efforts of the nature we are about to describe. Lesser measures might, possibly, succeed in affecting this Board's views, but we urge consideration by applicant of an independent design review with each of the following characteristics:

Independence and Qualifications. The review organization should be composed of individuals with the combined ability to review design problems in the construction of a nuclear power plant. Consultants may be used to supplement those skills. There should be no lasting financial ties between the reviewing organization and applicant. Cygna Energy Services, which has already done a design review for applicant, appears to meet this criterion.

Organizational Independence. During the conduct of the review, there should be no undocumented oral discussions between applicant and the reviewing organization concerning findings.[175] The reviewing organization should obtain all its information from: observations of documents or hardware; written answers to written questions; or transcribed conferences open to all parties.

Reliability. There should be enough overlap in the work of the reviewers so that inter-reviewer reliability may be established. If reliability is low, then multiple reviews may be necessary in order to reduce the expected level of undetected errors to an acceptable level. In that way the Board will know how effective the reviewers have been in identifying the design errors in the plant.

Sample. One or more segments of important safety systems should be studied. If there are important design deficiencies in studied systems, the sample should be enlarged. The fact that important design deficiencies have no ultimate consequences, for reasons not considered by the designers, should initially be given little weight with respect to expanding the sample. However, after several systems have been reviewed, the use by the designers of

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[174] We have no opinion about whether an Integrated Design Inspection Program (IDIP) report should be prepared for Comanche Peak. *See Union Electric Co.* (Callaway Plant, Unit 1), ALAB-750, 18 NRC 1205, 1207 (1983).

[175] *See, e.g.*, Teledyne Engineering Services, Technical Report TR-5633, *Executive Summary of Final Report: Independent Design Review for the Shoreham Nuclear Power Station* (June 30, 1983) at 2.

adequate safety margins to accommodate design errors shall be considered with respect to the need to further expand the sample.

Scope. In addition to design review functions, the independent reviewers should respond, in detail, to each allegation of CASE concerning hardware design problems. This response should indicate the criteria that are applied, where they are derived from and how each criterion is met. The review should cover those problems considered in this opinion by the Board, which may be persuaded to modify its present determinations based on carefully reasoned presentations of the design review organization.

Documentation and Presentation. Each analysis of an observed potential deficiency should be documented in the report. There should be no vague assertions such as "we have been assured." Scoping calculations or other analyses should be presented. Extensive documentation (such as lists of criteria) should be accompanied by tables of contents and indexes of sufficient detail to make the material accessible to this Board. Design discussions should be accompanied by drawings that will make the discussion clear. Tables and graphs may be used to clarify the presentation.

Review. To facilitate timely review, the report should be prepared in phases, and drafts of discrete segments should be published. Applicant and CASE would have thirty days (and the staff would have ten additional days) within which to file, by first class mail or more expeditious method, carefully reasoned, documented objections to these segments, subject to extensions of time granted by the Board for good cause. The design review organization should respond fully to each of these comments in a report supplement, making alterations in the report if appropriate. Alterations made in response to comments will, however, be subject to the same review process.

Hearing Process. After final publication of the document, the parties would have thirty days (staff would have ten additional days) within which to file written exceptions. These exceptions would be limited to matters that a party has previously raised or that the party attempted to raise previously, in a timely manner, but was prevented from raising. There would then be a fifteen-day period for responses, with staff having an additional ten days.

Because this decision does not finally resolve the Walsh/Doyle issues, we have not considered it to be a partial initial decision, subject to

appeal. However, due to the importance of the matter involved and the apparent expense of complying with our suggestions for remedying the problems we have found, we would be receptive to motions to refer this decision to the Appeal Board, either before or after motions to reconsider may be filed before us. (Due to the noliday season, motions to reconsider may be filed 20 days after issuance of this decision.)

ORDER

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 28th day of December 1983,

ORDERED

1. Citizens Association for Sound Energy's (CASE) contention concerning design quality assurance is found to be meritorious, to the extent indicated in the accompanying memorandum.

2. Texas Utilities Generating Company, *et al.*, may, within thirty days, file a plan designed to satisfy the Board concerning the issues discussed in this decision. An appropriate extension of time may be granted, particularly if a party files a motion for reconsideration of this decision within twenty days of issuance.

3. CASE has twenty days from the date of filing of the plan specified in ¶ 2 within which to respond to that plan. The staff has five additional days.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Walter H. Jordan (by PBB)
ADMINISTRATIVE JUDGE

Kenneth A. McCollom (by PBB)
ADMINISTRATIVE JUDGE

Bethesda, Maryland

ATTACHMENT A

Applicants' and Staff's Witnesses and Testimony

I. APPLICANTS

In response to the allegations made by Messrs. Walsh and Doyle, Applicants presented at the September 1982 hearing a panel of five witnesses with expertise in pipe support design and related fields. These witnesses submitted written testimony regarding the pipe support design allegations and were cross-examined (Applicants' Exhibits 142 and 142F). In addition, oral direct testimony was presented by three of these witnesses and another individual as a panel in the May 1983 hearing.

Applicants presented Mr. Kenneth L. Scheppele as an expert in structural engineering (Applicants' Exhibit 142 at 1). Mr. Scheppele is Senior Vice President of the architect/engineer for Comanche Peak, Gibbs & Hill, Inc., and is a registered professional engineer. His qualifications in the field of structural engineering are extensive. (Applicants' Exhibit 19; Tr. 3086.)

Applicants also presented Mr. Roger F. Reedy as an expert in the development, interpretation and application of the ASME Code with regard to general requirements, materials, fabrication, examinations, design and analysis. Mr. Reedy has extensive experience in his field of expertise. He is a registered structural engineer in Illinois and a registered professional engineer (civil) in five states. He has been involved in the design of components for nuclear power plants since 1956. He has served as the responsible registered professional engineer for the design of nuclear reactor vessels, containment vessels, piping and supports. He has been chairman of the ASMF Section III Code Committee since early 1977. He assisted in the development of Section III prior to its publication in 1963 and has been a member of the ASME Code Committee since 1969. He personally compiled the Code rules and Subsections NC, ND and NE for inclusion in the 1974 Code Edition, and provided guidance to the task group developing the rules for Subsection NF prior to its adoption into Section III. Mr. Reedy was a founding member of the ASME Pressure Vessel and Piping Division and Chairman of the Professional Division in 1979. In 1982, Mr. Reedy was awarded the honor of ASME Life Fellow because of his ASME Code work and design developments for multi-layered vessels. (Applicants' Exhibits 142 at 2-4; 41.)

