

NUCLEAR REGULATORY COMMISSION ISSUANCES

OPINIONS AND DECISIONS OF THE NUCLEAR REGULATORY COMMISSION WITH SELECTED ORDERS

January 1, 1983 - June 30, 1983

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PREFACE

This is the seventeenth volume of issuances (1 - 1196) of the Nuclear Regulatory Commission and its Atomic Safety and Licensing Appeal Boards, Atomic Safety and Licensing Boards, and Administrative Law Judge. It covers the period from January 1, 1983 to June 30, 1983.

Atomic Safety and Licensing Boards are authorized by Section 191 of the Atomic Energy Act of 1954. These Boards, comprised of three members conduct adjudicatory hearings on applications to construct and operate nuclear power plants and related facilities and issue initial decisions which, subject to internal review and appellate procedures, become the final Commission action with respect to those applications. Boards are drawn from the Atomic Safety and Licensing Board Panel, comprised of lawyers, nuclear physicists and engineers, environmentalists, chemists, and economists. The Atomic Energy Commission first established Licensing Boards in 1962 and the Panel in 1967.

Beginning in 1969, the Atomic Energy Commission authorized Atomic Safety and Licensing Appeal Boards to exercise the authority and perform the review functions which would otherwise have been exercised and performed by the Commission in facility licensing proceedings. In 1972, that Commission created an Appeal Panel, from which are drawn the Appeal Boards assigned to each licensing proceeding. The functions performed by both Appeal Boards and Licensing Boards were transferred to the Nuclear Regulatory Commission by the Energy Reorganization Act of 1974. Appeal Boards represent the final level in the administrative adjudicatory process to which parties may appeal. Parties, however, are permitted to seek discretionary Commission review of certain board rulings. The Commission also may decide to review, on its own motion, various decisions or actions of Appeal Boards.

The Commission also has an Administrative Law Judge appointed pursuant to the Administrative Procedure Act, who presides over proceedings as directed by the Commission.

The hardbound edition of the Nuclear Regulatory Commission Issuances is a final compilation of the monthly issuances. It includes all of the legal precedents for the agency within a six-month period. Any opinions, decisions, denials, memoranda and orders of the Commission inadvertently omitted from the monthly softbounds and any corrections submitted by the NRC legal staff to the printed softbound issuances are contained in the hardbound edition. Cross references in the text and indexes are to the NRCI page numbers which are the same as the page numbers in this publication.

Issuances are referred to as follows: Commission--CLI, Atomic Safety and Licensing Appeal Boards--ALAB, Atomic Safety and Licensing Boards--LBP, Administrative Law Judge--ALJ, Directors' Decisions--DD, and Denial 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.

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

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Thomas M. Roberts
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In the Matter of

Docket No. 50-537
(10 CFR 50.12 Exemption Request)

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

January 5, 1983

The Commission clarifies and affirms its previous finding (CLI-82-23, 16 NRC 412 (1982)) of exigent and other extraordinary circumstances warranting the grant of the Department of Energy's request for an exemption pursuant to 10 CFR §50.12 for initiation of site preparation activities in connection with the Clinch River facility.

REGULATIONS: EXEMPTIONS (EARLY SITE PREPARATION)

The availability of an exemption pursuant to 10 CFR §50.12 for the initiation of site preparation activities is determined by whether, in totality of the circumstances in a particular case, exigent circumstances exist, weighed against the adverse environmental impacts associated with the proposed activities under the exemption.

REGULATIONS: EXEMPTIONS (EARLY PREPARATION)

The timely satisfaction of public needs by reducing unanticipated delays in the realization of facility benefits and the avoidance of costs induced by such unexpected delays constitute exigent circumstances supporting the grant of an exemption under 10 CFR §50.12 for the conduct of pre-construction site preparation activities.

REGULATIONS: EXEMPTIONS (EARLY SITE PREPARATION)

In determining whether to grant an exemption pursuant to 10 CFR §50.12 to begin site preparation activities, the Commission will weigh the exigencies of the situation against the associated adverse environmental impacts. Where the environmental impacts of the proposed activities are insignificant, but the potential adverse consequences of delay may be severe and an exemption will mitigate those effects, it is reasonable to grant the exemption in spite of uncertainties as to the exigencies of the particular situation.

MEMORANDUM AND ORDER

This decision clarifies the Nuclear Regulatory Commission's previous findings of exigent and other extraordinary circumstances warranting the grant of an exemption pursuant to 10 CFR 50.12 for initiation of site preparation activities for the Clinch River Breeder Reactor ("CRBR"). *United States Department of Energy, et al.* (Clinch River Breeder Reactor Plant), CLI-82-23, 16 NRC 412 (1982).¹ The need for this clarification arose in the following way. On July 1, 1982, the Department of Energy, for itself and on behalf of its co-applicants the Tennessee Valley Authority and Project Management Corporation ("Applicants"), applied to the Nuclear Regulatory Commission ("NRC" or "Commission") for an exemption pursuant to 10 CFR 50.12 to begin site preparation activities for the CRBR. In their

¹ Commission precedent uses both the terms "exigent" and "extraordinary" to characterize the circumstances under which an exemption may be granted. The term "extraordinary" is used in *Louisiana Power and Light Company* (Waterford Generating Station, Unit 3), CLI-73-25, 6 AEC 619, 622 n.3 (1973) and *Carolina Power and Light Company* (Shearon Harris Nuclear Power Plant, Units 1, 2, 3 and 4), CLI-74-9, 7 AEC 197, 198 (1974) ("Shearon Harris I"). The term "exigent" is used only in *Washington Public Power Supply System* (WPPSS Nuclear Project Nos. 3 and 5), CLI-77-11, 5 NRC 719, 723 (1977). The Commission has also characterized the requisite circumstances as "compelling," *Carolina Power and Light Company* (Shearon Harris Nuclear Power Plant, Units 1, 2, 3 and 4), CLI-74-22, 7 AEC 939, 940 (1974), and as "where the facts so warrant," 37 *Fed. Reg.* 5745 (March 21, 1972). An analysis of these Commission precedents shows that, contrary to the Intervenor's view, the Commission has not limited exemption to cases involving emergencies, although "exigent" circumstances of that nature can provide adequate grounds for an exemption.

application, Applicants identified three factors which they believed demonstrated the exigent circumstances sufficient to warrant the grant of an exemption. These were: (1) national policies favoring expeditious completion of CRBR; (2) undue hardship that would result from further delay in the project then at an advanced stage of development; and (3) the project's unique nature. The Natural Resources Defense Council, Inc. and the Sierra Club ("Intervenors") opposed the grant of an exemption. After conducting an informal proceeding, the Commission issued an exemption on August 17, 1982. CLI-82-23, 16 NRC 412 (1982). In its decision, the Commission found that extraordinary circumstances had been demonstrated by most of the factors identified by the Applicants as demonstrating exigent circumstances. 16 NRC 425-26, 433-34, and additional views of Commissioner Asseltine at 436. On December 7, 1982, the United States Court of Appeals for the District of Columbia Circuit ("Court") remanded the record to the Commission to either proceed with its adjudicatory hearing under 10 CFR 50.10 to determine if site preparation activities may continue, or to explain why it was appropriate in this case to invoke 10 CFR 50.12 by identifying exigent circumstances that warranted such relief. *NRDC v. NRC*, 695 F.2d 623 (D.C. Cir. 1982). The Commission, by Order of December 10, 1982, responded by initiating a proceeding on the issue of exigent circumstances while also explicitly recognizing that an Atomic Safety and Licensing Board was in the final stages of an adjudicatory proceeding on site preparation activities. For the reasons discussed below, the Commission reaffirms its earlier finding of circumstances warranting an exemption pursuant to 10 CFR 50.12.

I. THE LEGAL STANDARD

Commission precedent on the grant of exemptions under 10 CFR 50.12, while not exhausting the situations in which the Commission may find "exigent circumstances,"² does provide some illustrations of exigent circumstances, and establishes that the availability of an exemption is determined by the totality of the particular circumstances in each case. A review of Commission precedent follows to provide the framework for the Commission's decision in this case.

² Intervenors suggest that the term "exigent circumstances" is limited to the dictionary definition as circumstances "requiring immediate aid or action." While the dictionary definition of a term is helpful to understanding its general use, the dictionary is not to be used as a "fortress" in interpreting the scope of a term in a particular legal context. *Farmers Reservoir and Irrigation Company v. McComb*, 337 U.S. 755, 764 (1948), rehearing denied, 338 U.S. 839 (1948). Rather the use of a term is to be determined by also considering its purpose and history. See, *Perrin v. United States*, 444 U.S. 37, 42-45 (1979). Intervenors' sole reliance on the dictionary definition of the term "exigent" ignores the purpose and history of that term. That reliance ignores the history of the Commission's use of the term and fails to acknowledge other dictionary definitions of the term, such as "requiring a great deal." *Random House Dictionary of the English Language*, Unabridged Edition, 499 C. 3 (1966). In any event, it is sufficient for the grant of this exemption to note that the circumstances here warranted prompt action and satisfied the Commission's high threshold for unusual relief.

Where an exemption is requested for pre-construction site-preparation activities, the kind of showing which will satisfy the Commission's criteria for an exemption pursuant to 10 CFR 50.12 is illustrated by the Commission's decision in *Carolina Power and Light Company* (Shearon Harris Nuclear Power Plant, Units 1, 2, 3 and 4), CLI-74-22, 7 AEC 938 (1974). ("Shearon Harris II").³ In that proceeding the applicant requested an exemption to harvest timber on the site, clear and grade the site, excavate for the plant foundation, construct roads, relocate railroad tracks, and construct temporary facilities including a warehouse and concrete plant. *Id.* at 941. These are just the kinds of activities initiated at the CRBR site. The Commission affirmed the grant of the exemption for *Shearon Harris II* on the basis of findings of benefits to the public interest that would result from the earlier completion of the proposed site preparation activities. *Id.* at 944. Because earlier completion of site preparation activities would result in earlier completion of the facility, the grant of the exemption reduced by six months the previously unanticipated delay in the provision of needed electric power and resulted in the savings of over \$100 million dollars in costs that would not have been incurred but for the delay caused by changes in requirements. *Id.* at 941, n.4. Thus, *Shearon Harris II* stands for the proposition that the timely satisfaction of public needs by reducing unanticipated delays in the realization of facility benefits and the avoidance of costs induced by such unexpected delays constitute exigent circumstances supporting the grant of an exemption. Such benefits are also presented by the CRBR exemption.

Shearon Harris II also illustrates that the Commission considers the peculiar circumstances leading to the situation requiring relief. Such considerations are intrinsic to the nature of an exemption, *i.e.*, the need for unusual relief from a rule due to a situation not contemplated when that rule was promulgated. In *Shearon Harris II*, the peculiar circumstances creating the need for relief were externally induced delays in construction due to changes in government policy. Here, as there, further delay could result in the loss of significant benefits to the public, as described in detail below. And here, as there, delay was caused by changes in government policy. Thus, the circumstances leading up to the Applicants' request for an exemption for CRBR are consistent with Commission practice as established in *Shearon Harris II*.

³ Intervenors suggest that *Shearon Harris II* does not deserve any precedential weight because it was decided prior to the Commission's promulgation of 10 CFR 50.10(e) which established the procedure for a limited work authorization (LWA). But the facts in *Shearon Harris* show that the availability of an LWA would have been irrelevant. In *Shearon Harris*, delay was caused by changes in requirements by the Environmental Protection Agency. The availability of an LWA would not have mitigated the delay resulting from complying with those new requirements nor would it have affected the Commission's finding that six months' delay was significant. Therefore, the Commission finds that *Shearon Harris II* retains its vitality as a precedent for considering whether to grant an exemption pursuant to 10 CFR 50.12.

The Commission also granted an exemption in *Gulf States Utilities Company* (River Bend Station, Units 1 and 2), CLI-76-16, 4 NRC 449 (1976) ("River Bend"). This decision illustrates that the showing of exigency supporting an exemption varies directly with the environmental impacts of the proposed activities. This principle is reasonable in light of the nature of the exemption: the conduct of site preparation activities prior to an adjudicatory hearing on those activities. Where the staff's detailed evaluation of the proposed activities have shown them to have insignificant environmental impacts, the conduct of those activities prior to a hearing does not significantly increase the risk to the environment from an error in estimating those impacts. Thus, where site preparation activities have insignificant impacts, it is reasonable to permit those activities to proceed even when the exigencies of the particular situation are somewhat uncertain, *i.e.*, the agency can act more readily to mitigate the costs of unanticipated delay when the environmental risk of prompt action is small.

In *River Bend*, the Commission did not specify the exigent circumstances. It only noted that the proposed activities would not present adverse environmental impacts, might serve to protect the site environment and would be consistent with any possible outcome of the proceedings below. These factors, in addition to the temporary unavailability of a limited work authorization (LWA) under 10 CFR 50.10(e)(1), were found to constitute a sufficient basis for issuing the exemption. In CRBR, the Commission also found that site preparation would not cause significant environmental impacts and that site improvements would be consistent with any future use of the site because it was zoned for industrial development. *Maryland-National Capital Park and Planning Commission v. Postal Service*, 487 F.2d 1029, 1036-37 (D.C. Cir. 1973). As in *River Bend*, these findings weigh against any uncertainties in the exigency of the circumstances.

In *Kansas Gas and Electric Company, et al.* (Wolf Creek Generating Station, Unit 1), CLI-76-20, 4 NRC 476 (1976) ("Wolf Creek") and in *Washington Public Power Supply System* (WPPSS Nuclear Project Nos. 3 and 5), CLI-77-11, 5 NRC 719 (1977) ("WPPSS"), the Commission rejected requests for exemptions because changed circumstances vitiated each licensee's claim of exigent circumstances. In *Wolf Creek*, the applicants appear to have relied solely on the temporary unavailability of an LWA as their basis for a showing of exigent circumstances. Since the Commission had already reinstated the availability of the LWA procedure, its previous unavailability no longer provided a basis for claiming exigent circumstances. Thus, *Wolf Creek* appears to stand for the proposition that an exemption will not be granted where changed circumstances have vitiated a licensee's claim of exigent circumstances.

In *WPPSS*, the applicant wanted to commence site preparation during the advantageous dry season and to avoid additional costs for storing equipment that had been ordered. The applicant was also concerned that it could not foresee when an Atomic Safety and Licensing Board ("Licensing Board") would act on a

pending request for a Limited Work Authorization (LWA). Simultaneous with its request for an exemption from the Commission, the applicant requested the Licensing Board for permission to undertake some of the same proposed activities on the basis that they were not precluded by 10 CFR 50.10(c) because those activities would not significantly affect the environment. The Licensing Board granted that request in part, thus allowing site preparation to begin. This development, plus the apparent imminence of a decision on the pending LWA request, led the Commission to reject the exemption request because time was no longer of the essence and relief from the Licensing Board was neither impossible nor highly unlikely. *Id.* at 723. Thus, *WPPSS*, like *Wolf Creek*, stands for the proposition that the Commission will not grant an exemption when changed circumstances vitiate the base for requesting that exemption. In CRBR, by comparison, relief from the Licensing Board was not imminent, and time was of the essence for the reasons discussed below.