Dr. Peter S.Y. Chang was presented by Applicants as an expert in pipe support engineering and STRUDL analysis. Dr. Chang has a Ph.D. in

Civil Engineering and is a registered professional engineer. Dr. Chang is the Chief Engineer, Pipe Support Engineering for Comanche Peak. He has eleven years of practical experience in the design and analysis of power plant structures, the last nine years being on nuclear plants. He is experienced in the application of the ASME Code, Section III, to containment vessel, pipe stress and pipe support analysis and design. Dr. Chang is experienced in the development of computer programs for modelling static, thermal, seismic and other transient loadings for nuclear power plants. His experience with the application of the STRUDL Code has included advanced lectures and seminars on STRUDL, in addition to graduate course work in topics related to STRUDL analysis. Dr. Chang served as a supervising engineer responsible for structural analysis and design for static, thermal, seismic and other loads for all safety-related buildings at another nuclear project. Since coming to Comanche Peak in 1981, he has been responsible for small-bore ASME pipe stress analysis and ASME NF pipe support design. (Applicants' Exhibits 142 at 4-5; 142A.)

Mr. John C. Finneran, Jr., presented testimony for Applicants as an expert in structural engineering. Mr. Finneran has Bachelor's and Master's Degrees in Civil Engineering and is a member of the American Society of Civil Engineers. He is a registered professional engineer. Mr. Finneran is the Pipe Support Engineering Supervisor for Comanche Peak. He has several years' experience in structural engineering in design and analysis of substation and transmission structures for power plants, and he has been a supervisor of structural engineering groups at Comanche Peak for three years. (Applicants' Exhibits 142 at 7; 142B.)

Also, Mr. Gary Krishnan was presented by Applicants as an expert in pipe stress analysis. Mr. Krishnan is the Site Stress Analysis Group Supervisor for Comanche Peak. Mr. Krishnan has Bachelor's and Master's Degrees in Mechanical Engineering. His Master's degree is in the area of stress analysis. He has eight years' experience in pipe stress analysis at nuclear facilities. He has been a Senior Engineer for Gibbs & Hill for three years, performing pipe stress analyses of safety class piping. (Applicants' Exhibits 142 at 8-9; 142C.)

Finally, Applicants presented Mr. Michael A. Vivirito as an expert in structural engineering (on a panel with Messrs. Reedy, Finneran and Chang) during the May 1983 hearings to testify in response to NRC Staff testimony and the surrebuttal testimony of CASE's witnesses. Mr. Vivirito is the Vice President - Power Engineering of Gibbs & Hill. Mr. Vivirito is a registered professional engineer and has thirty-five years' experience in structural engineering, including seventeen years' experience in the design and construction of nuclear power reactor facilities.

He is a member of the American Society of Civil Engineers and has served on numerous professional committees. (Applicants' Exhibit 154.)

II. NRC STAFF

The NRC initially presented in the September 1982 hearings two witnesses to address the pipe support design allegations. Mr. Joseph I. Tapia and Dr. W. Paul Chen submitted prefiled testimony on this matter (identified as NRC Exhibit 201), but because they had not had an opportunity to complete their review of Mr. Doyle's allegations, the Board suspended the taking of evidence on that question until such time as the Staff was prepared to proceed (Tr. 5407, 5410). Upon completion of its review of the pipe support design allegations, the Staff issued an inspection report (I&E Report 82-26/82-14, cover letter dated February 15, 1983). That report was received into evidence at the May 1983 hearings (NRC Exhibit 207). The Staff also submitted the testimony of Mr. Tapia and Dr. Chen regarding pipe support design, and supplemental testimony of Messrs. Tapia, Spottswood Burwell, Robert G. Taylor and Drs. Chen and Jai Raj N. Rajan on the same topic, as well as with respect to the NRC Construction Appraisal Inspection Team ("CAT") report for Comanche Peak (NRC Staff Testimony and Supplemental Testimony, following Tr. 6402). In addition, the Staff presented the testimony of Mr. A.B. Beach, as a member of the CAT, regarding the pipe support findings of the CAT (following Tr. 6283).[1]

Mr. Tapia is the Reactor Inspector in the Engineering Section of the Division of Resident, Reactor Projects and Engineering Programs, NRC Region IV. He had held this position since 1976. Mr. Tapia has Bachelor's and Master's Degrees in Civil Engineering. Mr. Tapia is a member of the American Society of Civil Engineers; the International Society of Soil, Mechanics and Foundation Engineering; and the American Concrete Institute, serving as a member of that Institute's Committee on Quality Assurance Systems for Concrete. (NRC Exhibit 8.)

Dr. Chen is the Manager of the Stress Analysis Unit of the Systems Engineering Department of the Energy Technology Engineering Center, a U.S. Department of Energy Laboratory. Dr. Chen has Bachelor's and Master's Degrees in Civil Engineering and Applied Mechanics, and a

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[1] The Construction Appraisal Team is an NRC-commissioned team of inspectors who are charged with conducting reviews of the adequacy of construction at facilities nearing completion. This team presented testimony at the June 1983 hearing regarding its findings, and our decision on the CAT Report will be issued at a later time. We address in this decision only those aspects of the CAT Report (NRC Exhibit 206) that concern pipe supports.

Ph.D. in Theoretical and Applied Mechanics. Dr. Chen is responsible for the technical review of portions of the FSAR, including the pipe support stress analysis performed by Applicants. Dr. Chen has extensive experience in areas relating to material properties and stress analysis. He is responsible for performance of ASME compliance analysis of piping and components for ETEC. (Chen Statement of Qualifications, attached to NRC Staff Testimony following Tr. 6402.)

Mr. Burwell is the NRC Operating License Project Manager for Comanche Peak. He is responsible for managing and participating in the safety and environmental reviews, analyses and evaluations associated with licensing actions at Comanche Peak. Mr. Burwell has Bachelor's and Master's Degrees in Mechanical Engineering, and is a registered professional engineer. Mr. Burwell has extensive experience in the design and construction of components for nuclear power reactors. He has worked at the NRC since 1969. (Burwell Statement of Qualifications, attached to NRC Staff Supplemental Testimony, following Tr. 6402.)

Dr. Rajan is the mechanical engineer responsible for reviewing and evaluating safety analysis reports with regard to the dynamic analysis and testing of safety-related systems and components, and the criteria for protection against the dynamic effects associated with postulated failures of fluid systems for nuclear facilities. Dr. Rajan has Bachelor's Degrees in Physics, Mathematics and Chemistry and Civil Engineering; a Master's Degree in Applied Mechanics and a Ph.D. in Fluid Mechanics. He has extensive experience in the design, analysis, testing and evaluation of fluid piping systems and power fluid systems of nuclear reactors. He has contributed to published papers in various professional journals, and is a part-time professor in the fields of mechanics, materials, fluid mechanics and applied mechanics. (Rajan Statement of Qualifications, attached to NRC Supplemental Testimony, following Tr. 6402.)

Mr. Taylor is the Resident Reactor Inspector at Comanche Peak, a position he has held since 1978. He is responsible for conducting and coordinating all safety-related inspection efforts by the NRC Region at the site. Mr. Taylor is a registered professional engineer, specializing in quality control engineering. Mr. Taylor has thirty years of experience in the quality engineering field, including fifteen years of experience in quality assurance and reactor inspection in the nuclear power reactor field. Mr. Taylor joined the NRC in 1976 and served as the reactor inspector at two other power reactors prior to being assigned to Comanche Peak. (NRC Exhibit 9.)