In summary then, under Commission case law the Commission considers the totality of the circumstances in determining whether to grant an exemption, and evaluates the exigency of the circumstances in that overall determination. Exigent circumstances have been found where: (1) further delay would deny the public of currently needed benefits that would have been provided by timely completion of the facility but were delayed due to external factors, and would also result in additional otherwise avoidable costs; and (2) no alternative relief has been granted (in part) or is imminent. Moreover, the Commission will weigh the exigent circumstances offered to justify an exemption against the adverse environmental impacts associated with the proposed activities. Where the environmental impacts of the proposed activities are insignificant, but the potential adverse consequences of delay may be severe and an exemption will mitigate the effects of that delay, the case is strong for granting an exemption that will preserve the option of realizing those benefits in spite of uncertainties in the need for prompt action. For the reasons discussed below, the Commission believes that the Applicants' exemption request for Clinch River satisfied the Commission's criteria for an exemption under 10 CFR 50.12.

II. THE EXIGENT CIRCUMSTANCES WARRANTING AN EXEMPTION FOR THE CLINCH RIVER BREEDER REACTOR

The Commission's decision of August 17, 1982 described and discussed several circumstances which the Commission found persuasive as justification for request for an exemption to initiate site preparation activities for CRBR. CLI-82-23, 16 NRC 425-33. These circumstances are (1) the potential loss of a significant part of the public's investment in CRBR; (2) the possibility of an irreversible foreclosure of the opportunity to transfer information from CRBR to the follow-on projects in the overall program for developing the liquid metal fast breeder reactor (LMFBR);

and (3) the probability of jeopardizing the establishment of cooperative agreements with the nuclear industry and other countries for development of the LMFBR. The Commission also found that the national policy favoring expeditious completion of CRBR created a need for prompt relief. On reconsideration, the Commission continues to find that these circumstances, in conjunction with the Commission's finding that the environmental impacts of site preparation will be insignificant, constitute, in the totality of the circumstances, a showing of exigence sufficient for granting an exemption pursuant to 10 CFR 50.12. Moreover, recent developments reinforce the correctness of the Commission's decision. A recapitulation of the circumstances previously identified by the Commission and the effects of recent developments follow.

A. Further Delay Would Deny the Public of Benefits to Be Realized by Prompt Completion of the Facility

Delay in CRBR was caused by the previous Administration's successful suspension of the licensing proceeding. The magnitude of that delay was significant because it partially desynchronized CRBR from the rest of the LMFBR program. The Commission found that CRBR had reached such an advanced state of development that important anticipated benefits could now be realized only by prompt initiation of site preparation activities. CLI-82-23, 16 NRC 431-33. At the time of the Commission's decision, more than \$600 million of parts and hardware were either delivered or on order and the project design was 90% completed; further progress on the project required the initiation of site preparation activities. Moreover, the Commission was informed by the Applicants that the LMFBR Base Research and Development Program, the Large Development Plant, and the LMFBR Fuel Cycle Program had progressed to the stages where future progress could be delayed by any further delay in the information expected from CRBR. Under these circumstances, the Commission found that the grant of an exemption would further the public interest. Any further delay in site preparation activities would result in further delay of the safety-related construction information which could be more useful to the follow-on projects in the LMFBR program if obtained early enough to allow changes to be made in that program. Thus, further delay could irretrievably foreclose the opportunity to obtain information from CRBR early enough to be useful to the rest of the LMFBR program. Under these circumstances, time was of the essence in order to preserve the option of effective transferability of information.

The Commission also determined that the public could lose its investment in the cadre of technically trained personnel who might otherwise drift away to other more active engineering projects. Such a diffusion of talent would further delay CRBR and also delay the remainder of the LMFBR program by depriving it of the experience developed by that cadre. Here, again, prompt Commission action was

necessary to avoid the adverse impacts on the public interest that could result from such potential losses.

The Commission also found that further delay could result in costs of \$28 million per year. 16 NRC 432. While it is true that the acceleration of any project could reduce its total cost, in this case the savings that can be realized are not due to the compression of a previously established schedule, but rather result from avoiding additional unexpected costs arising from unanticipated delays. The mitigation of such adverse consequences of unforeseen delay is the very kind of relief an exemption is designed to provide. See *Shearon Harris II*.

Finally, the Commission also found that delays in CRBR could jeopardize the establishment of cooperative agreements for developing LMFBRs in conjunction with the nuclear industry and potential foreign competitors.⁴ The potential for irretrievably losing such opportunities for cooperation also required prompt Commission action.

All these factors show that time was of the essence in granting an exemption and nothing has occurred since then to significantly change that determination.

B. National Policy Favors Expeditious Completion of CRBR

The Commission found that the Congress, the President and the Department of Energy had all determined that CRBR should be completed as expeditiously as possible. These findings were based on the legislative history of the Omnibus Budget Reconciliation Act of 1981, the President's October 8, 1981 policy statement directing government agencies to proceed with breeder reactor technology, and the Department of Energy's Record of Decision for the LMFBR Program. CLI-82-23, 16 NRC 429-31. In particular, the Commission stated:

the legislative history of the Omnibus Budget Reconciliation Act of 1981 clearly indicates a national policy that all federal agencies should exercise their discretion to enable CRBR to be completed in a "timely and expeditious manner" so as to recoup some of the time lost since 1977. While this Congressional intent may not rise to the level of a mandate that compels the grant of the exemption, the Commission believes it is one

⁴ Recent developments lend support to the Commission's belief that international cooperation is an important element of any public interest determination. A nuclear trade publication recently reported that the Office of Management and Budget had approved the Department of Energy's budget request for \$15 million for an international cooperative design effort for a commercial-sized LMFBR, the next step in the LMFBR program. Moreover, foreign support for such cooperation was provided by two recent actions: (1) the Secretary of Energy for the United Kingdom in a policy statement to the House of Commons urged international cooperation in LMFBR development; and (2) representatives of the Versailles Summit countries at a Washington meeting at the Office of Science and Technology Policy strongly supported international cooperation in Breeder development. *Inside Energy/With Federal Lands*, 7 (December 6, 1982). The French and Germans have also proposed international cooperation based in part on American pursuit of CRBR. 127 *Cong. Rec.* H. 9736, c. 1 (Daily Edition, December 14, 1982).

important factor to consider that argues strongly in favor of the exemption. CLI-82-23 at 431.

Recent developments have reaffirmed this factor. On two recent occasions Congress has continued funding for CRBR after explicitly considering the Commission's grant of the exemption authorizing the initiation of site preparation activities. H.J. Res. 599 (October, 1982) (first continuing resolution) and H.J. Res. 630 (December, 1982) (second continuing resolution). And the Conference Report for the second continuing resolution provided that "Ongoing activities related to the NRC licensing process should be continued." 128 *Cong. Rec.* H. 10636, c. 3 (Daily Edition, December 20, 1982). Other provisions in the Conference Report regarding private industry's share of the costs do not affect timing of the project and neither does the limit on the construction of permanent facilities which was not due to begin before the period of the continuing resolution expires.⁵

The Commission agrees with the Intervenor's position that reconsideration of the exemption should recognize the factual situation as it now exists. Post-exemption Congressional actions cannot retroactively modify the Commission's finding of exigent circumstances at the time an exemption was granted. Thus, recent Congressional actions are not relevant to whether an exemption should have been granted in August, 1982, but rather, only to whether the exemption should now be revoked. There is nothing in Congress' continuation of funding for CRBR, or in the Conference Report for the second continuing resolution, which suggests that Congress intended a revocation of the exemption or a halt to ongoing site preparation activities. Contrary to Intervenor's suggestion that Congress was reacting against accelerating CRBR, the Commission believes that Congress indicated that there should be no deceleration of CRBR by revoking the exemption.

C. Alternative Relief Had Neither Been Granted nor Was Imminent

Applicants requested an exemption because no other avenue of relief was available to permit prompt initiation of site preparation activities. Even Intervenor's acknowledged that the re-started LWA proceeding would not be concluded for several months.⁶ Where alternative relief is unavailable, a condition for an exemption has been met. *Shearon Harris II, supra*; *River Bend, supra*. Compare, *Wolf Creek, supra*, and *WPPSS, supra*. And the delay that would have

⁵ As for the erosion of Congressional support for CRBR, Intervenor's presented the same argument to the Commission before it granted the exemption. The fact remains that this Congress has continued funding for CRBR and that the next Congress has not had an opportunity to express its position on this issue.

⁶ Experience has borne out this prediction. The Licensing Board conducting the LWA proceeding is not expected to issue its initial decision before mid-February 1983 at the earliest, about 6 months after the Commission authorized the exemption.

been occasioned by waiting for a decision on an LWA was of at least the same magnitude as found to be significant in *Shearon Harris II*. Accordingly, the Commission found that exigent circumstances were presented by the unavailability of alternative prompt relief.

Intervenors appear to suggest that an exemption is no longer warranted because the Licensing Board for the CRBR adjudicatory proceeding is scheduled to issue an LWA-1 decision by mid-February and, assuming that the decision is favorable, the Commission could shorten its almost three-month period for reviewing that decision before making it effective. Thus, Intervenors believe that only a few months' delay would result from revoking the exemption. However, there has been no showing that the factors which supported an exemption have been modified so as to now warrant such a delay. Moreover, it is not the imminence of the LWA-1 decision that reduces the potential for delay but rather the work done by Applicants to date that decreases the impact of delay if the Commission were now to revoke the exemption. The public interest in the expeditious completion of the CRBR project remains unabated. Thus, there is no warrant for the Commission to revoke the exemption now.

III. CONCLUSION

For the reasons discussed above, the Commission finds that the factors previously identified in Commission decisions as relevant to a request for an exemption to initiate site preparation activities pursuant to 10 CFR 50.12 are present in this case and include exigent circumstances as that term has been construed in Commission practice. Moreover, the Commission finds that recent developments continue to support the grant of that exemption. Therefore, the Commission affirms its previous decision that Applicants had demonstrated exigent circumstances warranting an exemption for CRBR.

Commissioners Gilinsky and Ahearn dissent from this Order and their dissenting views are attached. Also attached are Commissioner Roberts' additional views.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 5th day of January, 1983.

ADDITIONAL VIEW OF COMMISSIONER ROBERTS

Applicants requested and the Commission granted an exemption from the requirements of Section 50.10 of the Commission's regulations. Section 50.10 states that site preparation activities may not commence until (1) a final Environmental Impact Statement has been issued, (2) a hearing has been held and all environmental findings required by NRC's regulations have been made, and (3) a licensing board has found the site suitable from a radiological health and safety standpoint. This part of Section 50.10 was promulgated by the Commission in order to fulfill its statutory duties under the National Environmental Policy Act (NEPA). That Act imposed on the Commission the duty to consider environmental values when making a licensing decision and to prepare and circulate an environmental impact statement if the Commission determined that the licensing action it authorized would significantly affect the environment. In contrast to the requirements of Section 50.10, NEPA does not require that an agency conduct an adjudicatory hearing in order to consider environmental values when making a decision nor does NEPA require an agency's environmental findings to be tested in an adjudicatory hearing.¹ Thus, the exemption requested by Applicants is not from the requirements of NEPA but rather from NRC's regulations requiring an adjudicatory hearing prior to commencement of site preparation.

When a regulatory agency imposes rules which must be followed by many applicants in order to receive permission to conduct particular activities, the agency should attempt to adopt a process which can be uniformly and fairly applied. Because all applicants for regulatory permission will not be similarly situated, however, it is inevitable that some applicants will require a variance or exemption from the literal application of the rules in order to avoid unnecessary hardship. Administrative agencies have the inherent authority to apply their regulations in such a way as to avoid undue hardship. *National Broadcasting Co. v. United States*, 319 U.S. 190, 225 (1943). The Commission explicitly recognized this responsibility at the time it adopted Section 50.12. The Commission specifically noted:

[T]he Commission realizes that in individual cases, particularly those instances where plants are in an advanced stage of development, but where no site preparation work has been started, undue hardship may be incurred. In those situations, relief may be sought by requesting a specific exemption under Section 50.12.

¹ At a public meeting on the exemption request, Counsel for Intervenors admitted this by stating, "I must say, I do not think the National Environmental Policy Act requires an adjudicatory hearing." Transcript, December 16, 1981, at 41.

37 *Fed. Reg.* 5746 (March 21, 1972). Similarly, in *Carolina Power and Light Company* (Shearon Harris Nuclear Power Plant, Units 1, 2, 3 and 4), CLI-74-22, 7 AEC 939, 944 (1974), the Commission stated:

[U]nder our present regulations there is no blanket permission to perform site-preparation work. To the contrary, an authorization to do such work under the regulations is the exception rather than the rule. . . . It is manifestly in the public interest to have such an exception or exemption. *See United States v. Allegheny-Ludlum Steel Corp.*, 406 U.S. 742, 755 (1972); *Permian Basin Area Rate Cases*, 390 U.S. 747, 784-87 (1968); *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969). This is true especially where, as here, benefits to the public will result from the site-preparation work that Carolina Power performs.

In 1977, Applicants were well along in the process of acquiring a limited work authorization (LWA) under Section 50.10. The staff had completed both its site suitability review and its environmental review. The staff's Site Suitability Report, issued in February 1977, concluded that the site was suitable for a reactor of the general size and type as the Clinch River Breeder Reactor (CRBR). The staff's Final Environmental Statement, issued in March 1977, concluded that the action called for under NEPA was construction of the CRBR. The Licensing Board assigned to conduct adjudicatory hearings on the reactor had set June 14, 1977, as the first day of the hearings. As a matter of policy, however, on April 20, 1977, President Carter announced the decision to cancel the project. Despite this announcement, Congress continued to fund design, research and development, and procurement activities for the CRBR. On October 8, 1981, President Reagan announced that it was once more national policy to complete CRBR as an essential element of our preparedness for longer-term nuclear power needs. 17 *Weekly Compilation of Presidential Documents*, 1101-02 (1981).

At the time the Commission acted on Applicants' exemption request, the plant's design was 90% complete. Due to this advanced stage of development, site preparation was a critical path element for the CRBR project. Site preparation could not later be combined with safety-related construction in order to avoid further delays. Further, Applicants had had difficulty in maintaining a qualified and experienced technical cadre of personnel to work on the project during the delay. It believed that grant of an exemption would prevent further loss of technical personnel.

Additionally, more than \$500 million of parts and hardware had been delivered to the site or was on order. Additional delay would prevent timely transfer of information to the other phases of the liquid metal fast breeder reactor program, especially the Large Development Plant. Finally, all parties agreed that at least \$20 million per year on a present worth basis could be saved by the prevention of further delay. In light of these exigent circumstances, the Commission took the only responsible action available to it and granted the exemption request.

Intervenors allege that this action was improper because the circumstances on which the Commission relied in granting the exemption were not exigent. To elaborate further, Intervenors assert that the unique nature of the CRBR project is irrelevant (Intervenors' Brief at 8), that the Commission's reliance on national policy considerations was unjustified (*Id.* at 9), that work on this project would go forward absent Section 50.12 relief (*Id.* at 12), that Applicants have not proven that personnel might leave the project in the face of continued delay (*Id.* at 13), that the desirability of achieving "hypothetical" future increases in program efficiency does not constitute an exigent circumstance today (*Id.* at 15-16), and that the international policy considerations asserted by Applicants are becoming less compelling (*Id.* at 18). These arguments hardly constitute a compelling or even persuasive attack on the Commission's grant of an exemption. Moreover, if the Commission is not to take into account international and national policy considerations, the history of the reactor in question, its relationship to an overall fast breeder reactor program, and the fact that more efficient use of resources can be made by the Federal Government, it is difficult to conceive of the circumstances under which the Commission might grant an exemption. Indeed, under Intervenors' interpretation of the Commission's cases, every grant of an exemption by the Commission has been improper. While the standard which must be met to permit grant of an exemption is high, it is not that high.