Directors' Decisions Under 10 CFR 2.206

DIRECTORS' DECISIONS

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF INSPECTION AND ENFORCEMENT

Richard C. DeYoung, Director

In the Matter of **Docket No. 50-358**
(10 C.F.R. § 2.206)

CINCINNATI GAS & ELECTRIC COMPANY
(William H. Zimmer Nuclear Power Station)

December 16, 1983

The Director of the Office of Inspection and Enforcement denies a petition submitted by Thomas Devine of the Government Accountability Project, on behalf of the Miami Valley Power Project, requesting that the Commission take certain actions with respect to the William H. Zimmer Nuclear Power Station.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

By letter to the Nuclear Regulatory Commission dated May 25, 1983, Thomas Devine of the Government Accountability Project, on behalf of the Miami Valley Power Project (hereinafter referred to as MVPP or the petitioner), requested that the Commission take certain actions with respect to the William H. Zimmer Nuclear Power Station. At the time, a partial denial of an earlier petition filed by MVPP was pending before the Commission for its review under 10 C.F.R. § 2.206(c). *Cincinnati Gas & Electric Co.* (William H. Zimmer Nuclear Power Station), DD-83-2, 17 NRC 323 (1983). Although it declined to disturb the Director's Decision then pending, the Commission referred MVPP's May 25th letter to the NRC staff for treatment as a new request for

action pursuant to 10 C.F.R. § 2.206 of the Commission's regulations. Notice of the request was published in the *Federal Register* on July 6, 1983. 48 Fed. Reg. 31,119. On August 10, 1983, the Cincinnati Gas & Electric Company (CG&E), the licensee for the Zimmer facility, filed comments opposing MVPP's petition.

I.

On November 12, 1982, the Commission suspended construction of the Zimmer project pending the satisfaction of certain conditions which required rehabilitation of the licensee's management and execution of its responsibilities under the Commission's requirements. Order to Show Cause and Order Immediately Suspending Construction, CLI-82-33, 16 NRC 1489 (1982). The Commission's order required an immediate halt to safety-related construction on the Zimmer station and required the licensee to show cause why the suspension should not continue pending review and implementation of proposals to improve the licensee's management of the project, to verify the quality of construction work and to ensure that future construction would conform to the Commission's requirements. The licensee consented to the order and, accordingly, took steps to comply with its provisions.

The order required the licensee to obtain an independent review of the management of the Zimmer project, and specified several management alternatives to be considered in conducting this review. Upon completion of the independent management review, the order required the licensee to submit its recommended course of action, based upon the findings of the review, to the Regional Administrator of NRC Region III for his approval. *See* 16 NRC at 1497-98. With NRC approval, CG&E retained Torrey Pines Technology to conduct the independent review of the management of the Zimmer project. *See* Letter from James G. Keppler, Regional Administrator, NRC Region III, to William H. Dickhoner, President, Cincinnati Gas and Electric Co. (April 15, 1983). Torrey Pines completed its management review and submitted a report to the NRC and CG&E in August 1983. After reviewing the Torrey Pines report, CG&E submitted to the Regional Administrator for his approval a proposed course of action for completion of the Zimmer project. *See* Letter from W.H. Dickhoner, President, Cincinnati Gas and Electric Co., to James G. Keppler, Regional Administrator, NRC Region III (Oct. 5, 1983), transmitting Course of Action for the William H. Zimmer Nuclear Power Station (hereinafter cited as Course of Action). The staff has reviewed the Course of Action, as modified by subsequent filings from CG&E in response to staff questions developed

from the staff's and public comments on the Course of Action, and the Regional Administrator has today approved it.

II.

Before the Commission issued its suspension order, MVPP had filed a petition on August 20, 1982, with the Commission which requested suspension of construction and other relief. This petition was referred to the staff for consideration in accordance with 10 C.F.R. § 2.206. The Commission's order substantially granted MVPP's petition by imposing an immediate suspension of construction and by requiring an independent management review and institution of a program to verify the quality of construction as conditions of any resumption of construction. DD-83-2, 17 NRC at 324. The staff denied the petitioner's request insofar as it asked that CG&E be removed from any responsibility for reverification of the quality of construction. *Id.* at 325-26.

In its May 25, 1983 letter, MVPP asked that the Commission modify the suspension order and the Director's Decision (DD-83-2) and thereby grant further relief pertaining to the suspension of Zimmer's construction. MVPP takes issue with the Commission's order and with DD-83-2 in that both permitted the Quality Confirmation Program (QCP)[1] to continue at Zimmer and did not remove CG&E from control of, or responsibility for, the QCP and the quality assurance program. MVPP Request at 3. MVPP asserts that CG&E should be removed from responsibility for quality assurance activities. MVPP requested that the Commission take these three steps: (1) suspend the ongoing quality confirmation program and related activities being conducted at Zimmer; (2) remove CG&E from any decisionmaking role with respect to the recommendations of Torrey Pines, and require that the results of Torrey Pines' review be submitted directly to the NRC for approval; and (3) prohibit Torrey Pines from considering any organizational alternative that would allow the licensee to retain control of the quality verification and quality assurance programs until Zimmer is completed. MVPP Request at 7.

[1] The QCP is a program which has been under way since 1981 and whose objective is to determine the quality of completed construction work at Zimmer in areas where questions as to quality had been raised.

III.

MVPP's requests to restructure the handling and scope of Torrey Pines' management review under the Commission's order are denied.

Prohibiting Torrey Pines from considering management alternatives which allowed CG&E to retain control of the Zimmer quality verification and quality assurance programs would have unduly restricted the scope of the management review mandated by the order. The independent management review was intended to examine deficiencies in management that contributed to the Zimmer project's problems and to suggest possible strategies to remedy those management deficiencies. Thus, the Commission's order encouraged consideration of a spectrum of management alternatives and, indeed, required consideration of alternatives that would require the quality assurance program to be conducted by an experienced outside organization. CLI-82-33, 16 NRC at 1497. There is nothing inherently wrong with considering alternatives that include CG&E in a continuing role in the quality assurance of reverification programs, because such alternatives may be acceptable to fulfill the conditions of the order. In all events, consideration of an alternative is not tantamount to its approval under the order.

As to the petitioner's request that the licensee be removed from "any decisionmaking role with respect to the Torrey Pines reccommendations," and that instead the NRC itself approve the recommendations, it should be noted that the Commission's order requires that the NRC approve any revised management structure. The order requires CG&E to evaluate the recommendations of the independent management review, and then "submit to the Regional Administrator the licensee's recommended course of action on the basis of this independent review. . . . The licensee's recommendations and its schedule for implementation of those recommendations *shall be subject to approval* by the Regional Administrator." CLI-82-33, 16 NRC at 1498 (emphasis added). While the licensee may propose a management structure, it is the NRC which makes the determination as to the adequacy of that proposal. NRC's role in approving the revised management structure affords sufficient control to ensure that adequate measures to correct management deficiencies are taken by the licensee under the order.

IV.