Intervenors would have preferred that the Commission provide them with an adjudicatory hearing prior to the commencement of site preparation. As a matter of legal theory, it is unclear why an adjudicatory process would have produced a better result than the process used by the Commission. Adjudicatory hearings are best suited to the resolution of contested factual issues. Most of the issues raised by Applicants' exemption request were not fact questions but rather questions of international and national policy and engineering judgment. These latter types of issues are dealt with quite awkwardly in adjudicatory hearings.

Finally, the Commission is frequently asked why, in light of its long history of resolving contested environmental issues in adjudicatory hearings, it did not simply require Applicants to adhere to the Commission's LWA procedures. The answer to this question is time. Once the Commission concluded that delaying site preparation was not in the public interest, the Commission could not conclude, based on its experience with strongly-contested adjudicatory hearings generally and its experience with the CRBR LWA hearing specifically, that the limited work authorization procedure would advance in an expeditious and timely fashion.

The CRBR construction permit application was filed on June 12, 1975; the notice of hearing on this application was published on June 17, 1975. Almost two years later, at the time the hearing process was suspended, Intervenors had served their seventeenth round of interrogatories and the Licensing Board had been involved in numerous discovery disputes. This kind of legal maneuvering did not bode well for an efficient and focused LWA proceeding today.

The Commission's experience with the presently ongoing LWA proceeding has confirmed its earlier judgment that an adjudicatory process would present many opportunities for delay. Instead of letting the present proceeding advance in a straightforward fashion, Intervenor's have attempted on several occasions to inject the Commission into the process. For example, after the Licensing Board ruled on the scope of the LWA proceeding, Intervenor's asked the Commission to intervene and overrule the Licensing Board's determination. Similarly, during the course of the staff's updating of the environmental review, Intervenor's advised the Commission of the NRC's "moral and ethical" duty to supplement the final environmental impact statement.

Intervenor's also attempted to delay the LWA proceeding. When the Licensing Board announced a schedule for hearings, Intervenor's moved to reschedule them. When rescheduling was denied, they asked the Board to reconsider its previous rulings admitting contentions. That the Licensing Board has managed to keep this proceeding focused and on track is almost a miracle and not something that could have been predicted by the Commission.

I should point out, however, that even if the Licensing Board is able to meet its present ambitious schedule and bring the LWA proceeding to a close in mid-February 1983 and even if the Licensing Board were to issue a decision recommending authorization to conduct site preparation activities, site preparation could not begin. Both the Commission and the staff would have to take further favorable action before that could happen. In part, the Commission would have to conduct an immediate effectiveness review of the Licensing Board's decision.

It has been my experience that the Commission's immediate effectiveness review of a Board decision issued in a heavily contested proceeding considerably exceeds Intervenor's optimistic projections. (Intervenor's Brief at 21-23.) For example, the Commission's immediate effectiveness review of Unit 1 of the Three Mile Island facility (a proceeding which is analogous to the CRBR proceeding in terms of contentiousness and public interest) is 163 days long and still pending. The Commission's review of the Diablo Canyon facility is 156 days long and still pending. Even when the Commission reviews decisions of less contested proceedings, its review exceeds the goal imposed on it by its own regulations. For example, the Commission's immediate effectiveness review for Unit 1 of the Susquehanna Steam Electric Station took 119 days from issuance of a Licensing Board decision recommending authorization to operate until issuance of a Commission Order concluding its review. Similarly, the Commission's immediate effectiveness review of Unit 1 of the Virgil C. Summer Station took 98 days. In light of these lengthy periods, Intervenor's assertions regarding the possible length of Commission immediate effectiveness review of an LWA decision seem highly speculative and of doubtful reliability to me.

In sum, it seems to me that the nub of the objections to the Commission's grant of an exemption is not the relatively minor complaints that have been raised in

Intervenors' Brief, but rather opposition to the reactor itself and possibly to the fast breeder reactor program. Whether there should be a CRBR project and whether there should be a fast breeder reactor program are decisions for the Executive Branch and Congress. In light of the affirmative decisions made by these two branches of Government, it is the Commission's duty to conduct its safety and environmental reviews in a timely and efficient fashion so that the public interest is served and unnecessary delay is avoided.

SEPARATE VIEWS OF COMMISSIONER GILINSKY — (NRDC v. NRC (CLINCH RIVER))

The Applicants have once again failed to advance reasons which would have justified, or would now justify, granting an exemption for site preparation under section 50.12 of our regulations. During our earlier review, the economic benefits of granting this exemption were found to be non-existent.¹ It can scarcely be argued that advancing by a few months the scheduled start-up date of the Clinch River reactor, which is at best a preliminary prototype, is of any significance in the general development of breeder technology since breeder reactors will not be commercialized in this country for many decades, if ever.²

The real reason the Commission is granting this exemption is, of course, the Department of Energy's desire to get work under way at the Clinch River site in order to forestall an adverse decision by Congress. However understandable DOE's motives may be, this does not qualify as an exigent circumstance justifying an exemption from our regulations.

¹ See my separate views, *In the Matter of United States Department of Energy, Project Management Corporation, Tennessee Valley Authority* (Clinch River Breeder Reactor Plant), CLI-82-4, 15 NRC 362 (1982).

The Commission continues to argue that granting this exemption would result in a savings of \$28 million. (Commission opinion at 8) The Commission neglects to mention that this figure is derived by using an artificially low 3 per cent discount rate. The Commission is fully aware that, if a more realistic 10 per cent discount rate (that recommended by the Office of Management and Budget for evaluating the economic effects of regulatory decisions) were used, the economic effect granting this exemption turns out to be a loss of \$42 million.

² In fact, an exemption would now allow the schedule to be moved up by only about one month since the Licensing Board will, next month, be in a position to rule on the Applicants' request for a Limited Work Authorization.

DISSENTING VIEWS OF COMMISSIONER AHEARNE

In the current order the Commission supports its August decision. I disagreed with the August order, for reasons explained in my dissenting opinion at that time. In the current order the Commission attempts to justify its August decision, I think unsuccessfully, and in the process must discard the normal definition of “exigent circumstances” (see footnote 2). The straining in the current order strengthens my belief the exemption should have been denied.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Stephen F. Ellperin, Chairman
Thomas S. Moore
Dr. Reginald L. Gotchy

In the Matter of

Docket No. 50-341-OL

THE DETROIT EDISON COMPANY, *et al.*
(Enrico Fermi Atomic Power Plant,
Unit 2)

January 4, 1983

The Appeal Board withdraws its previous order (Nov. 12, 1982) (unpublished) directing an intervenor to show cause why its appeal of the Licensing Board's initial decision (LBP-82-96, 16 NRC 1408 (1982)) authorizing the issuance of a full-power operating license for this facility is proper, and reinstates the intervenor's appeal.

RULES OF PRACTICE: FINDINGS OF FACT (EFFECT OF FAILURE TO FILE)

Absent a licensing board order requiring the submission of proposed findings of fact and conclusions of law, an intervenor that does not make such a filing is free to pursue on appeal all issues it litigated below.

RULES OF PRACTICE: FINDINGS OF FACT (SANCTIONS FOR FAILURE TO FILE)

Under the Commission's Rules of Practice, the filing of proposed findings of fact is optional, unless the presiding officer directs otherwise. The presiding

officer is empowered to take a party's failure to file proposed findings, *when directed to do so*, as a default or to impose other sanctions. 10 CFR §2.754.

RULES OF PRACTICE: BRIEFS

An appeal board will not ordinarily entertain arguments raised for the first time on appeal. *Pennsylvania Power and Light Company and Allegheny Electric Cooperative, Inc.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-693, 16 NRC 952, 955-56 (1982). See also *Public Service Electric and Gas Company, et al.* (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 NRC 43, 49; *Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-463, 7 NRC 341, 348 (1978).

LICENSING BOARDS: RESOLUTION OF ISSUES

A licensing board is authorized in most instances to decide only *contested* issues in an operating license proceeding. 10 CFR §2.760a.

RULES OF PRACTICE: INTERVENTION DENIAL (STANDING TO APPEAL)

Only the petitioner denied leave to intervene can take an appeal of such an order. 10 CFR §2.714a(b).

RULES OF PRACTICE: FINDINGS OF FACT (SANCTIONS FOR FAILURE TO FILE)

Even when a licensing board order requesting the submission of proposed findings has been disregarded, the Commission's Rules of Practice do not mandate a sanction. *Consumers Power Company* (Midland Plant, Units 1 and 2), ALAB-123, 6 AEC 331, 332-33 (1973).

LICENSING BOARDS: DISCRETION IN MANAGING PROCEEDINGS

A licensing board acts within its discretion in treating as contested those issues of fact as to which a party opposing an operating license application had introduced affirmative evidence or engaged in substantial cross-examination. See *Northern States Power Company* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-244, 8 AEC 857, 864 (1974), *reconsideration denied*, ALAB-252, 8 AEC

1175, *aff'd*, CLI-75-1, 1 NRC 1 (1975). See also *Consumers Power Company* (Midland Plant, Units 1 and 2) ALAB-691, 16 NRC 897, 905-08 (1982). Compare *Florida Power & Light Company* (St. Lucie Nuclear Power Plant, Unit No. 2), ALAB-280, 2 NRC 3, 4 n.2 (1975).

RULES OF PRACTICE: FINDINGS OF FACT (SANCTIONS FOR FAILURE TO FILE)

The failure to file proposed findings is subject to sanctions only in those instances where a Licensing Board has directed such findings to be filed. That is the extent of the adjudicatory board's enforcement powers under 10 CFR §2.754.

RULES OF PRACTICE: FINDINGS OF FACT (AUTHORITY OF LICENSING BOARDS TO ORDER)

10 CFR §2.754 empowers a licensing board to direct the parties to file proposed findings. See generally *Midland, supra*, 6 AEC at 333.

APPEARANCES

John R. Minock, Ann Arbor, Michigan, for the intervenor Citizens for Employment and Energy.

Harry H. Voigt, Washington, D.C., for the applicants, Detroit Edison Company, *et al.*

Colleen P. Woodhead for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

This memorandum authorizes Citizens for Energy and the Environment (CEE) to proceed with its appeal of the Licensing Board's October 29, 1982 initial decision. LBP-82-96, 16 NRC 1408. That decision authorized the issuance of a full-power operating license for Fermi 2. Because CEE did not file proposed findings of fact and conclusions of law with the Board, we initially questioned whether CEE's appeal was proper. See Order to Show Cause (Nov. 12, 1982) (unpublished). CEE's answer to our order to show cause has convinced us that, absent a board order requiring the submission of proposed findings, an intervenor

that does not make such a filing is free to pursue on appeal all issues it litigated below.

Our order that CEE show cause why its appeal should not be dismissed for failure to file proposed findings of fact and conclusions of law relied upon a series of decisions to the effect that a party's appellate brief must relate to its exceptions: in turn, a party can except only to a board finding that rejected that party's proposal. See *Pennsylvania Power and Light Company and Allegheny Electric Cooperative, Inc.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-693, 16 NRC 952, 955-56 (1982); *Public Service Electric and Gas Company, et al.* (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 NRC 43, 49 (1981). Seemingly, absent proposed findings, there could be no exceptions, no brief, and hence no appeal. As we explain below, however, a closer reading of the cases and underlying regulations leads us to conclude that that result can obtain only if a licensing board *directs* the parties to file proposed findings. Here, the Licensing Board established a timetable for the submission of proposed findings but issued no direction for such a filing. The distinction is important,¹ and CEE's appeal is properly before us.

I

In civil cases tried in federal court without a jury, the obligation of making findings of fact rests with the court. The litigants need not request them of the court or propose findings of their own. Fed. R. Civ. P. 52(a). This does not mean that proposed findings serve no purpose. As one court explained (*Hodgson v. Humphries*, 454 F.2d 1279, 1282 (10th Cir. 1972)):

It is, to be sure, good practice and effective advocacy to submit proposed findings and conclusions when requested to do so. And it is prudent to receive them, especially in complicated cases. They serve as a useful aid to the trial court's understanding of each party's theory of the lawsuit based upon their respective versions of the law and facts. There is nothing in the rules of procedure, however, requiring their submission, and it is certainly not error for the trial court to proceed without them. . . .

See generally 5A *Moore's Federal Practice*, ¶52.06 (2d ed. 1981); 9 Wright & Miller, *Federal Practice and Procedure*, §§2574-81 (1971).

Many of the Nuclear Regulatory Commission's rules of practice are modeled upon the Federal Rules of Civil Procedure. See, e.g., 10 CFR Part 2, App. A, IV(c). The provision governing submission of proposed findings to the licensing

¹ Cf. *Commonwealth Edison Company* (Byron Nuclear Power Station, Units 1 and 2), ALAB-678, 15 NRC 1400, 1418 (1982) (sanction for failure to answer interrogatories is proper only where a board order unequivocally imposes an obligation to answer).

board, 10 CFR §2.754, embodies the same general philosophy as the comparable federal rule. The controlling NRC regulation reads in pertinent part as follows:

(a) Any party to a proceeding may, or if directed by the presiding officer shall, file proposed findings of fact and conclusions of law . . . within the time provided by the following subparagraphs, except as otherwise ordered by the presiding officer:

(1) The party who has the burden of proof shall, within thirty (30) days after the record is closed, file proposed findings of fact and conclusions of law. . . .

(2) Other parties may file proposed findings, conclusions of law and briefs within forty (40) days after the record is closed. However, the staff may file such proposed findings, conclusions of law and briefs within fifty (50) days after the record is closed.

* * *

(b) Failure to file proposed findings of fact, conclusions of law or briefs when directed to do so may be deemed a default, and an order or initial decision may be entered accordingly.

The text of that rule is plain enough. The filing of proposed findings of fact is optional, unless the presiding officer directs otherwise.² The presiding officer is also empowered to take a party's failure to file proposed findings, *when directed to do so*, as a default. In the case at hand, the Licensing Board did not direct the parties to file proposed findings, but only approved a filing schedule to which the parties had agreed among themselves. Tr. 576-77. That action of the Board falls short of an explicit direction. Accordingly, no default can attach to the intervenor's decision not to file proposed findings, and its appeal would seem properly before us.