The remainder of this decision examines the petitioner's request that CG&E be removed from the conduct of the quality assurance and quality

verification programs and that the QCP and related quality assurance activities be suspended. The petitioner identifies several new developments in support of its request: the licensee's "prejudgment" of the results of the Torrey Pines review; the existence of litigation between the utilities which own the Zimmer facility; and contradictions between NRC and licensee findings as to the quality of the as-built condition of the Zimmer plant. *See* MVPP Request at 3. For the reasons stated herein, this aspect of the relief requested by the petitioner is also denied.

With respect to the licensee's "prejudgment" of the management review, the petitioner alleges that CG&E devised "secret plans . . . to circumvent the independent management review process in order to avoid time delays." MVPP Request at 5. MVPP was particularly concerned that "CG&E [would] attempt to develop verification and construction completion plans while Torrey Pines Technology [was] conducting the management review to recommend the appropriate reforms" to enable CG&E to complete the Zimmer project. *Id.*

During and subsequent to the management review conducted by Torrey Pines Technology, there has been no indication that the licensee would accept the results of that inquiry in other than good faith or otherwise take action to undermine the Torrey Pines review. CG&E did not stop all activity at the Zimmer site during the review, nor did the Commission's order require it to do so. In a letter dated February 28, 1983, CG&E informed the staff of its plans to undertake preparatory work in anticipation of developing a new program to verify the quality of the plant.[2] *See* Letter from William H. Dickhoner, President, Cincinnati Gas and Electric Company to James G. Keppler, Regional Administrator, NRC Region III (Feb. 28, 1983). In this letter, CG&E also advised the staff that it intended to retain Bechtel Power Corporation as a consultant to assist it in these activities. CG&E expressly stated its recognition that the described activities would be undertaken at its risk and would be subject to possible "amendment or elaboration" based upon the results of the independent management review.

By letter dated March 10, 1983, the NRC staff acknowledged CG&E's letter and concurred in CG&E's assessment that the enumerated activi-

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[2] These preparatory activities included:

1. Review or development of a Project Procedures Manual;
2. Review of documentation programs;
3. Review of existing training programs and initiation of additional programs, if required;
4. Establishment of programs to organize the data available on various safety-related construction matters;
5. Review of the status of the Final Safety Analysis Report;
6. "Walkdown" of the plant to determine its physical "as built" condition; and
7. Analysis of existing computer programs and development of new ones, as required.

ties were not prohibited by the Commission's order. The staff emphasized, however, that these activities could not be permitted to curtail in any way the reorganization options open to consideration by the independent management reviewer. An enumeration of additional activities undertaken by CG&E prior to receipt of Torrey Pines' recommendations was contained in a letter from the licensee to the project manager of the Torrey Pines review. *See* Letter from J. Williams, Jr., Cincinnati Gas and Electric Co., to A.J. Neylan, Torrey Pines Technology (June 30, 1983).[3]

None of these activities were secret, but were instead made known to the staff and were placed on the public record. It is unclear whether the petitioner's reference to the circumvention of the independent management review encompasses the preparatory activities; nonetheless, there appears to be no basis for viewing these activities as such. It was not unreasonable for CG&E to initiate activities to strengthen its organization and to enable it to "react promptly and comprehensively" to Torrey Pines' recommendations when they were made. *See* Williams Letter of June 30, 1983, at 5. So long as the activities did not compromise the independence of Torrey Pines' management review nor involve safety-related construction, CG&E was not prohibited under the Commission's order from undertaking such work. Based upon a review of the Torrey Pines report, correspondence between Torrey Pines and CG&E, discussions between the NRC staff and Torrey Pines, and NRC inspections, there is no indication that CG&E compromised Torrey Pines' independence, otherwise undermined the results of its review, or continued safety-related construction.

As another development supporting its request, MVPP points to litigation which has been instituted against CG&E by one of its partners in the Zimmer project, the Dayton Power and Light Company (DP&L). As characterized by the petitioner, this litigation raises issues concerning

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[3] This letter was written at the request of Mr. Neylan for Mr. Williams to put in writing some of his ideas and philosophy regarding the future conduct of the Zimmer project. Mr. Williams enumerated steps that he had commenced to effect "a complete reorganization and strengthening of the project staff within CG&E." *See* Letter at 1. Mr. Williams stated that he recognized that further restructuring of the CG&E organization might be necessary as a result of Torrey Pines' recommendations, but that he believed the steps he had taken would be essential in any restructured organization proposed by CG&E as a result of the Torrey Pines review. *Id.* at 3. Mr. Williams also assured Mr. Neylan that the "tentative plans" outlined in his letter constituted only his thinking at that time and that he awaited the report and recommendations of Torrey Pines, which would receive CG&E's "most thoughtful consideration." *Id.* at 5.

the financial obligations between the Zimmer partners.[4] The petitioner draws two conclusions from the pendency of this litigation. First, MVPP asserts that DP&L's claims provide further support for the petitioner's lack of faith in CG&E's corporate character and competence. Second, MVPP asserts that, as a result of the litigation, CG&E now finds itself in a "unique conflict of interest":

> Each CG&E finding through the QCP or its own QA program weakens its legal position if the results evidence previous mismanagement or neglect, or require expensive and time-consuming corrective action. The stakes at Zimmer are too serious to gamble that CG&E is so objective [that] it will make disclosures that could defeat its lawsuit.

Request at 6.

With respect to MVPP's first conclusion, the eventual results of the arbitration might include facts or findings on CG&E's corporate character or competence which might be relevant to the NRC's ongoing consideration of CG&E's application for an operating license or indicate a need for further enforcement action. The history to date of this project clearly raises questions concerning CG&E's performance. For that reason the Commission's order was issued. The order is designed to remedy the past management problems. Should CG&E fail to rehabilitate itself under the order, it faces revocation of its construction permit and denial of an operating license.

Other than citing the existence of the litigation itself, the petitioner has not set forth an adequate basis for the assumption that CG&E might ignore its obligation to report to the NRC deficiencies or problems identified at the Zimmer facility. The licensee must report certain construction deficiencies under the NRC's regulations in 10 C.F.R. § 50.55(e) and 10 C.F.R. Part 21. Moreover, the Commission's order requires the licensee to address the means of ensuring that construction

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[4] The petitioner identifies the issues as whether:

1. DP&L is obligated to continue to pay all costs billed to it in view of the history and current status of the project, and in view of CG&E's inability or refusal to specify a completion date or a defined completion cost, or develop a satisfactory scheduled program;
2. CG&E had sufficient knowledge that actions against suppliers for failure to comply with contractual obligations should have been initiated or other available remedies pursued;
3. DP&L's percentage of undivided interest in Zimmer and its corresponding entitlement to capacity of Zimmer as stated in the Basic Generating Agreement should be modified;
4. The rights, obligations and duties of the parties under the Basic Generating Agreement and the Zimmer Operating Agreement should be modified; and
5. DP&L should be awarded damages resulting from CG&E's performance under the Basic Generating Agreement.