II

Applicants argue that, while 10 CFR §2.754 may not empower a licensing board to default a party absent an unheeded direction to file proposed findings, nonetheless the recalcitrant party is not entitled to appeal the licensing board's decision. This, we are told, follows from the proposition stated in the cases upon which we relied in our order to show cause — *i.e.*, that a party's appellate brief must relate to

² There is some ambiguity in the rule as to whether the party that has the burden of proof is obliged to file proposed findings. As a practical matter, the issue is unlikely ever to arise because applicants bear the burden of proof in licensing proceedings and invariably make such filings.

its proposed findings.³ The NRC staff also argues that CEE's appeal should be dismissed on this basis.⁴

While it is true that the cases we relied upon noted the proposition applicants and the staff remind us of, neither *Susquehanna* nor *Salem* explicitly addressed what sanction, if any, may be imposed for a failure to file proposed findings.⁵ The major difficulty with the applicants' and the staff's argument for dismissal is that it attaches a sanction to an act which our rules explicitly make permissive — it treats the choice not to file proposed findings as a waiver of the right to appeal the Licensing Board's decision. The peculiarity of that result makes their argument manifestly unacceptable as an interpretation of our rules of practice.⁶

Moreover, our statements in *Susquehanna* and *Salem* regarding proposed findings were based on the more general proposition that "we will not ordinarily entertain arguments raised for the first time on appeal." *Susquehanna, supra*, 16 NRC at 956 n.6. See also *Salem, supra*, 14 NRC at 49; *Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B)*, ALAB-463, 7 NRC 341, 348 (1978). We adhere to that fundamental principle of appellate practice. However, here, at least at this juncture, it does not appear that CEE is pressing arguments raised for the first time on appeal. Rather, on its face, its appeal is limited to the evidentiary case it presented (through its witness and cross-examination) to the Licensing Board.⁷ The applicant and the staff may seek to persuade us to the contrary after CEE's brief has been filed and the issues in controversy have been made explicit. But, at least at this stage of our review, it seems as if the Board did have the benefit of CEE's views and was in a position to address CEE's arguments. If the Board was unclear as to where CEE stood, it could have directed CEE to file proposed findings.⁸

³ Applicants' Response to CEE's Answer to Order to Show Cause (Dec. 22, 1982) at 5-6. Applicants also argue that the Licensing Board, in fact, directed the parties to submit proposed findings. *Id.* at 4-5. As noted in text, we think that the setting of a timetable for the submission of proposed findings falls short of a requirement, especially given the language of 10 CFR §2.754 which distinguishes between permissive filings and mandatory ones.

⁴ NRC Staff Response to CEE Answer to Order to Show Cause (Dec. 23, 1982).

⁵ *Susquehanna* held that a party's appeal could be dismissed where its appellate brief was so inadequate that it was equivalent to no brief at all having been filed. 16 NRC at 957. In *Salem*, what we said was in the context of explaining the indicia of an acceptable brief, and the limitations that intervenors' briefs had placed on our appellate review. 14 NRC at 49-51.

⁶ Additionally, the applicants' argument, if accepted, would place the Board in the unusual position of deciding the merits of issues that, for purposes of appeal, are uncontested. This result runs counter to the Commission regulation that in most instances restricts the boards in operating license proceedings to deciding only *contested* issues. 10 CFR §2.760a.

⁷ One aspect of CEE's appeal, exceptions 25-28, contests that part of the Licensing Board's initial decision that denied Monroe County's late-filed petition to intervene. CEE cannot press that aspect of its appeal because 10 CFR §2.714a(b) allows only the petitioner that was denied leave to intervene to appeal such an order. In addition, we have already disposed of Monroe County's appeal. See ALAB-707, 16 NRC 1760 (1982).

⁸ We need not, and do not, now reach the question of what constitutes the minimal participation necessary to preserve a party's appellate rights. We note, however, that the situation at bar is patently stronger than the case of an intervenor that seeks to appeal a licensing board's disposition of another party's contentions but has not put on its own evidentiary case.

On earlier occasions we have recognized that the failure to file proposed findings may be the cause for default or other sanctions where the presiding officer has directed the parties to submit proposed findings. In *Consumers Power Company* (Midland Plant, Units 1 and 2), ALAB-123, 6 AEC 331, 332-33 (1973), we commented that "10 CFR §2.754 gives a party the right to file proposed findings and conclusions, and also provides that a board *may require* that they be filed" (emphasis added).⁹ We also noted that, even when a licensing board order requesting the submission of proposed findings has been disregarded, "the Commission's Rules of Practice [do] not mandate a sanction," and a licensing board acts within its discretion in treating as contested those issues of fact as to which the intervenors had introduced affirmative evidence or engaged in substantial cross-examination. *Id.* at 333. See also *Northern States Power Company* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-244, 8 AEC 857, 864 (1974), *reconsideration denied*, ALAB-252, 8 AEC 1175, *aff'd*, CLI-75-1, 1 NRC 1 (1975) (party that failed to submit proposed findings when directed to do so is scarcely in a position, legally or equitably, to protest the Licensing Board's determinations). When another aspect of *Midland* was recently before us, we dismissed the intervenor's appeal where the Licensing Board had specifically ordered the intervenor, to no avail, to file a brief and proposed findings. *Consumers Power Company* (Midland Plant, Units 1 and 2), ALAB-691, 16 NRC 897, 905-08 (1982). Compare *Florida Power & Light Company* (St. Lucie Nuclear Power Plant, Unit No. 2), ALAB-280, 2 NRC 3, 4 n.2 (1975) (finding intervenor in default for failing to file proposed findings as directed, but questioning whether even absent such an order an appeal would be entertained).

In sum, while our cases may hint at a broader authority to impose sanctions (see *St. Lucie, supra*), the failure to file proposed findings has met with sanctions only in those instances where a Licensing Board directed such findings to be filed. That is consistent with the Commission's rules, and is the extent of the adjudicatory boards' enforcement powers under 10 CFR §2.754.

⁹ Because the intervenors in *Midland* did not comply with the Board's order to file proposed findings, it greatly complicated the Board's task of determining whether particular issues were, in fact, still contested. The failure of intervenors to file proposed findings, as directed, was one of the practices specifically disapproved of by the Supreme Court in its review of certain aspects of the case.

[A]dministrative proceedings should not be a game or a forum to engage in unjustified obstructionism by making cryptic and obscure reference to matters that "ought to be" considered and then, after failing to do more to bring the matter to the agency's attention, seeking to have that agency determination vacated on the ground that the agency failed to consider matters "forcefully presented." In fact, here the agency continually invited further clarification of Saginaw's contentions. Even without such clarification it indicated a willingness to receive evidence on the matters. But not only did Saginaw decline to further focus its contentions, it virtually declined to participate, indicating that it had "no conventional findings of fact to set forth" and that it had not "chosen to search the record and respond to this proceeding by submitting citations of matter which we believe were proved or disproved."

Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 553-54 (1978).

It is worth reiterating that 10 CFR §2.754 empowers a licensing board to direct the parties to file proposed findings. And that is plainly the better practice. Our earlier *Midland* decision is again apt:

the rule recognizes that the filing of proposed findings and conclusions by parties is likely to be of substantial benefit to a licensing board in resolving various questions which are at issue in a proceeding — particularly one such as this which involves complex factual questions and a lengthy record which includes a variety of expressed opinions on the various facets of reactor operation. If nothing else, such proposed findings will assist a board in determining what issues in fact exist between the parties, and what issues are either not actually in dispute or not relevant to the eventual decision which must be rendered.

6 AEC at 333. In the case at bar, the Licensing Board proceeded to decision without mandating the filing of proposed findings. Perhaps, given the relatively condensed hearing — three days — the Board did not insist because it felt it had a firmer grasp of the parties' positions and the contested facts than it has in the more usual reactor licensing case. But it would be best if this manner of proceeding were the exception and the licensing boards routinely directed the filing of proposed findings.

For the foregoing reasons, our November 12, 1982 Order to Show Cause is *withdrawn*, and CEE's appeal from the Licensing Board's October 29, 1982 decision is reinstated. Its brief shall be filed within *thirty-five days* of service of this decision. 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
Christine N. Kohl
Howard A. Wilber

In the Matter of

Docket No. 50-395-OL

**SOUTH CAROLINA ELECTRIC & GAS
COMPANY, et al.**
**(Virgil C. Summer Nuclear Station,
Unit 1)**

January 13, 1983

The Appeal Board, *sua sponte*, affirms with comments two Licensing Board Decisions in this operating license proceeding: a July 20, 1982 partial initial decision (LBP-82-55, 16 NRC 225) concerning seismic matters and an August 4, 1982 supplemental partial initial decision (LBP-82-57, 16 NRC 477) resolving all other matters and authorizing issuance of an operating license subject to certain conditions.

**LICENSING BOARDS: DISCRETION IN MANAGING
PROCEEDINGS**

Licensing boards have the authority to call witnesses of their own, but the exercise of this discretion must be reasonable and like other licensing board rulings, is subject to appellate review. A board may take this extraordinary action only after (i) giving the parties to the proceeding every fair opportunity to clarify and supplement their previous testimony, and (ii) showing why it cannot reach an informed decision without independent witnesses.

LICENSING BOARDS: RESPONSIBILITIES

Licensing boards are bound to comply with appeal board directives, whether they agree with them or not. The same is true with respect to Commission review of appeal board action and judicial review of agency action. Any other alternative would be unworkable and unacceptably undermine the rights of the parties.

DECISION

1. In this operating license proceeding involving the Summer nuclear facility, the Licensing Board rendered both a July 20, 1982 partial initial decision¹ and an August 4, 1982 supplemental partial initial decision.² In the absence of permissible exceptions, we have examined *sua sponte* each decision, as well as substantial portions of the underlying evidentiary record. Although we do not subscribe to every subsidiary finding of the Licensing Board, our review has disclosed no error affecting the validity of the ultimate result reached by that Board (including the several conditions that it imposed upon reactor operation). Accordingly, that result is *affirmed*.³ We do, however, have comments on two points raised by the Licensing Board's decisions.

First, in the July 20 partial initial decision, the Board noted that, although scientific opinion is "mixed," it found no new evidence that would warrant reassessment of the Licensing Board's determination at the construction permit stage that the 1886 Charleston earthquake should be localized to the immediate Charleston area.⁴ Subsequent to the Board's decision and while our *sua sponte* review was under way, we received a board notification indicating that the U.S. Geological Survey has recently "clarified" its position on the Charleston earthquake.⁵ According to the NRC staff, the USGS believes that an earthquake of

¹ LBP-82-55, 16 NRC 225. This decision was confined to seismic matters. Applicants' exceptions were dismissed in ALAB-694, 16 NRC 958 (1982).

² LBP-82-57, 16 NRC 477. No exceptions were filed to this decision, which resolved the nonseismic issues presented in the proceeding (principally emergency preparedness, quality assurance/quality control, and the health effects of the uranium fuel cycle and radiation releases during normal operation) and authorized the issuance of an operating license, subject to ten specified conditions.

³ On October 22, 1982, the Licensing Board entered an unpublished order in which it denied a post-August 4 motion of intervenor Brett Bursey to reopen the record on a quality assurance question. No appeal has been taken from that order. Absent exceptional circumstances (and none is apparent here), we do not review *sua sponte* the action taken by licensing boards on reopening motions filed subsequent to the rendition of the last initial decision in the proceeding. Thus, we have not passed on the merits of the October 22 order.

⁴ LBP-82-55, *supra*, 16 NRC at 231 & n.5, 262-63, 266. See *South Carolina Electric & Gas Company* (Virgil C. Summer Nuclear Station, Unit 1), LBP-73-11, 6 AEC 213, 218, 225, *modified and affirmed*, ALAB-114, 6 AEC 253 (1973).

⁵ BN-82-122 (December 17, 1982).

that magnitude should not be categorically ruled out at locations away from Charleston solely on the basis of an earlier USGS statement. We do not believe that this information provides a basis for reexamining the earlier construction permit Licensing Board's conclusions, and thus we agree with the Board below that there is no reason here to reopen the record on the Charleston earthquake. The staff is currently evaluating the significance of the USGS clarification, and, should the evidence of record be substantially undermined, we expect the staff to see that applicants take whatever steps are necessary to provide reasonable assurance of the safe operation of Summer.

Second, the Board's August 4 supplemental decision noted several instances of confirmed — albeit neither widespread nor significantly affecting safety-related work — drug and alcohol use on-site during plant construction. The Board stated that “[t]he evidence is not clear whether NRC policy is that such practice is not to be tolerated, or that it is to be tolerated in moderation so long as safety is not compromised,” and went on to find quality control of construction to be acceptable.⁶ We have no quarrel with the Board's findings and conclusions — only some concern that the Commission might be incorrectly perceived as indifferent to drug and alcohol use at nuclear facilities. But in fact, the Commission is now considering this matter in a pending rulemaking.⁷ Although that proceeding does not appear to cover construction workers at a plant that has not yet received an operating license (and thus the incidents described in this record), it does reflect an important awareness of the potential adverse effect on the public health and safety attributable to drug and alcohol use on-site by workers at nuclear facilities. Accordingly, the Commission may find it useful to explore in the ongoing rulemaking the safety consequences of alcohol and drug use during construction, as well as during plant operation.

2. We turn briefly to the Licensing Board's comments on calling independent Board witnesses, contained in the rather lengthy appendix to its July 20 partial initial decision. We have no desire to belabor the matter further; we simply reaffirm what we said in ALAB-663, 14 NRC 1140 (1981).⁸ Several of the major points of that opinion, however, are worth repeating here.

First, licensing boards of course have the authority to call witnesses of their own. This is necessary for the fulfillment of our shared goal of a fully developed record on matters of safety and environmental significance. But like other licensing board rulings, calling independent witnesses is subject to appellate review. The exercise of this discretion must be reasonable; within the framework of NRC proceedings, that means that the boards may take this extraordinary action only

⁶ LBP-82-57, *supra*, 16 NRC at 499.

⁷ See 47 *Fed. Reg.* 33980 (August 5, 1982). See also NUREG-0903, “Survey of Industry and Government Programs to Combat Drug and Alcohol Abuse” (June 1982).

⁸ A month before the Board's July 20 partial initial decision, the Commission issued an order in which it declined to take review of ALAB-663. CLI-82-10, 15 NRC 1377 (1982).

after (i) giving the parties to the proceeding every fair opportunity to clarify or supplement their previous testimony, and (ii) showing why it cannot reach an informed decision without independent witnesses.⁹

Second, licensing boards are obliged to explain their rulings, particularly when they are out of the ordinary. Reviewing courts require agencies to explain their rulings, and, accordingly, we must expect no less from the hearing boards. Rather than viewing a request for explanation as a burden or inappropriate intrusion upon its authority, a board (or indeed any decisionmaking entity) should recognize that it is to its own advantage to explain why it has reached the conclusions it has. A board's well-reasoned memorandum or decision is its principal means of official communication and it should exploit it to the fullest.

Finally — and most important to the orderly functioning of the adjudicatory process — licensing boards are bound to comply with appeal board directives, whether they agree with them or not. The same is true with respect to Commission review of appeal board action and judicial review of agency action. Any other alternative would, in our view, be unworkable and unacceptably undermine the rights of the parties.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

Concurring Opinion of Mr. Rosenthal

Insofar as the appendix to the July 20 partial initial decision is concerned, I am constrained to add one further observation to those contained in the above opinion. In my view, the Licensing Board's endeavor to perpetuate the controversy over its calling independent witnesses of its own was not only unseemly but of no possible useful purpose. At least for this proceeding, that controversy had come to an end

⁹ Here, our scrutiny of the referenced citations to the hearing transcript and the Board's statements gave us substantial cause to doubt that the Board had done so, both at the time we received the staff's motion for directed certification and as the matter proceeded. Our various directions to the Board reflected not undue interference with the Board's discretion, but rather our legitimate concern that these *procedures* were not being observed.

when, on June 22, the Commission declined to review ALAB-663.¹ Moreover, the Licensing Board had previously detailed its reasons for thinking that resort to its own witnesses was justified.² In these circumstances, the most that the appendix did or could do was to record the Board's continuing belief that it was right and thus we were wrong with regard to the independent witness question.

Needless to say, members of a licensing board are entitled to hold their own opinions respecting rulings of higher authority — so long as any disagreement with those rulings is not employed as a basis for ignoring directives that the board is obliged to obey. But the propriety of unnecessarily encumbering the official reports of this agency with an extended dissertation on wholly academic points is quite a different matter. In this instance, it is difficult to fathom what interest the members of our Bar and others who follow the course of NRC adjudicatory proceedings might have in knowing whether the Licensing Board remained persuaded of the correctness of its earlier expressed conclusions on the independent witness question.