MVPP Request at 5-6. MVPP also notes that CG&E has sought a stay of the arbitration proceedings instituted by DP&L and a declaratory judgment that the issues raised are not subject to arbitration, and has further announced that it would "prepare for and defend against [the] claims" raised by DP&L. *Id.* at 5-6.

quality is verified and that the Quality Confirmation Program has adequately identified potential construction deficiencies at the areas in which it has been conducted. *See* CLI-82-33, 16 NRC at 1498. The petitioner's contention is premised essentially on the assumption that the licensee will deliberately ignore or fail to meet its reporting obligations in order to gain an advantage in the arbitration. MVPP provides no evidence which would warrant the Commission to indulge in such an assumption for this or any other licensee. While a concerted effort to avoid its reporting responsibilities might afford a licensee some short-term gain, the licensee and its responsible officials risk potentially severe criminal and civil sanctions for such conduct. MVPP's reasoning on this point is insufficient to support its request for relief. *Cf. Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-78-1, 7 NRC 1, 18-19 (1978); *Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), CLI-83-21, 18 NRC 157 (1983) (48 Fed. Reg. 38,702 (1983)), *affirming* DD-83-2, 17 NRC 327 (1983).

The more significant development cited by the petitioner in support of its request concerns contradictions between NRC and CG&E assessments of the quality of the as-built condition of Zimmer. The petitioner compares the findings of a special NRC inspection team (hereinafter referred to as the NET team)[5] to the licensee's answers in response to a staff demand for information.[6] According to the petitioner, the contradictions in the documents "cast serious doubt on CG&E's judgment" and "demonstrate the inherent inadequacy of the QCP's patchwork approach to checking the quality of Zimmer." MVPP Request at 3-4.

The petitioner's assertion that CG&E's ability to assess the quality of construction at Zimmer is called into question by the NET team findings appears to be unfounded. These documents are not comparable. The licensee's response addressed specific allegations raised by MVPP in its August 1982 petition 10 C.F.R. § 2.206. In contrast, the NET team was assembled by NRC to provide an independent evaluation of the extent of hardware problems at Zimmer.

Although the NET team developed its findings subsequent to the submittal of the CG&E response, it did not rely upon the answers provided by CG&E. Rather, the NET Report was based on the NRC review team's independent inspection of the facility. The CG&E response was directed to specific allegations. In contrast, the NET Report took a

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[5] The NRC inspection team findings referenced by the petitioners are contained in the *Report of the NRC Evaluation Team on the Quality of Construction at the Zimmer Nuclear Power Station*, NUREG-0969 (April 1983).

[6] On September 24, 1982, the staff transmitted, pursuant to 10 C.F.R. § 50.54(f), a Demand for Information to the licensee concerning the Zimmer facility. The licensee responded on February 28, 1983.

broader view of the facility in an attempt to ascertain the extent of Zimmer's hardware problems. In view of these fundamental differences, the CG&E response and the NET Report cannot be meaningfully compared.

Moreover, in comparing CG&E's response with statements in the NET Report identified by the petitioner, contradictions do not appear to be evident. For example, MVPP identifies a passage from CG&E's response which states that a determination as to whether the as-built condition of Zimmer reflects a proper design can be made based upon the QCP and an independent design review,[7] and that design document changes are being reviewed as part of the QCP to assure that they have been properly considered. MVPP Request at 4; *see also* CG&E Response to Demand for Information at 36, 38. The petitioner contrasts this response to a conclusion from the NET Report that "an independent design audit is recommended to resolve the issue of design adequacy satisfactorily . . . in addition to the QCP efforts . . . in the design area." MVPP Request at 3-4, *quoting* NET Report at 224. Both statements indicate support for an independent design review or audit. While there may be differences in specific aspects of CG&E and the NET Report findings, the recommendation as to the independent design review is essentially the same. Although not required by the Commission's November 1982 order, CG&E has proposed an independent design review as part of its course of action. Accordingly, there does not appear to be any basis for drawing CG&E's judgment into question.

The petitioner asserts that the NET Report findings "demonstrate the inherent inadequacy of the QCP's patchwork approach to checking the quality of Zimmer." MVPP Request at 4. MVPP bases its conclusion on the fact that the QCP had not identified all of the deficiencies identified in the NET Report, including findings of structural steel bolting deficiencies. As to the structural steel and masonry wall safety-related bolted connections referenced by the petitioners, CG&E has specifically identified these problems as items which will be reviewed under its plan to verify the quality of the Zimmer project's construction. Moreover, CG&E has formulated a specific plan to deal with the findings of the NET Report. *See* Course of Action, Attachment 3.

The failure of the QCP to duplicate findings discovered by the NET team does not demonstrate, in and of itself, the inherent inadequacy of that program. The QCP has been successful in identifying a number of problems with the Zimmer project. In any event, the QCP will not be the only program relied upon to verify the adequacy of construction at

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[7] The independent design review subsequently outlined in a letter from CG&E to the staff dated October 26, 1983 and the detailed plan will be submitted to the NRC staff for approval.

Zimmer. Since issuance of the Commission's order, the licensee has continued the QCP at its own risk. As discussed more fully below, the results of the QCP are subject to verification under the plan to verify the quality of construction required by the Commission's order. Should significant deficiencies be found with the results of the QCP, those areas of the Zimmer facility verified under the QCP will be subject to reverification. The Commission was well aware of potential inadequacies in the QCP when the November 1982 order was issued. For this reason, the Commission's order required CG&E to develop a revised plan to verify the quality of construction which included consideration of whether the scope and depth of the QCP should be expanded. *See* CLI-82-33, 16 NRC at 1498. Given the nature of the QCP and the order's requirement to develop a comprehensive quality verification program that includes consideration of the adequacy of the QCP, suspension of the QCP is not required now in the interest of public health and safety.

CG&E's strategy to resolve the problems at Zimmer has evolved in important respects since the submittal of MVPP's petition, particularly as a result of the requirements of the Commission's order. It is evident from the Course of Action that substantial changes have been and will be made to CG&E's management to improve its ability to construct the Zimmer plant in accordance with the Commission's requirements. CG&E has proposed as part of its Course of Action to complete construction of the Zimmer facility, both an independent design review and a "Plan to Verify the Quality of Construction" (PVQC). In Section IV.B(2)(a) of its November 1982 order, the Commission required CG&E to submit an "updated comprehensive plan to verify the quality of construction of the Zimmer facility . . . ." The Commission further directed that: "[i]n preparing this updated comprehensive plan, the licensee shall review the ongoing Quality Confirmation Program to determine whether its scope and depth should be expanded in light of the hardware and programmatic problems identified to date." 16 NRC at 1498.

Although the details of the PVQC have not been submitted, the scope and organizational structure for the conduct of the plan is contained in the proposed Course of Action. *See* Course of Action at 21-30. The staff will review the PVQC when submitted by the licensee in accordance with Section IV.B(2) of the order. The PVQC is subject to the approval of the Regional Administrator, under the order. 16 NRC at 1498. Based upon a review of the ou ine of the PVQC in the Course of Action, the PVQC appears to be sufficient to resolve MVPP's concern with the conformance of the as-built condition of Zimmer to its design. The validation of design documents by Sargent and Lundy will include a compari-

son "to the as-constructed condition through visual and, as appropriate, physical inspections, as described in the COA." Letter from Joe Williams, Jr., Senior Vice President, Cincinnati Gas and Electric Co. to James G. Keppler, Regional Administrator, NRC Region III (November 21, 1983). The licensee has also stated that the PVQC will include "[p]hysical inspections of safety-related systems, structures or components . . . as necessary and appropriate to inspect nonvisual attribute requirements of design drawings and specifications." Areas to be physically inspected include items identified by the NET team and "in public allegations now on file." Letter from Joe Williams, Jr. to James G. Keppler, Attachment at 2-3 (November 18, 1983).

The NRC itself remains substantially involved in oversight of the activities at Zimmer. As noted above, the Commission's order, in addition to requiring that the Region III Administrator approve the licensee's course of action, also requires that the PVQC be subject to his approval. CLI-82-33, 16 NRC at 1498. The staff will also continue its routine inspection activities at the site. Moreover, the Commission's order requires that the PVQC "include an audit by a qualified outside organization, which did not perform the activities being audited, to verify the adequacy of the quality of construction . . . ." *Id.* The requirement that a qualified, outside organization audit the PVQC and the NRC's own inspection presence at Zimmer should also help assure that the licensee and its agents adhere to the plan it has proposed to verify the quality of construction. Any inadequacies in the licensee's ongoing quality confirmation program should also be resolved by implementation of the licensee's Course of Action.

Based upon the staff's review of the matters set forth in MVPP's petition and its review of the Course of Action proposed by CG&E, I find that there is no basis at this time to suspend the QCP or to remove CG&E from responsibility for quality assurance and verification efforts. Accordingly, the petitioner's request is denied.

Richard C. DeYoung, Director
Office of Inspection and
Enforcement

Dated at Bethesda, Maryland,
this 16th day of December 1983.

Denials of Petitions for Rulemaking

DENIALS OF PETITIONS FOR RULEMAKING

Cite as 18 NRC 1473 (1983) DPRM-83-3

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gilinsky
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal

In the Matter of **Docket No. PRM-60-1**

STATES OF TEXAS, WISCONSIN, MINNESOTA, NEVADA, AND UTAH **December 9, 1983**

The Commission denies a petition for rulemaking by several States who proposed that the NRC adopt certain formal procedures for Commission concurrence in siting guidelines proposed by the Department of Energy for high-level radioactive waste repositories. The Commission finds that the proposed procedures are not required by the Administrative Procedure Act or the Nuclear Waste Policy Act of 1982 and that petitioners' concerns are addressed adequately by the opportunity to publicly address the Commission on DOE's siting guidelines.

NUCLEAR WASTE POLICY ACT: NRC CONCURRENCE IN DOE SITING GUIDELINES (STATUTORY RESPONSIBILITY)

Neither the Nuclear Waste Policy Act nor the Administrative Procedure Act requires the Commission to adopt any particular procedures in determining whether to concur in DOE's siting guidelines.

NUCLEAR WASTE POLICY ACT: NRC CONCURRENCE IN DOE SITING GUIDELINES (STATE ROLE)

Nothing in the Nuclear Waste Policy Act suggests that States have a special role in the NRC concurrence process that would mandate the use of formal procedures

NUCLEAR WASTE POLICY ACT: NRC CONCURRENCE IN DOE SITING GUIDELINES (RULEMAKING)

NRC concurrence in DOE siting guidelines is not rulemaking under the Administrative Procedure Act.

NUCLEAR WASTE POLICY ACT: NRC CONCURRENCE IN DOE SITING GUIDELINES (AMENDMENTS TO GUIDELINES)

Under the Nuclear Waste Policy Act, DOE must obtain NRC concurrence in any proposed amendments to the DOE siting guidelines.

DENIAL OF PETITION FOR RULEMAKING

I. BACKGROUND

On September 2, 1983, Mr. Ken Cross, an Assistant Attorney General for the State of Texas, on behalf of the States of Texas, Wisconsin, Minnesota, Nevada and Utah ("Petitioners"), petitioned the Commission to adopt a proposed rule that would have established procedures for public participation in the Commission's concurrence in DOE's siting guidelines for high-level radioactive waste repositories.

The Commission is mindful of the importance of its role to concur in the DOE siting guidelines and recognizes the Petitioners' interest in the guidelines. However, the Commission believes that the opportunity for oral presentation to the Commission will provide an adequate opportunity for Petitioners to express their concerns and for the Commission to understand those concerns.

The benefits of oral presentation include the discipline imposed on the participants to focus their concerns and the opportunity for give-and-take between the participants and the Commissioners. Additional opportunity for written comment as Petitioners propose might enlarge the body of information before the Commission; however, this fact must be weighed against the time it would take to complete the procedures in this case because the NWPA objectives include timeliness. On the basis of its experience with rulemakings, the Commission believes that the procedures could not be completed in less than 9-12 months.

Therefore, given the opportunity for oral and written presentation to the Commission, the record of public participation before DOE, and the interest in a timely (and fair) concurrence process, the Commission denies the petition.

II. THE PETITION

The text of Petitioners' proposed rule appears at 48 Fed. Reg. 48,473-74 (1983).[1] Essentially, Petitioners proposed that the Commission adopt the following steps in its process for concurring in DOE's siting guidelines:

1. A DOE request for NRC concurrence on proposed guidelines would be supported by: (a) a description of the technical rationale behind the guideline objectives; (b) a full description of DOE's decision process; and (c) a list of issues for which DOE wishes Commission review.

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[1] Attached to the comment submitted by the Department of Energy and Transportation of the State of Mississippi is a copy of a letter to the Commission dated September 13, 1983 giving notice of that State's intent to join the State of Texas as a co-petitioner and suggesting a modification to the proposed rule to add a public hearing on any NRC draft analysis of DOE's guidelines. The Commission has no record of receiving that letter before it received Mississippi's comment (dated November 1, 1983). Thus, the Commission received Mississippi's proposal too late to treat it as part of the petition. Moreover, the State of Mississippi did not inform the Commission that the NRC's October 19, 1983 notice of receipt of the Petitioners' petition for rulemaking made no mention of the State of Mississippi's September 13, 1983 letter. In any event, the Commission believes that publication of the State of Mississippi's proposal would not have significantly affected the comments received. Indeed, the Southwest Research Information Council, Serious Texans Against Nuclear Dumping and People Opposed to Wasted Energy Repository commented on the State of Mississippi's proposal. In considering these comments, the Commission treated Mississippi's proposal as a comment on the petition. The Commission's decision to deny the Petitioners' petition does not depend on the fine-tuning of procedural proposals. Rather, it is based on the Commission's determination that the proposed procedures are not legally required and would result in delay contrary to the public interest. Under these circumstances, the Commission determined that Mississippi's suggestion could be addressed without publication, especially in light of the Commission's having the benefit of comments supporting that suggestion. Because the State of Mississippi's proposal would have added even more procedures to the NRC's concurrence process, those additional procedures must also be rejected for the same reasons.