¹ CLI-82-10, 15 NRC 1377 (1982).

² See LBP-81-47, 14 NRC 865 (1981).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Stephen F. Ellperin, Chairman
Dr. John H. Buck
Gary J. Edles

In the Matter of

Docket Nos. 50-259-OL
50-260-OL
50-296-OL

TENNESSEE VALLEY AUTHORITY
(Browns Ferry Nuclear Plant,
Units 1, 2 and 3)

January 21, 1983

The Appeal Board approves a settlement between licensee, intervention petitioners and the NRC staff in this proceeding on licensee's application for authorization to store low-level radioactive waste at Browns Ferry, and grants petitioners' motion to withdraw their intervention petitions and requests for hearing.

APPEARANCES

Robert B. Pyle, Chattanooga, Tennessee, for petitioners David R. Curott, *et al.*

Herbert S. Sanger, Jr., Knoxville, Tennessee, for the applicant, Tennessee Valley Authority.

Richard J. Rawson for the Nuclear Regulatory Commission staff.

DECISION

This proceeding involves an application by the Tennessee Valley Authority (TVA) for a license amendment to authorize the storage for five years of low-level radioactive waste at the Browns Ferry Nuclear Plant. The proceeding is before us on remand from the Commission so that we could reconsider our decision in ALAB-664¹ in light of new information that TVA should have, but did not, serve upon us earlier. See CLI-82-26, 16 NRC 880 (1982).² See also ALAB-677, 15 NRC 1387 (1982).

Before undertaking reconsideration, we issued an order requiring further submittals to clarify the nature of TVA's low-level radioactive waste storage application, the present status of TVA's onsite and offsite storage capacity, and TVA's future plans with regard to seeking authorization to incinerate such waste. This last issue, in particular, we thought might be critical to whether petitioners remain desirous of intervening in this proceeding. We also called upon petitioners to advise us whether TVA's responses have rendered their concerns moot, or whether they still plan to pursue intervention. If their answer was the latter, they were to file a statement of their general concerns and comment on the NRC staff's environmental impact appraisal of TVA's application. Order of September 20, 1982 (unpublished).

TVA's response advised that (1) it currently ships all of its wastes to offsite disposal sites and will continue to do so as long as such space is available, (2) it is only seeking five-year storage authority, and (3) the progress of the southeastern States toward enacting an Interstate Low-Level Radioactive Waste Management Compact might alleviate future storage problems so that use of the onsite storage modules TVA had constructed could be limited to emergency situations. See Statement of John W. Hutton (Oct. 1, 1982) at 2-3, 5, 8. TVA also noted, however, that at some time in the future it would probably propose some system of volume reduction for Browns Ferry low-level waste. While TVA had made no decision in that regard, volume reduction appeared to it to be economically advantageous whether the waste was to be stored temporarily onsite or immediately shipped offsite. *Id.* at 7-9.

The NRC staff also submitted useful information to us including a copy of the Commission's Policy Statement on Low-Level Waste Volume Reduction. See NRC Staff Response (Oct. 8, 1982), Attachment 5; 46 *Fed. Reg.* 51100 (Oct. 16, 1981). That policy makes clear that "[t]reatment or disposal of licensed material by

¹ 15 NRC 1 (1982).

² ALAB-664 reversed and remanded a Licensing Board decision denying petitioners' intervention petitions and requests for hearing, and directed the Board to rule on the petitions after its receipt of the NRC staff's environmental assessment of TVA's license amendment application. See 15 NRC at 12.

incineration requires [specific] Commission approval" — approval that TVA does not seek in this proceeding.

The TVA and NRC staff responses led to settlement negotiations among the parties. The ensuing agreement, together with petitioners' motion to withdraw their petitions have been submitted to us for our approval. In essence, the settlement provides that until December 31, 1987 TVA will notify certain named persons "within 10 days of submission, of any application in which TVA requests from the Nuclear Regulatory Commission permission to build, operate or modify a system to incinerate low-level radioactive wastes (LLRW) in the States of Alabama, Mississippi or Tennessee." Petitioners, for their part, agree to withdraw their intervention petitions and request that this proceeding be dismissed. The NRC staff has no objection to the withdrawal of the petitions or to dismissal of the proceeding, and joins in the stipulation to that extent. Stipulation (Jan. 18, 1983).

We have examined the petitioners' motion to withdraw and the accompanying stipulation. Finding no ground for denial, the stipulation is *approved* and petitioners' motion to withdraw their petitions is *granted*.

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 BOARD

Before Administrative Judges:

James P. Gleason, Chairman
Dr. Oscar H. Paris
Frederick J. Shon

In the Matter of

Docket Nos. 50-247-SP
50-286-SP

CONSOLIDATED EDISON COMPANY
OF NEW YORK
(Indian Point, Unit No. 2)

POWER AUTHORITY OF THE STATE
OF NEW YORK
(Indian Point, Unit No. 3)

January 7, 1983

Applying the guidelines set forth in the Commission's orders of July 27, 1982 (CLI-82-15, 16 NRC 27) and September 17, 1982 (CLI-82-25, 16 NRC 867), the Licensing Board reconsiders and reformulates the emergency planning contentions admitted in its April 23, 1982 memorandum and order (LBP-82-34, 15 NRC 895), and considers new contentions proposed by Intervenors.

MEMORANDUM AND ORDER

(Reformulating Contentions Under Commission Questions 3 and 4)

I. INTRODUCTION

In our November 15, 1982 Memorandum and Order (Formulating Final Contentions and Setting Schedule, LBP-82-105, 16 NRC 1629), we deferred considera-

tion of contentions under Commission Questions 3 and 4 until after FEMA's issuance of its report on the adequacy of offsite emergency planning at Indian Point. FEMA's report, dated December 16, 1982, assesses the corrective actions taken during the 120-day period (August 3, 1982-December 3, 1982) set by the Commission to cure deficiencies noted in FEMA's interim report of July 30, 1982, and assesses the adequacy of the current plan as a whole. In reformulating the contentions under Commission Questions 3 and 4, we have considered changes in the status of emergency planning that have occurred during this period. In addition, we have considered Intervenor's arguments in support of their previously filed contentions and Intervenor's proposals for new contentions. (See "Parents Concerned About Indian Point Proposed Revised Contentions on Commission Questions 3 and 4," dated December 24, 1982 (Parents' Revision); "West Branch Conservation Association's Notice of Continuation of Contentions under Questions 3 and 4," dated December 27, 1982 (WBCA's Notice); "NYPIRG Submission in Support of Contentions on Questions 3 and 4 Formulated by Board Memorandum and Order of April 23, 1982," dated December 28, 1982 (NYPIRG's Submission); and "WESPAC Submission Regarding Revised Contentions on Commission Questions 3 and 4," dated January 6, 1982 (WESPAC's Submission).)

In determining the admissibility of the emergency planning contentions, we have applied the guidelines set forth in the Commission's orders of July 27, 1982 (CLI-82-15, 16 NRC 27) and September 17, 1982 (CLI-82-25, 16 NRC 867):

1. Proffered contentions must have included a statement of bases and both contentions and the bases must have been stated with reasonable specificity.
2. Those contentions that, while complying with §2.714, do not seem likely to be important to answering the Commission's questions should be eliminated.
3. Contentions under Commission Question 3 should not challenge the regulations. With regard to the size of the plume exposure pathway EPZ, however, the Commission noted that the "exact size and configuration can be affected by local conditions." The Board is "to address whether the high population density posed by the two plants is such a local condition."
4. Contentions under Commission Question 4 may argue that additional emergency planning measures, not required by NRC or FEMA, should be required for Indian Point as prudent risk-reduction measures in light of the risks posed by Indian Point as opposed to the spectrum of risks posed by other nuclear plants. However, parties must provide a sound basis for such contentions.

Following a restatement of Commission Questions 3 and 4 herein, we address first the contentions admitted in our April 23, 1982 Memorandum and Order

(Formulating Contentions, Assigning Intervenors, and Setting Schedule, LBP-82-34, 15 NRC 895) and then the contentions proposed by Intervenors in their recent submissions.

II. RECONSIDERATION OF CONTENTIONS ADMITTED IN OUR APRIL 23, 1982 MEMORANDUM AND ORDER

Commission Question 3

What is the current status and degree of conformance with NRC/FEMA guidelines of state and local emergency planning within a 10-mile radius of the site and, of the extent that it is relevant to risks posed by the two plants, beyond a 10-mile radius? In this context, an effort should be made to establish what the minimum number of hours warning for an effective evacuation of a 10-mile quadrant at Indian Point would be. The FEMA position should be taken as a rebuttable presumption for this estimate.

We admitted seven contentions under Commission Question 3 in our April 23, 1982 order. We address them *seriatim*.

Contention 3.1

Emergency planning for Indian Point Units 2 and 3 is inadequate in that the present plans do not meet any of the sixteen mandatory standards set forth in 10 CFR 50.47(b), nor do they meet the standards set forth in Appendix E to 10 CFR Part 50.

The bases for this contention were set forth extensively in the following filings:

- 1) UCS/NYPIRG's "Contentions of Joint Intervenors Union of Concerned Scientists and New York Public Interest Research Group," dated December 2, 1981 (hereinafter UCS/NYPIRG Contentions) (*See* Contention I(A));
- 2) NYPIRG's Submission of December 28, 1982;
- 3) WESPAC's "Contentions of the Westchester People's Action Coalition," dated December 1, 1981 (hereinafter WESPAC Contentions) (*See* Contentions 1, 2, and 3); and
- 4) RCSE's "Supplement to Petition: Contentions," dated December 1, 1981 (hereinafter RCSE's Supplement) (*See* Contentions 2, 3 and 5).

We have determined that this contention should remain in the proceeding since both the contention and its bases meet the criteria set forth above.

Contention 3.2

Emergency planning for Indian Point Units 2 and 3 is inadequate in that the plans make erroneous assumptions about the response of the public and of utility employees during radiological emergencies.

The bases for this contention were set forth in the following filings:

- 1) UCS/NYPIRG Contentions (*See* Contention I(B)(1));
- 2) WESPAC's Contentions (*See* Contention 4);
- 3) Parents' "Contentions of Parents Concerned About Indian Point," dated December 2, 1981 (hereinafter Parents' Contentions) (*See* Contention III); and
- 4) WBCA's "West Branch Conservation Association's Reply to Objections to Its Filed Contentions," dated January 11, 1982 (hereinafter WBCA's Reply) (*See* Contention in reply to Question 3).

Upon reconsideration of this contention, we have determined that it does not identify any specific lack of conformance with NRC/FEMA emergency planning guidelines, and therefore, does not seem likely to be important to answering Commission Question 3. In addition, while similar issues may have been litigated in other NRC proceedings, the contention shows no clear nexus to the central point of this investigation, *viz*, the uniquely populous environs of Indian Point. It should be noted that if the substance of this contention were proven valid at Indian Point, it would be valid at other nuclear facilities as well and thus would not meet any test of uniqueness to Indian Point. The Commission questions were designed to explore the nature of risks at Indian Point with its large population surrounding the facility as compared to the spectrum of risks posed by other nuclear plants. Therefore, Contention 3.2 shall be eliminated.

Contention 3.3

The present estimates of evacuation times, based on NUREG-0654 and studies by CONSAD Research Corporation and by Parsons, Brinkerhoff, Quade & Douglas, Inc., are unreliable. They are based on unproven assumptions, utilize unverified methodologies, and do not reflect the actual emergency plans.

The bases for this contention were set forth in the following filings:

- 1) UCS/NYPIRG Contentions (*See* Contention I(B)(2));
- 2) WBCA's Reply (*See* Contention in reply to Question 3); and
- 3) RCSE's Supplement (*See* Contention 1).

We have determined that this contention, insofar as it challenges the accuracy of the evacuation time estimates required by the regulations, should remain in the proceeding because the contention and its bases meet the criteria set forth above.

Contention 3.4

The Licensees cannot be depended upon to notify the proper authorities of an emergency promptly and accurately enough to assure effective response.

The bases for this contention were set forth in the following filings:

- 1) RCSE's Supplement (*See* Contention 2, bases (a) and (b) only); and
- 2) WESPAC's Contentions (*See* Contention 2).

This contention and its bases, which challenge the Licensees' ability to responsibly initiate notification of an emergency to response officials, meet the Commission guidelines and therefore shall remain in the proceeding.

Contention 3.6

The emergency plans and proposed protective actions do not adequately take into account the full range of accident scenarios and meteorological conditions for Indian Point Units 2 and 3.

The bases for this contention were set forth in the following filings:

- 1) UCS/NYPIRG Contentions (*See* Contention I(B)(3)); and
- 2) WESPAC's Contentions (*See* Contention 3, basis (d)).

This contention and its bases challenge the adequacy of the protective actions in the emergency plans due to their failure to provide for a full range of accident scenarios and meteorological conditions. As it represents a specific challenge to an adequate emergency plan, the contention meets the requisite criteria and is admitted to the proceeding.

Contention 3.7

The problems of evacuating children from threatened areas have not been adequately addressed in the present emergency plans.

The bases for this contention were set forth in the following filings:

- 1) Parents' Contentions (*See* Contention I, bases (4), (5), (6), (7) and (15); and
- 2) Parents' Revision (*See* Contention V, bases (1)-(10)).

This contention and its bases, specifically challenging the adequacy of the range of protective actions provided in the emergency plans, meet the requisite criteria set forth above and shall remain in the proceeding.

Contention 3.9

The road system in the vicinity of the Indian Point plant is inadequate for timely evacuation.

The bases for this contention were set forth in the following filings:

- 1) WESPAC Contentions (*See* Contention 5); and
- 2) WBCA's Reply (*See* Contention in reply to Question 1 and Contention in reply to Question 5).

This contention and its bases challenge the adequacy of the road network to accommodate evacuation in Rockland and Westchester counties and meet the Commission's standards of specificity and importance. The contention may be relevant also for possibly providing answers to the Commission's expressed interest in establishing the minimum number of hours needed for an effective evacuation of a ten-mile quadrant at Indian Point. The contention shall remain in the proceeding.

Commission Question 4

What improvements in the level of emergency planning can be expected in the near future, and on what time schedule, and are there other specific offsite emergency procedures that are feasible and should be taken to protect the public?

We admitted seven contentions under Commission Question 4 in our April 23, 1982 order. We address them *seriatim*.

Contention 4.1

The plume exposure pathway EPZ should be expanded from its present 10-mile radius in order to meet local emergency response needs and capabilities.

The bases for this contention were set forth in the following filings:

- 1) UCS/NYPIRG Contentions (*See* Contentions II(A), II(B), and III(C));
- 2) Parents' Contentions (*See* Contention II, basis 7); and
- 3) Parents' Revision (*See* Original Contention II and Proposed Contention VII, based on Memorandum and Order, April 23, 1982 and basis 2).

The Board believes this contention is too broad as presently stated and has reformulated the contention as follows:

New Contention 4.1

The plume exposure pathway EPZ should be expanded from its present 10-mile radius in order to meet local emergency needs and capabilities as

they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries.

As reformulated, the contention and its bases meet the Commission's standards of specificity and importance and shall remain in the proceeding.

Contention 4.2

The following specific, feasible offsite procedures should be taken to protect the public:

- a) Potassium iodide should be provided in an appropriate form for all residents in the EPZ.
- b) Adequate sheltering capability should be provided for all residents in the EPZ.
- c) License conditions should prohibit power operation of Units 2 and 3 when the roadway network becomes degraded because of adverse weather conditions.
- d) The roadway network should be upgraded to permit successful evacuation of all residents in the EPZ before the plume arrival time.