2. NRC would publish notice of receipt of DOE's request along with an NRC staff review of that request. Copies would also be provided to affected States and Indian tribes.
3. Subsequently, the NRC staff would publish for comment a draft analysis of the proposed guidelines. Affected States and Indian tribes would also be asked to comment.
4. After a comment period of at least sixty days, the NRC staff would publish a final analysis of the guidelines and provide copies directly to the affected States and Indian tribes. The Commission could then offer a discretionary public hearing on the staff's final analysis.
5. The Commission would then decide on whether or not to concur in DOE's proposed guidelines.

These procedures would also apply to any DOE proposals to revise the siting guidelines.

A. Bases for Request

DOE has notified three of the petitioners, the States of Texas, Nevada and Utah, that they have within their borders one or more potentially acceptable sites for the first high-level radioactive waste repository. These States believe that this circumstance provides them with an interest in a formalized mechanism by which they can participate in the NRC concurrence process. DOE has informed the other two petitioners, the States of Wisconsin and Minnesota, that they are potential candidates for a second waste repository. Accordingly, these States are also interested in participating in the NRC's concurrence in DOE's guidelines and in any proposed amendments to those guidelines.

Petitioners discussed three reasons supporting their belief that the NRC should adopt the proposed formalized concurrence procedure: (1) the procedures will promote NRC's distinctive role under the Nuclear Waste Policy Act of 1982 (NWPA); (2) NRC concurrence is rulemaking or its equivalent; and (3) the procedures are familiar and useful.

1. The Procedures Will Promote NRC's Role Under NWPA

Petitioners contend that the NRC's concurrence role under the NWPA indicates a congressional intent to attach special significance to NRC's concurrence in DOE's siting guidelines. Petitioners believe that their proposed rule will promote that congressional intent. Petitioners also contend that their proposed rule is a necessary and desirable means for promoting the NRC's distinctive role in developing the guidelines.

They argue that by providing for public participation in the concurrence process, the proposed rule will help to ensure that the siting guidelines reflect NRC policies because the public will have an opportunity to point out inconsistencies between the guidelines and NRC's technical licensing regulations.

2. NRC Concurrence Is Rulemaking or Its Equivalent

Petitioners contend that the act of concurrence or non-concurrence is an act of rulemaking subject to the notice-and-comment procedures of the Administrative Procedure Act (APA). In Petitioners' view, NRC's concurrence is an act of adoption of DOE's guidelines sufficient to make them an NRC rule. Accordingly, Petitioners believe that their proposed rulemaking procedures would satisfy the NRC's obligations under the APA to conduct a rulemaking on concurrence.

3. The Procedures Are Familiar and Useful

Petitioners believe that their procedures closely resemble those in 10 C.F.R. § 60.11 for NRC oversight of DOE site characterization of high-level waste repositories. Petitioners also believe that their proposed procedures would be useful because they would apply also to any proposed amendments to the siting guidelines.

III. COMMENTS ON THE PETITION

On October 19, 1983 the Commission published the text of the petition and a request for comments on it in the *Federal Register*. 48 Fed. Reg. 48,473. Although the comment period closed on November 2, 1983, the notice provided that late comments would be considered if it was practical to do so. The Commission received seventeen letters of comment in response to the notice, including one late comment that it was able to consider.[2]

Seven commenters opposed the proposed rule: the American Nuclear Energy Counsel ("ANEC"); the Atomic Industrial Forum's Subcommittee on High-Level Radioactive Waste ("AIF"); the Edison Electric Institute joined by the Utility Nuclear Waste Management Group

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[2] The Commission also received three mailgrams from private citizens in Mississippi who stated their support for the petition submitted by the Department of Energy and Transportation of the State of Mississippi. As noted above, the Commission is denying that petition as well because it requested procedures beyond those that the Commission has already determined are unnecessary and contrary to the public interest.

("EEI/UNWMG"); Duke Power Company ("Duke"); the U.S. Department of Energy ("DOE"); Middle South Services, Inc. ("MSS"); and Carolina Power and Light Company ("CP&L").

ANEC, the AIF and MSS contended that the NWPA does not require or support the proposed procedures. MSS stated its belief that if Congress had wanted formal rulemaking procedures for NRC concurrence it would have required such procedures. Because Congress did not so provide, MSS and ANEC concluded that such procedures would contradict Congress' intent that the guidelines be established expeditiously only 180 days after enactment of the NWPA. EEI/UNWMG and CP&L believe that the public meeting which the Commission has stated it will hold prior to a decision on concurrence serves to promote the NRC's distinctive role under the NWPA as well as the Petitioners' need to present their views directly to the Commission.

Most commenters opposing the petition noted that the Commission, in response to a similar petition filed by the Yakima Indian Nation, had already rejected the contention that concurrence was rulemaking for the purposes of the APA. They also contended that a separate NRC rulemaking on concurrence would be redundant, time-consuming and wasteful of resources. DOE noted that its extensive public comment process on the guidelines has already aired the issues which the Commission will consider in determining whether to concur in those guidelines. And Duke noted that DOE has provided all those public comments to the Commission. Accordingly, these commenters concluded that Petitioners' proposed procedures were neither necessary nor desirable because they were redundant.[3]

Ten commenters supported the proposed rule: the Yakima Indian Nation; the State of Mississippi Department of Energy and Transportation; the Natural Resources Defense Council ("NRDC"); Hector & Associates representing Serious Texans Against Nuclear Dumping and People Opposed to Waste Energy Repository ("STAND/POWER"); POWER; the Southwest Research and Information Center ("SRIC"); the Nebraska Energy Office; Citizen Alert; the State of Wisconsin Department of Justice; and the Texas House-Senate Joint Study Committee on Hazardous Waste Disposal. Several of these

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[3] DOE also stated that NRC concurrence is required by the end of 1983 if DOE is to meet the statutory deadline of January 1, 1985 for recommending three sites to the President for characterization. While the Commission recognizes DOE's legitimate desires to conform to time schedules in the NWPA, DOE's position is not properly included in the bases for the Commission's decision. The Commission's decision here cannot be based on the assumption that it will concur in DOE's guidelines by any particular time.

commenters contended that concurrence is rulemaking.[4] They also stated that the proposed procedures would provide a better procedural framework than a public hearing for informing the Commission of the public's concerns.[5] This is especially so because they believe that DOE has made numerous material changes to the proposed guidelines since the last opportunity for public comment to DOE. NRDC believes that DOE's most recent changes to the guidelines warrant an opportunity to provide written comments to the Commission. Some commenters believe that the proposed procedures would promote NRC's distinctive concurrence role under the NWPA, and would guarantee public participation in that concurrence. STAND/POWER, SRIC, and the State of Wisconsin Department of Justice urged that the establishment of these procedures now would provide a consistent procedure for the Commission's consideration of modifications to the guidelines. These commenters believe that such modifications will be necessary after EPA promulgates final repository standards under Section 112(a) of the NWPA and before the guidelines can be applied to the second repository.