The bases for this contention were set forth in the following filings:

- 1) UCS/NYPIRG Contentions (*See* Contention III(A), subparts (a), (b), (c), and (e)).
- 2) RCSE's Supplement (*See* Contention 4).

We retain this contention without change since it meets the Commission's criteria of providing a sound basis for exploring whether additional requirements are necessary for the Indian Point facility.

Contention 4.3

There are no feasible offsite emergency procedures which can adequately protect the public.

The bases for this contention were set forth in the following filings:

- 1) "Contentions of the Friends of the Earth, Inc., and New York City Audubon," dated December 2, 1981 (hereinafter FOE/Audubon Contentions) (*See* Contention 1);
- 2) WBCA's Reply (*See* Contention in reply to Question 4); and
- 3) WESPAC's Contentions (*See* Contention 5).

We have reviewed this Contention, its bases, and the comments made thereon during the April 13-14, 1982, prehearing conference, and have decided, in light of the Commission's guidance, that the contention must be deleted. It offers no new

suggestions for improving emergency planning or plant safety. Mere criticisms of existing emergency plans provide nothing that is not already covered in contentions accepted under Commission Questions 1 and 3. Therefore, Contention 4.3 shall be eliminated.

Contention 4.4

The emergency plans should be upgraded by taking account of special groups with special needs in emergencies. In particular, provision must be made for evacuating persons who are dependent upon others for their mobility.

The bases for this contention were set forth in the following filings:

- 1) WESPAC's Contentions (*See* Contention 6);
- 2) Parents' Contentions (*See* Contention 1, basis (22) and Contention II, basis (7));
- 3) Parents' Revision (*See* Contention X); and
- 4) UCS/NYPIRG Contentions (*See* Contention I(B)(2), basis (6) and Contention I(A), basis (7)).

We have decided to delete this contention from consideration under Commission Question 4 because the contention and its bases challenge the adequacy of the emergency plan but do not offer specific additional emergency planning measures which should be required. However, we find that the bases mentioned above identify specific inadequacies in the plan which are important to answering Commission Question 3, and which might not be covered in the bases of contentions already admitted. Therefore, we have decided to reformulate Contention 4.4 as a contention to be considered under Commission Question 3. This contention shall be labelled Contention 3.10 and shall state as follows:

Contention 3.10

The emergency plan fails to conform to NUREG-0654 in that, contrary to Evaluation Criterion II.J.10.d., proper means for protecting persons whose mobility may be impaired have not been developed. Specifically, adequate provisions have not been made for groups named in the bases submitted for the following contentions:

WESPAC 6

Parents I, basis (22) and II basis (7)

UCS/NYPIRG I(B)(2), basis (6) and I(A) basis (7).

Contention 4.5

Specific steps must be taken by NRC, State, and local officials to promote a public awareness that nuclear power plant accidents with substantial offsite risks are possible at Indian Point.

The basis for this contention was set forth in "UCS/NYPIRG Contentions," in Contention I(B)(7).

Upon reconsideration of this contention and its basis, we have determined that a "sound basis" has not been provided for the suggested additional measure and that the contention does not meet the standard of specificity required under the Commission guidelines. Analysis of the TMI-2 accident alleging a failure of the NRC to promote the necessity for emergency planning in that case does not provide a sufficient basis to support a contention that more steps are necessary in this case, particularly in light of the emergency planning requirements embodied in NRC regulations since the TMI-2 accident. In addition, the essence of this contention, *i.e.*, the need for advance public information, is encompassed in UCS/NYPIRG Contention I(A) (bases (7) and (9)), which has been accepted for litigation under Contention 3.1. Therefore, Contention 4.5 shall be eliminated.

Contention 4.6

A maximum acceptable level of radiation exposure for the public must be established before any objective basis will exist for adequate emergency planning.

The basis for this contention was set forth in "UCS/NYPIRG Contentions," in Contention I(B)(6).

We have determined that this contention should also be deleted from the proceeding. It calls for the establishment by the NRC of acceptable dose levels under accident conditions in order that responsible emergency planning can be evaluated. This contention challenges the NRC regulations without providing a sound basis for why such a measure is necessary for Indian Point in particular. Were the NRC to issue acceptable dose levels, they would apply to every nuclear facility. Our responsibility is to look at the extent to which nearby population affects the risk posed by Indian Point *as compared to* the spectrum of risks posed by other nuclear power plants. This contention does not meet that guidance.

Contention 4.7

The present emergency planning brochures and present means of alerting and informing the population of an emergency do not give adequate

attention to problems associated with persons who are deaf, blind, too young to understand the instructions, or who do not speak English.

The bases for this contention were set forth in the following filings:

- 1) Parents' Contentions (*See* Contention I, bases (2), (17), and (22); and Contention II, basis (7));
- 2) Parents' Revision (*See* Contention XIII);
- 3) WESPAC's Contentions (*See* Contention 2, bases (e) and (f)).

Upon reconsideration of this contention and its bases, we have determined that parts of the contention are subsumed in contentions under Commission Question 3. In addition, as currently phrased the contention merely identifies inadequacies but does not suggest additional measures. On the other hand, the bases submitted do provide a sound basis for proposing additional measures that should be required to notify the special population groups listed in the contention, and this issue is not treated directly under Commission Question 3. In order to have the benefit of the parties' testimony on this matter, and to conform with Commission guidance, we have decided to reformulate the contention as follows:

Reformulated Contention 4.7

The emergency plans should be upgraded to provide more adequate methods for alerting and informing persons who are deaf, blind, too young to understand the instructions, or who do not speak English.

Intervenor Assignments

Lead and contributing intervenor assignments for the retained contentions and for the reformulated contentions will be the same as listed in our April 23, 1982 order.

III. CONSIDERATION OF NEWLY PROPOSED CONTENTIONS

NYPIRG in "NYPIRG's Submission" and Parents in "Parents Revision" have proposed new contentions which we will discuss below.

NYPIRG Proposed Contentions

- I. The exercise process is not an adequate basis for determining aspects of emergency response capability for an accident at Indian Point.
- II. Letters of agreement, memoranda of understanding, and mutual aid agreements signed by the responsible local officials and by the emergency workers themselves should be the determining criteria in evaluating emergency response capability.

Parents' Proposed Contention

XIV. Preparedness should be demonstrated by the willingness and ability of emergency workers in the field, by commitments in the form of letters of agreement from all emergency response agencies including schools, bus companies, fire departments, ambulance corps, and local Red Cross chapters, and by the approval, in the form of signatures on the plan, of elected officials of local governments which will be called upon to implement the plans.

NYPIRG supports its new Contention I by ten alleged bases which consist primarily of specific criticisms of the projected emergency planning exercise. NYPIRG proposes in its new Contention II certain evaluation criteria which would replace the drill as a means of determining the adequacy of emergency response capability at Indian Point. We view Parents new Contention XIII as substantially identical to NYPIRG's new Contention II.

We note also that NYPIRG presents its new Contention I as an alternative to our formulating a Board question on the exercise (NYPIRG's Submission at 2).

We have decided not to formulate a Board question on the exercise and not to admit the newly proposed contentions. We find that a Board Question on the results of the exercise is unnecessary because, as we have indicated previously, we expect FEMA will report the results of the exercise to the Board and the parties. The results of the exercise will be subject to whatever scrutiny the Board believes to be essential at that time. Further, we decline to formulate a question on the adequacy of the exercise and the results of the exercise as a measure of preparedness at Indian Point or to admit NYPIRG's new Contention I because such a question or contention would challenge the regulations and violate Commission guidelines under Commission Question 3.

We reject NYPIRG's new Contention II and Parents' new Contention XIV for two reasons. To the extent the contentions allege that NUREG-0654 Evaluation Criterion II(A)(3) has not been complied with, the contentions are covered under previously admitted Contention 3.1 (*See especially UCS/NYPIRG I(A) basis 3*). To the extent the contentions propose new measures not required by FEMA or NRC, they are a challenge to the emergency planning regulations. While such a challenge is allowed under Commission Question 4, parties must provide a sound basis for such a contention and such a basis must be connected to the unique situation at Indian Point. NYPIRG and Parents have failed to show why such a requirement would be more necessary at Indian Point than at other nuclear power plants, and therefore, have failed to provide the sound basis required.

Upon consideration of the foregoing and the entire record in this matter, it is this 7th day of January, 1983,

ORDERED

1. That the following contentions set forth in our Order of April 23, 1982, shall be retained and litigated in this proceeding:

Under Commission Question 3

3.1, 3.3, 3.4, 3.6, 3.7, and 3.9

Under Commission Question 4

4.2

2. That Contentions 4.1, 4.4 and 4.7 shall be reformulated. As reformulated, old Contention 4.4 will be litigated under Commission Question 3 as Contention 3.10. Old Contentions 4.1 and 4.7, as reformulated, retain their original numbers and will be litigated under Commission Question 4.

3. That Contentions 3.2, 4.3, 4.5, and 4.6 shall be eliminated from the proceeding.

4. That the motions by NYPIRG and Parents for the admission of new contentions and formulation of a new Board Question are denied.

**THE ATOMIC SAFETY AND
LICENSING BOARD**

**Dr. Oscar H. Paris
ADMINISTRATIVE JUDGE**

**Frederick J. Shon
ADMINISTRATIVE JUDGE**

**James P. Gleason, Chairman
ADMINISTRATIVE JUDGE**

Bethesda, Maryland

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Law Judge:

Morton B. Margulies

In the Matter of

Docket No. P-564-A
ASLBP No. 76-334-07-AN
(Antitrust)

PACIFIC GAS AND ELECTRIC
COMPANY
(Stanislaus Nuclear Project,
Unit 1)

January 19, 1983

The Licensing Board grants applicant's motion to withdraw its construction permit application without prejudice subject to its compliance with terms and conditions established by the Board for the preservation of discovery documents.

RULES OF PRACTICE: DISMISSAL OF PROCEEDINGS

The possibility that an intervenor may be faced in the future with a refiled application and attendant burdens of renewed intervention is no bar to granting a motion to withdraw an application for the construction of a nuclear plant, without prejudice. Any harm the intervenor may suffer, recognized as such under the law, can be overcome by attaching appropriate compensating conditions as a requirement for withdrawal.

RULES OF PRACTICE: DISMISSAL OF PROCEEDINGS

The decision of the applicant to withdraw its application for the construction of a nuclear plant was a business judgment. The law on withdrawal does not require a determination of the soundness of the decision. What can be required of the

Licensing Board is to appropriately condition the order governing the dismissal to overcome legally recognized harm arising from allowing the withdrawal without prejudice.

MEMORANDUM AND ORDER (RULING ON MOTION FOR WITHDRAWAL)

Applicant Pacific Gas and Electric Company (PG&E) filed a motion in the captioned proceeding to withdraw its application, without prejudice, and proposed as a condition to the termination a method for the preservation of documents made available through discovery. It seeks to end the proceeding on the bases that any need for the Stanislaus Nuclear Project will not arise until the year 2001 and beyond and that construction of the facility is dependent upon being successful in its challenge to California's "nuclear safeguard laws."

In response, Nuclear Regulatory Commission Staff (Staff) supported the motion and intervenor State of California Department of Water Resources (DWR) did not object to it. They agreed on the need to preserve documents but differed on how it should be accomplished. By a joint answer filed by intervenors, Northern California Power Agency (NCPA) and the Cities of Anaheim and Riverside, California (Cities), they opposed the withdrawal of the application and were of the position that if withdrawal were permitted the proposed condition for the preservation of documents was inadequate and that additional conditions were required.

The intervenors in opposition asserted the motion for withdrawal should be denied because applicant had not committed itself to not building the Stanislaus Nuclear Project and that the proposed termination of the proceeding was a ploy to remove applicant from the Commission's scrutiny and provided PG&E with the opportunity to resubmit the application at a more advantageous time to it. They assert applicant's request is unsupported in law or fact. NCPA and Cities claim that should the motion be granted, in order that they not be prejudiced by the termination, a more comprehensive document preservation condition is required and that additional conditions are needed to reimburse intervenors for costs and expenses including attorney fees, and to require PG&E to make available discovery documents from this proceeding in other proceedings to which it is a party and to agree to waive any objections to a full hearing on the adequacy of the Stanislaus Commitment in *Pacific Gas and Electric Company* (Diablo Canyon Nuclear Plant, Units 1 and 2), NRC Docket Nos. 50-275 and 50-276.

On September 21, 1982, oral argument was held before me on the motion for withdrawal and possible terms and conditions that should be imposed if the motion were to be granted. Applicant, Staff and DWR maintained their previously taken positions on the motion and entered into a stipulation agreeing to the method by

which discovery documents should be preserved. NCPA and Cities continued in their opposition to the motion and were not parties to the stipulation. They requested the opportunity to comment in writing by October 21, 1982 on the adequacy of the proposal for the preservation of documents. The request was granted and they submitted their comments. PG&E and Staff submitted responses basically asserting that intervenors' comments were not meritorious.

A brief recitation of past events relevant to the motion is appropriate. On July 11, 1975, PG&E, pursuant to 10 CFR 50.33a provided to the Commission "Information Requested by the Attorney General for Antitrust Review" in connection with its intention to construct a nuclear electric generating facility identified as the "Stanislaus Nuclear Project." The Department of Justice on May 5, 1976 advised the Commission of its approval of a Statement of Commitment which it believed would obviate the antitrust problem posed by PG&E activities. On April 30, 1976, PG&E accepted the Stanislaus Commitment agreeing to its attachment as part of the conditions to licensing the Stanislaus Nuclear Project and agreed that if the facility were not constructed by 1979, to attach it as part of the license conditions of its Diablo Canyon Project. Upon that basis Department of Justice declined to recommend that this Commission hold an antitrust hearing in accordance with Section 105 of the Atomic Energy Act, as amended. (PG&E never filed that part of the application dealing with the physical construction of the Stanislaus facility, so that it was not built by 1979 and the Stanislaus Commitment became part of the license conditions of the Diablo Canyon Project.)

On April 15, 1977, the Licensing Board assigned to this proceeding granted the DWR, NCPA and Cities petitions to intervene and ordered an antitrust hearing pursuant to Section 105 of the Atomic Energy Act, as amended, in connection with PG&E's proposed construction of the Stanislaus Nuclear Project. The matter is reported in *Pacific Gas and Electric Company* (Stanislaus Nuclear Project, Unit 1) LBP-77-26, 5 NRC 1017 (1977).

Since 1977 the parties have undertaken extensive discovery. Several million documents are involved and in excess of one million and a half have been produced.

PG&E and Staff filed a joint motion on February 13, 1981 for suspension of discovery. Applicant based its request on the California nuclear laws and its plans for Stanislaus. In 1976 California implemented amendments to the Warren-Alquist State Energy Resources Conservation and Development Act (Cal. Pub. Resources Code, §25,000 *et seq.*) that prohibit the construction of new nuclear plants until a State commission finds that proper means exist for the disposal of high-level nuclear waste. The State commission has determined that it cannot so find and nuclear plants cannot be approved in California. In 1978, PG&E challenged the California nuclear laws and in 1980 obtained a judgment that the statutes were unconstitutional (*Pacific Gas and Electric v. State Energy Resources*, 489 F.Supp. 699 (1980)). At the time of deciding the joint motion for

suspension of discovery an appeal had been taken to the United States Court of Appeals for the Ninth Circuit and it had not been decided. (The Ninth Circuit has since reversed the lower court in the case now captioned *Pacific Legal Foundation v. State Energy Resources Conservation and Development Commission*, 659 F.2d 903 (1981). The matter was taken by PG&E to the United States Supreme Court (No. 81-1945) and in June 1982 certiorari was granted. The case is presently pending.) PG&E considered it impractical to proceed with Stanislaus because of the uncertainty of the California law. Another ground applicant gave for the proposed suspension of discovery was a change in baseload power needs and that as a result the need for Stanislaus power was pushed back 3 or 4 years.

Barton W. Shackelford, President and Chief Operating Officer of PG&E, submitted an affidavit in support of the motion, dated March 2, 1981, setting forth that the need for Stanislaus power was for 1997 and beyond and that a Stanislaus construction permit would be required in 1989.

Staff gave as its reason for supporting the motion the then current state of the application as described by PG&E and the inability to justify the continuing expenditure of money, time and effort on the proceeding.

The Licensing Board on July 9, 1981, denied the motion upon the bases applicant would build the facility if the legal questions were resolved in its favor and that considering the massive effort already put into discovery and the desire and ability of the intervenors to assure full ventilation of the antitrust issues it would be wasteful and inexpedient to suspend discovery.

On September 18, 1981, PG&E filed a pleading captioned "Notice of Prematurity and Advice of Withdrawal." It notified the Commission that PG&E was withdrawing from what it termed a "pre-application proceeding." The following justification was given. It did not consider its prior participation as that of an applicant. The information it submitted for antitrust review pursuant to 10 CFR 50.33a was not followed within 36 months with an application for a construction permit, as provided for in the regulation. That part of the application for the actual construction of the facility was never filed. Because it continued to be faced with impediments to constructing and operating the facility, PG&E decided to withdraw from the proceeding. It had concluded that the expense of continued participation in what had proved to be a very costly enterprise was no longer justified.

The impediments to its continuing were California's restrictive nuclear laws and the remoteness in time for the need for the Stanislaus facility, being some fifteen years in the future. By order of March 17, 1982 (CLI-82-5, 15 NRC 404), the Commission ruled that PG&E could not unilaterally withdraw from the proceeding. It found that submitting antitrust information pursuant to 10 CFR 50.33a is part of the application for a construction permit, as that term is defined in 10 CFR 2.101(a)(5). It therefore treated the motion as a request for permission to withdraw. Because a notice of hearing had been issued in the case, under 10 CFR

2.107(a), it ruled the matter to be within the jurisdiction of the Licensing Board and referred the matter to it for disposition.

Interim to the filing of the "Notice of Prematurity and Advice of Withdrawal" and the issuance of the Commission order, DWR on October 5, 1981 filed a motion to enter a formal reprimand and censure of applicant for allegedly refusing to comply with the discovery orders and directions of the Licensing Board from September 21, 1980 through September 1981, when the "Notice of Prematurity" was filed. Staff responded to the motion on October 5, 1981 and was of the position it could not agree with DWR's interpretation of the facts or its characterization of PG&E's conduct as set forth in the motion. Staff sought denial of the motion.

DWR previously raised the matter of noncompliance by PG&E with discovery orders on July 10, 1981 in an answer to a motion of applicant for a protective order staying discovery pending final disposition of the joint motion for the suspension of discovery. On July 30, 1981, in an order denying the motion, the Licensing Board ordered, "That discovery by the parties be resumed promptly in accordance with their prior agreements and the Board's orders and directives."

On March 23, 1982 the proceeding was assigned to the presently constituted Licensing Board. (Its membership changed briefly in the period October 25, 1982 to December 28, 1982 for good cause.) The Licensing Board, by Memorandum and Order of April 9, 1982 authorized the parties to make a *de novo* filing of the motion to withdraw and of the answers in order to give the parties a full and fair opportunity to meet the agency's criteria for deciding the withdrawal issue. The Appeal Boards had come out with *Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-662, 14 NRC 1125 (1981) and *Philadelphia Electric Company* (Fulton Generating Station, Units 1 and 2), ALAB-657, 14 NRC 967 (1981) subsequent to the filing the parties made on the withdrawal issue. The subject motion to withdraw and answers were then filed.

Applicant has presented a legally sufficient case for granting of its motion for withdrawal, without prejudice.

Commission regulation 10 CFR 2.107(a) provides that withdrawal of an application after issuance of a notice of hearing, as occurred in this proceeding, shall be on such terms as the presiding officer may prescribe. The Appeal Board added to the law on withdrawal before the Commission in *Fulton, supra*, stating that the licensing boards may not abuse this discretion by exercising their power in an arbitrary manner and that the terms prescribed at the time of withdrawal must bear a rational relationship to the conduct and legal harm at which they are aimed.

The Federal Rule on voluntary dismissal by order of the Court, Fed. Rul. Civ. Proc. 41(a)(2), 28 U.S.C.A. is similar to the Commission regulation. It provides "an action shall not be dismissed at the plaintiff's instance save upon order of the Court and upon such terms and conditions as the Court deems proper."

The Federal practice is that a dismissal without prejudice should be allowed unless the defendant will suffer some prejudice other than the mere prospect of a

second lawsuit. It is an insufficient ground for denial of the motion because plaintiff may obtain some tactical advantage by dismissal. Substantial prejudice to the defendant should be the test. Where substantial prejudice is lacking, the district court should exercise its discretion by granting a motion for voluntary dismissal without prejudice. 5 Moore's Federal Practice §41.05(2) at 41-72. In *Le Compte v. Mr. Chips, Inc.*, 528 F.2d 601 (1976), the Court stated the basic purpose of Rule 41(a)(2) is to freely permit the plaintiff, with court approval, to voluntarily dismiss an action so long as no other party will be prejudiced. It allows the plaintiff to withdraw his action without prejudice to future litigation and permits the court to attach conditions to the order of dismissal thereby preventing defendants from being unfairly affected by such dismissal. The case further held that the fact that a nonsuit may give the plaintiff some procedural advantage in the same forum is not grounds for refusing to allow dismissal.

It is abundantly clear that the Appeal Boards favor following the Federal practice in Commission proceedings. For example, see *North Coast, supra*, at 1135, where it was stated that the possibility of an applicant refile an application with attendant expenses for intervenors does not provide a basis for departing from the usual rule that a dismissal should be without prejudice.

In applying the above criteria to the subject proceeding, the motion for withdrawal without prejudice should be granted. PG&E has provided adequate justification for its proposed course. The California "nuclear safeguard laws" make it impractical for applicant to proceed with the project. It is earnestly seeking to have them overturned, carrying the matter of their constitutionality to the United States Supreme Court. When a definitive answer will be given is unknown at the present time. The Supreme Court should come down with a decision in the case by the end of its current term but it could call for further hearing. Should the Supreme Court affirm the Ninth Circuit Court of Appeals, the impediment to construction remains. Whether the recently passed Nuclear Waste Policy Act of 1982 will ultimately result in the development of a "proper means" for the disposal of high-level nuclear waste that the California State Commission would find satisfies the State law is so speculative that its consideration is unwarranted.

Should the California statutes be overturned, PG&E would not have a need for the Stanislaus facility until the year 2001 because of a continuing drop in the demand for power. It has no intention of seeking a construction permit prior to 1993. Considering that the need for the facility is so far off, applicant has exercised its judgment and has concluded there is no purpose to continuing with a very expensive proceeding that does not bear a reasonable relationship to its requirements. Applicant's proposed termination of the proceeding is appropriate to the circumstances in which it finds itself.

The grounds intervenors set forth for denying the motion are not meritorious. NCPA and Cities want to keep the proceeding going. They assert they do not want to see the matter suspended for several years and then be confronted with the

refiling of the application and the coincident cost of beginning again the Commission's investigation into PG&E's alleged anticompetitive activities. Intervenor's have experienced extensive costs in connection with their participation in the proceeding and perceive PG&E's motion as a ploy to remove its competitive activities from the Commission's scrutiny while leaving open the opportunity to renew its application at a time most advantageous to PG&E.

No convincing evidence has been submitted to establish that PG&E's proposed course is other than a practical solution to its situation rather than a device to abuse and compromise the adjudicatory process. Intervenor's concern about being faced with a refiled application with attendant burdens, under existing law and practice, provides no basis for denying the motion, without prejudice. Any prejudice they may suffer, recognized as such under the law, can be overcome by attaching appropriate compensating conditions, allowing the withdrawal without prejudice.

Contrary to the position of the opposing intervenors, the factual basis for the motion for withdrawal is sufficiently documented. The matter of the California nuclear laws, as a barrier to proceeding with the project would probably be enough to support the requested termination of the proceeding and there is no question as to their current status.

As to not needing the power from the Stanislaus facility until the year 2001, it is supported in part by the March 2, 1981 Shackleford affidavit and the declaration of James H. Malinowski of May 3, 1982 made under the penalty of perjury. Both are knowledgeable as to applicant's situation, Shackleford being the president and chief operating officer of the corporation and Malinowski supervising engineer in generation planning and responsible for assessment of conventional and emerging generation technologies as resource expansion options. Applicant's counsel represents the latter to be in charge of the schedule the deponent discusses. Intervenor's quibble with the form of the Malinowski statement which is binding as an affidavit under California statute but does not conform to that required under Federal practice. Applicant is willing to revise the format. The matter is not of significant consequence. Applicant should resubmit the statement in a revised format conforming to Federal practice.

Admittedly the statements of Shackleford and Malinowski are conclusive in nature but considering their purpose they are adequate. It is unnecessary to go behind the documents through cross-examination or deposing of the individuals as NCPA and Cities would do. The filing of an application to construct a nuclear power plant is wholly voluntary. The decision of PG&E to withdraw its application is a business judgment. The law on withdrawal does not require a determination of whether its decision is sound.¹ PG&E has given as a basis for withdrawal it has no

¹ DWR viewed the possibility of PG&E building a nuclear facility to be highly remote. It considered the condition of the money market and applicant's financial condition to be such as to make it unlikely for PG&E to invest in a new nuclear project.

need for the facility within a reasonable period of time and that to continue with the proceeding now would be unduly costly and unnecessary. No useful purpose would be served for requiring an analysis to be made to determine the soundness of what is its business judgment. To attempt to go back by way of deposition, cross-examination or an evidentiary hearing to evaluate the validity of the data it relied upon would be an unjustified time-consuming and costly exercise. What is required to be done is to compensate intervenors, for any legally recognized harm done to them, by appropriately conditioning the withdrawal order.

NCPA and Cities, in seeking to have applicant press on with the proceeding, claim that accepting applicant's time frame of the need for a construction permit by 1993 and an operating license by 2001 it would be appropriate to continue with discovery to meet those dates. Concededly the licensing process is not as speedy at times as we would like, but it does not require a continuous proceeding where discovery started in 1977, for obtaining a construction permit by 1993 and an operating license by 2001. It is applicant's option on a new application whether pursuant to 10 CFR 50.33a(b) it shall submit the information requested by the Attorney General for antitrust review 9 months or 36 months prior to submitting that portion of the application dealing with the construction of the facility. It is not for intervenors to make that decision for applicant. Antitrust review can be had simultaneously with the handling of that part of the application dealing with the construction permit. Intervenors by their proposal would extend the time for obtaining a construction permit well beyond that required. It would be unwarranted and harmful to the adjudicatory process.

The record is convincing that applicant intends to build the Stanislaus Nuclear Project when its conditions for doing so are met. Its position is not viewed as being significantly different from its representations to the U.S. Supreme Court as made known by the opposing intervenors. PG&E's position on going ahead with the facility presents no basis for denial of applicant's motion under existing law.

As part of its motion for withdrawal PG&E stated it was agreeable to a program that preserves existing document production efforts for a reasonable period of time and submitted a proposed methodology to preserve the discovery efforts in the proceeding. The parties in their written responses differed with one another on the approach submitted.

At the oral hearing on September 21, 1982 PG&E stipulated to the terms of a proposed order concerning preservation of discovery documents should withdrawal be authorized. The terms of the proposal are attached as an appendix. They provide for applicant to advise the parties by no later than 3 years from the date of the order of its intentions as to Stanislaus. If Stanislaus is to be cancelled, the order for preservation will terminate. If construction of Stanislaus is to be advanced, the parties are to be notified, and should it be delayed, any party may seek a modification of the order. The terms for preservation are sufficiently explicit and comprehensive so as to provide an effective means for preserving the current state

of discovery, in which all of the parties have heavily invested money, time and effort. The comments of NCPA and Cities show no significant defect in the methodology to establish it as unworkable, unfair or unsound. It provides a reasonable method for preserving the fruits of discovery for the benefit of all of the parties and is adopted as a condition for permitting the withdrawal of the application without prejudice. Should the parties wish to modify the obligations created by the preservation requirement to better serve their needs there is a provision that it can be done by stipulation. The obligation for preservation and retention of documents is made applicable to all of the parties in order to effectively preserve the status quo in the discovery process. It cannot only be made applicable to PG&E as it would then become a meaningless, unjust exercise.

NCPA and Cities seek the imposition of additional conditions for withdrawal in order to compensate them for the alleged harm termination will cause.

They seek the imposition of a condition requiring PG&E to pay costs and expenses including attorney fees. Federal court practice permits, as a condition for voluntary dismissal prior to judgment, requiring a plaintiff to pay defendant's litigation costs as an equitable means to protect a defendant against unnecessary expense while preserving the plaintiff's right to institute a subsequent suit on the same cause of action. 5 Moore's Federal Practice, §41.05[1] at 41-53 and 41-54.

In *North Coast* the Appeal Board left open the question of whether the Commission is authorized to condition withdrawal upon payment of the opposing parties' expenses. In footnote 11 at page 1135 it stated:

We note that the case at bar did not entail lengthy discovery, or proceed through the trial stage. It hardly got off the ground. We leave open the question whether something short of a dismissal with prejudice, such as conditioning withdrawal of an application upon payment of the opposing parties' expenses might be within the Commission's powers and otherwise appropriate where the expenses incurred were substantial and intervenors developed information which cast doubt upon the merits of the application.

NCPA and Cities have not demonstrated that they have been prejudiced to a degree to warrant payment of their expenses because of the granting of the motion to withdraw, even if the Commission were authorized to do so. Intervenors have incurred substantial expenses in a lengthy discovery process but the proceeding never even progressed through the discovery stage. It was nowhere near approaching a determination on the merits nor had intervenors developed information which cast doubt upon the merits of the application. Furthermore, they received value for the expenses incurred. Discovery documents will be preserved as a condition to withdrawal. Should applicant proceed with another application they will be available. Also, intervenors have made use of the discovery documents in other proceedings. No factual basis has been presented where intervenors would be entitled to the payment of their litigation expenses.

Under the circumstances of the proceeding there is no need to determine whether the Commission has the power to authorize the payment of litigation expenses as a condition of permitting withdrawal of an application without prejudice, but it would appear not. The Commission is a body of limited powers. Its enabling legislation has no provision empowering it to require the payment of a party's costs and expenses. The regulations the Commission has promulgated does not provide for it. It has no equitable power it can exercise as courts have. The concept is foreign to the Commission's adjudicatory process.