IV. COMMISSION DECISION

For the following reasons, the Commission denies the Petitioners' request for rulemaking.

A. NRC's Role Under NWPA

There is no doubt that Congress' upgrading the NRC's role from consultation to concurring in the guidelines indicates a congressional intent to create a special role for the NRC in the promulgation of DOE's siting guidelines. However, Petitioners have failed to identify any basis for

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[4] The State of Wisconsin Department of Justice took the position that unlike the petition by the Yakima Indian Nation, adoption of the procedures proposed by this petition does not depend on the conclusion that the Commission's concurrence is rulemaking. Rather, Wisconsin stated that this petition is premised on the State's belief that formalized procedures are necessary to ensure public participation in the NRC's concurrence process. As discussed in this decision, such formalized procedures are not legally necessary, are not required in light of the Commission's previous decision to permit public participation in the concurrence process, and are not desirable because they would unnecessarily delay the concurrence process.

[5] SRIC and STAND/POWER also suggested that the Commission distribute directly to interested members of the public any NRC staff analysis of DOE's guidelines, and Citizen Alert suggested that the NRC hold public hearings in DOE target States. As discussed above at note 2, the Commission's decision does not depend on fine-tuned procedural proposals. Rather, the Commission has found contrary to the public interest any elaborate procedures that would unduly delay its decision on whether to concur in DOE's guidelines. Moreover, the Commission has recently requested prospective participants in the public meeting on the guidelines to identify their representatives. 48 Fed. Reg. 50,432 (1983). Any persons who will not be able to attend that meeting will still have an opportunity to express their views by submitting them to those representatives.

their belief that their proposed rule will promote that congressional intent. If Congress had wanted the concurrence process to be a public rulemaking, it could have easily so required.[6] Rather, Congress gave DOE 180 days to develop siting guidelines and to obtain the NRC's concurrence in them. This schedule expresses a clear congressional intent that the guidelines were to be completed expeditiously. Since concurrence is only the final stage of the lengthier process of developing the guidelines, Congress could not have intended the NRC's concurrence process to be a lengthy public proceeding.

The Petitioners also appear to believe that their request for formal procedures is supported by the special role of potential host States under the NWPA. That Act does give potential host States special consideration in specific steps of the repository development process. But nothing in the NWPA suggests that these States have a special role in the NRC concurrence process that would mandate the use of formal procedures.

Petitioners further suggest that their proposed procedures will help to ensure that the guidelines reflect NRC policies and are consistent with NRC rules. The Commission believes that the primary purpose of public comments is to help the NRC formulate its policy rather than to determine consistency of the guidelines with NRC regulations. However, as discussed below, at the public meeting the Commission will also entertain comments on the consistency of DOE's siting guidelines with the NRC's requirements in 10 C.F.R. Part 60. Because both of these purposes can be accommodated at the public meeting, there is no need for the lengthier, more formal concurrence procedures proposed in the petition.

For these reasons, the Commission finds that nothing in NWPA supports Petitioners' proposal.

B. NRC Concurrence as Rulemaking

The NRC has already considered and rejected this proposition in its response to the petition by the Yakima Indian Nation. CLI-83-26, 18 NRC 1139 (1983); 48 Fed. Reg. 39,536 (1983). Neither the Petitioners nor any commenter has provided any additional support for this proposition. Accordingly, the Commission finds no basis for reconsidering its previous decision rejecting this proposition as unfounded.

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[6] *See*, for example, Section 404 of the Department of Energy Organization Act of 1977, 42 U.S.C. § 7174.

C. Familiarity and Usefulness of the Procedures

Petitioners' contention that the proposed procedures are familiar does not support the adoption of those procedures in the absence of a showing of necessity or utility.[7] These procedures are not the only means for public participation in the concurrence process; other less time-consuming and less complex procedures, such as the established public meeting, provide adequate opportunity for public participation. As for utility, Petitioners' argument is that these procedures could be applied to any proposed amendments to the siting guidelines. The Commission believes it would be premature to establish procedures now for NRC concurrence in any amendments to the guidelines. Before doing so, the Commission would want to evaluate the effectiveness of the procedures used in determining whether to concur in the guidelines. If and when DOE proposes amendments to the guidelines, the Commission will then determine what procedures may be appropriate for its concurrence process.

Finally, the Commission believes that the forthcoming public meeting on the proposed guidelines and written comment period on the Commission's proposed concurrence decision will provide an adequate forum for public participation in the Commission's concurrence process. Neither the Petitioners nor the commenters have provided any basis for reaching a contrary conclusion. Even if, as some commenters claim, DOE has materially changed the guidelines since last soliciting public comment, the participants in the Commission's meeting will have time to study DOE's final proposed guidelines before meeting with the Commission. In addition, the NRC, in a companion *Federal Register* notice setting the schedule for the public meeting with the Commission, has identified the issues that the NRC staff believes are important to the Commission's decision. For the most part, these issues are familiar to the participants in DOE's rulemaking proceeding because the NRC has raised them before in its comments. Of course, participants may also raise any other issues they believe that the Commission should consider. Moreover, the Commission has agreed to issue for public comment its proposed decision regarding concurrence in the DOE guidelines. Thus, the public will have ample opportunity to bring to the Commission's attention any perceived problems with DOE's final version of the guidelines and to ad-

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[7] Petitioners' proposal is also undesirable because it would interfere with the staff's role as advisor to the Commission by requesting third-party comment on its recommendations. But the staff has the principal expertise to evaluate DOE's proposals and the Commission intends to use the staff's evaluation as a basis for its decision. Thus, the Commission believes that the staff should remain an integral part of the agency decisionmaking team and should participate directly in advising the Commission on whether to concur.

dress the issues uniquely of concern to the Commission in its concurrence role.

D. Denial

After carefully considering the petition and comments on it, the Commission, for the reasons stated above, hereby denies the petition for rulemaking in Docket No. PRM 60-1. The Commission believes that it can best implement Congress' intent for the expeditious promulgation of siting guidelines and provide for public participation by providing the informal public meeting announced in response to the Yakima Petition.

A copy of the petition for rulemaking and copies of the letters of comment and of the Commission's letter of denial are available for public inspection at the Commission's Public Document Room at 1717 H Street, NW, Washington, D.C.

Although Commissioner Asselstine agrees with the denial of the petition, he would have preferred a somewhat different approach for obtaining public comments than that adopted by the Commission. Commissioner Asselstine would have required the NRC staff to prepare and make available for public comment the staff's evaluation of the DOE guidelines and its recommendation on the Commission's concurrence decision *before* the Commission's public meeting. He believes that this approach would have provided a more focused basis for comments by the participants in the public meeting and would have provided a more meaningful opportunity for public participation in the NRC concurrence process.

Commissioner Gilinsky concurs in the result and agrees with Commissioner Asselstine's comment.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 9th day of December 1983.