Opposing intervenors further seek as conditions to termination the requiring of all parties to agree: (1) that any document produced in this proceeding shall be usable in any other proceeding without concession of the admissibility of such document; and (2) to the transfer of all discovery and the record of this proceeding to any enforcement action the Commission may order in PG&E's Diablo Canyon docket. Any relief to be granted to intervenors should be to overcome prejudice to them resulting from the ordering of termination of the proceeding and being faced with another one in the future. Requiring the preservation of discovery documents will afford intervenors the protection they require. The extraordinary relief sought by NCPA and Cities bears no reasonable relationship to any harm they might suffer through withdrawal of the application without prejudice and the institution of a new proceeding. The conditions they seek of making the documents and record of this proceeding available for inclusion in other cases are unjustified and the request must be denied. This proceeding is not part of any other. The results intervenors seek should be pursued in other forums.

The only matter remaining that is undecided is DWR's October 5, 1981 Motion for Reprimand and Censure. DWR states it made the motion largely in an effort to get PG&E to comply with the orders of the Licensing Board and to obtain documents required in discovery. In its belief that there will be no hearing on Stanislaus in the near future there is not going to be any further document production in this case for several years. DWR views the motion now to be principally a matter between applicant and the Nuclear Regulatory Commission. Staff continues to be of the position that it initially took, that the motion should be denied as being without substance. NCPA and Cities believe that applicant willfully and persistently violated the Licensing Board's orders, which is a matter of such gravity as to require immediate and unequivocal action by the Commission, regardless of the disposition of the motion to withdraw. They assert applicant should be at least required to produce all documents which it was obligated to produce from the beginning of its self-imposed moratorium on discovery in September, 1980, to the date of any other order in this matter issued by the Presiding Judge, for which PG&E should bear the cost.

The law does not require the doing of vain things. The party that submitted the motion does not want to pursue the matter. Staff has always opposed the motion. The proceeding is being terminated and no related discovery can be expected for

quite a few years. Applicant's noncompliance with discovery orders was previously raised by DWR with the Licensing Board and it then came out with its order of July 30, 1981 requiring that the parties resume discovery promptly in accordance with the Board's orders and directives. Applicant's conduct for only a very short period was not under consideration by the Licensing Board. Considering all of these circumstances it would be a waste of time and effort to resurrect the matter in order to adjudicate it. No useful purpose would be served by it. The motion is therefore dismissed.

In ruling upon all of the foregoing it was taken into consideration DWR had entered into an agreement with PG&E so that intervenor has a less urgent need for antitrust relief. The terms of the agreement were not made known.

ORDER

Upon consideration of all of the foregoing, it is hereby ORDERED:

1. That applicant's motion for the withdrawal of the application is granted, without prejudice, subject to the condition that it comply with the provisions of the attached Appendix that sets forth terms and conditions for the preservation of discovery documents and is incorporated herein by reference;

2. That in addition, should any party fail to comply with the terms and conditions for the preservation of documents set forth in the Appendix and incorporated herein, that party shall forfeit all rights related to the preservation requirement and cannot seek enforcement of any of its terms and conditions against any other party;

3. That the Motion to Reprimand and Censure applicant is dismissed; and

4. That the proceeding is dismissed.

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**Morton B. Margulies
ADMINISTRATIVE LAW JUDGE**

Dated at Bethesda, Maryland,
this 19th day of January, 1983.

[PROPOSED] ORDER CONCERNING PRESERVATION OF DOCUMENTS

For the purpose of preserving documentary evidence that may be relevant to an antitrust review of Unit No. 1 of the Stanislaus Nuclear Project, the parties are ordered to preserve evidence as follows:

I. DEFINITIONS

1.1 "Applicant" means Pacific Gas and Electric Company.

1.2 "Central Files" means those documents of a Party maintained under a common classification scheme that is used throughout the Party's organization or among several discrete units of that Party.

1.3 "Designated Documents" means documents, other than documents contained in Designated Files, that have been designated by one or more other Party for production in this proceeding but which have not yet been produced.

1.4 "Designated Files" means files that have been designated by one or more other Party for production in this proceeding, irrespective of whether or not its contents have yet been produced. "Designated Files" includes files created after document screening and having substantially the same number, title, or topical description as a Designated File.

1.5 "Documents Produced" means documents that have already been made available for copying by other Parties in this proceeding. Documents are not "Documents Produced" merely by virtue of having been made available for preliminary screening.

1.6 "Eliminated Documents" means (a) in the case of Central Files, documents contained in files other than Designated Files; and (b) in the case of Private Files, documents that have been reviewed by other Parties and determined not to be required for production.

1.7 "Intervenors" means the State of California Department of Water Resources (DWR), the Northern California Power Agency and its members (NCPA), and the Cities of Anaheim and Riverside (Cities).

1.8 "Private Files" means all documents in the possession, custody, or control of a Party, its officers, employees, or agents, other than Central Files. "Private Files" does not include documents in custody of counsel not employed by the Party.

1.9 "Party" means Applicant, Intervenors, and Staff.

1.10 "Staff" means the staff of the Nuclear Regulatory Commission.

1.11 "1977 Order" means the "Amended Adopted Order Regarding Preservation of Documents," adopted by the Atomic Safety and Licensing Board on September 9, 1977.

II. PRESERVATION AND RETENTION OF DOCUMENTS

2.1 Pending further order of the Commission or its designated presiding officer, all Parties shall preserve and retain documents as provided herein.

2.2 Documents contained in Central Files shall be retained in accordance with the 1977 Order except as follows:

- (a) Documents produced need not be retained.
- (b) Documents in Central Files but not contained in Designated Files need not be retained.

2.3 Documents not presently contained in Central Files that would, in the ordinary course of business, be placed in Central Files shall be retained, provided they would, in the ordinary course of business, be filed in Designated Files.

2.4 Documents in Private Files shall be retained in accordance with the 1977 Order except as follows:

- (a) Documents produced need not be retained.
- (b) Eliminated documents need not be retained.
- (c) Documents generated after the date of this order, which would not, in the ordinary course of business, be sent to Central Files, need not be retained.

2.5 Notwithstanding the foregoing, any document which would have been produced but for the determination of a Party not to produce it and instead to make a claim of privilege for the document, shall be retained. This requirement includes documents for which no claim of privilege has ever in fact been made.

III. GENERAL PROVISIONS

3.1 The Parties may, by stipulation filed with the Commission, modify the obligations created by this order.

3.2 Within three years of the date of this order, or earlier if it so chooses, Applicant shall file with the Commission a verified statement of its then-existing plans for the construction of the Stanislaus Nuclear Project, including the projected dates for filing an application for a construction permit and for full operation. Should the scheduled operating date for the Stanislaus Nuclear Project become any date earlier than January 1, 2001, Applicant shall promptly file a verified statement to that effect, setting forth its then-existing plans.

3.3 Should a statement filed by Applicant pursuant to the preceding paragraph state that applicant has eliminated the Stanislaus Nuclear Project from its construction schedule and future generation resource plan, the obligations of all Parties pursuant to this Order to retain documents shall be terminated 60 days after filing and service of said report, unless the Commission or its presiding officer otherwise orders.

3.4 If the statement filed by Applicant pursuant to paragraph 3.2, above, shows the Stanislaus Nuclear Project having an operation date beyond January 1, 2001, any party may seek a modification of this order.

IT IS SO ORDERED.

ATOMIC SAFETY AND LICENSING
BOARD

Morton B. Margulies
ADMINISTRATIVE LAW JUDGE

Dated at San Francisco, California,
this 22nd day of September, 1982.

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)

January 28, 1983

The Licensing Board denies applicant's motion to reconsider the Board's decision denying summary disposition of the quality assurance contention.

**SUMMARY DISPOSITION: SEPARATE AND DISTINCT
STATEMENT OF MATERIAL FACTS**

The regulatory requirement that a separate and distinct statement of material facts must be filed by intervenors is mandatory. When such a statement is not filed the Board must accept the facts contained in the separate and distinct statement of material facts filed with the motion for summary disposition.

SUMMARY DISPOSITION: MOVANT'S FILING MUST ESTABLISH ABSENCE OF GENUINE ISSUE

Even if the respondent fails to file a separate and distinct statement of material facts in response to a motion for summary disposition, the motion must be denied unless the motion establishes the absence of a genuine issue of material fact.

RULES OF PRACTICE: RECONSIDERATION (TIMELINESS)

If a party suffers a harm from incomplete answers to its interrogatories, it may not await a Board decision on the merits of a motion for summary disposition before calling the harm to the Board's attention. Permitting a party to assert such a deficiency as a ground for reconsideration of the Board's decision is tantamount to providing it two opportunities to prevail on the merits.

MEMORANDUM AND ORDER (Reconsideration: Quality Assurance)

Cleveland Electric Illuminating Company, *et al.* (applicant) has asked us to reconsider our decision of December 22, 1982 (LBP-82-114, 16 NRC 1909) and to grant summary disposition of the quality assurance contention, pursuant to the motion filed by the Staff of the Nuclear Regulatory Commission (staff).¹ We have decided to deny applicant's motion.

I. FAILURE TO FILE A SEPARATE STATEMENT OF MATERIAL FACTS

A. Applicant's Allegation

Applicant's first ground for reconsideration is that Sunflower Alliance, Inc., *et al.* (Sunflower) did not file a "separate, short and concise statement of . . . material facts" in response to its summary disposition motion, that such a statement is required by the regulations, and that the failure to file such a statement should result in a grant of summary disposition.² Staff supports this argument,

¹ Applicant's Motion for Reconsideration was filed on January 6, 1983. Staff's motion was filed on October 29, 1982. The Memorandum and Order deciding the summary disposition motion was issued on December 22, 1982.

² Motion for Reconsideration at 2-4.

further elaborating that the language of 10 CFR §2.749(a) is mandatory, requiring that all the material facts set forth in staff's own "separate and concise statement of material facts" — filed in support of its motion, should be deemed to be admitted.³

B. Intervenor's Response

Both Ohio Citizens for Responsible Energy (OCRE) and Sunflower have filed responses to applicant's motion.⁴ OCRE's principal response concerning the need for a separate statement of material facts is to characterize the requirement as a procedural technicality that the Board may overlook because of the importance of the quality assurance issue. It cites *Kansas Gas and Electric Company and Kansas City Power and Light Company* (Wolf Creek Generating Station, Unit No. 1), ALAB-279, 1 NRC 559, 576-77 (1975) for the proposition that the Board may be lenient with Sunflower's lawyer's technical deficiency because he is "new to the field."

Sunflower relies on more general principles, urging the Board to consider itself to be more than just an arbiter blandly calling balls and strikes.⁵ It also urges us to use our authority to define issues for trial.⁶

C. Analysis

We are not satisfied by the position of any of the parties. The staff correctly asserts that the wording of §2.749(a) is unambiguous and controlling. It requires that "the statement required to be served by the moving party *will be deemed to be admitted* unless controverted by the statement *required to be served* by the opposing party."⁷ Because of the specific wording of the regulation, we cannot accept OCRE's citation of *Wolf Creek*, a case involving application of regulations concerning the specificity of contentions, a procedural requirement that is not accompanied by a specific regulatory penalty. Similarly, we cannot accept Sunflower's citation of general principles in the face of an express regulatory requirement.

³ NRC Staff's Answer Supporting Applicants' Motion for Reconsideration, January 19, 1983 (Supporting Answer) at 2-3.

⁴ OCRE Reply to Applicants' Motion for Reconsideration, January 21, 1983 (OCRE Reply) and Sunflower Brief in Opposition to Applicant's Motion for Reconsideration, January 21, 1983 (Sunflower's Opposition).

⁵ *In the Matter of Cleveland Electric Illuminating Company, et al.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741 (1977).

⁶ *In the Matter of Pacific Gas and Electric Company* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-334, 3 NRC 809 (1976).

⁷ Emphasis added by the staff.

We also are troubled that Sunflower's counsel has placed this Board and his client in this posture. The regulations are clear. All that is required is to read them. OCRE's representative, who has no formal credentials as a lawyer, has demonstrated her ability to read the regulations and to file a separate and concise statement of material facts. We believe that Sunflower's counsel should be as able.

In this case, the penalty for failing to follow the procedural regulations is not costly to Sunflower. The standard we must apply may be distilled from a previous *Perry* decision, by the Appeal Board, as follows:

Even if no party opposes a motion for summary disposition, the movant's filings must still establish the absence of a genuine issue of material fact.⁸ It is clear to us that an intervenor that does respond to a motion for summary disposition but that fails to file the required "separate statement" should be no worse off than one who fails to respond at all.

We must therefore examine the relevant "statement of fact" that we are required to deem to be true. That statement is:

Discrepancies and noncompliances that have been identified by the staff since the applicants' correction of the deficiencies that led to issuance by the staff of the Immediate Action Letter dated February 8, 1978 are neither the result of a breakdown in applicants' construction quality assurance program nor related to failure to correct the earlier deficiencies in construction practices and QA [quality assurance] at the *Perry* site. Affidavit at ¶¶9 and 10.⁹

The affidavit staff refers to does not expand on the grounds found in its Statement. The affidavit states that there have been discrepancies and noncompliances but that none have been viewed by the staff as "resulting from a breakdown in the Licensee's construction QA program" and "all were or are being resolved by the QA program."¹⁰

As we pointed out in our Summary Disposition decision:

[S]taff's conclusion is not buttressed by supporting facts and reasons and does not negate the existence of a genuine issue of fact. Even at trial, were we to accept such unsupported staff statements we would be abrogating our responsibility as judges and substituting the staff's judgment for our own. On ultimate issues of fact, we must see the evidence from which to reach our own independent conclusions.¹¹

Staff's present support for reconsideration of our decision indicates a lack of understanding for our position, even though we explained it quite carefully in the just-cited passage. Therefore, let us further explain that the record contains facts concerning the staff's doubts about applicant's ability to identify and correct

⁸ *Cleveland Electric Illuminating Company, et al.* (*Perry* Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 753-54 (1981).

⁹ Staff's Motion for Summary Disposition at 4.

¹⁰ *Id.* at Affidavit 2-3.

¹¹ Summary Disposition at 16 NRC 1916.

problems in a timely manner¹² but it does not contain the staff's reasons for concluding that these problems are not serious.

To the staff, this record deficiency may seem a technicality. To the Board, it is crucial. The staff may know why the alleged deficiencies are not serious. The Board has no notion at all of why this situation is not extremely serious. An evidentiary hearing is a necessary, and potentially highly effective method of resolving such ambiguities. In particular, we will be able to explore whether staff's investigation of the facts and its reasons for accepting the adequacy of applicant's quality assurance program are adequate to persuade the Board.

II. LACK OF RELATIONSHIP TO THE 1978 STOP WORK ORDER

Applicant, supported by staff, argues that intervenors have failed to connect the recent quality assurance difficulties, related to electrical contracting, to the initial difficulties, related to concrete.¹³ We consider this to be an overly literal interpretation of the causality between the initial difficulty and the more recent one. Although one relates to concrete and the other to electrical contracting, each represents a possible inability of management to find and cure a quality assurance problem that is sufficiently serious that management should be aware of it.

Our conclusions about the causal connection have been strengthened by reading the investigation report presented to us by applicant in order to complete the record.¹⁴ That investigative report clearly portrays the relationship between the initial QA problem and the electrical problem. The investigative report indicates that licensee's "overview program" was instituted subsequent to the NRC's Immediate Action Letter of February 1978. Apparently, the "nonconformance trend analysis system" referred to in paragraph 7 of the 1978 Letter¹⁵ and the "overview system" referred to in 1981 are the same system. It is that overview program that appears to have failed to detect the Comstock problems. Indeed, the investigators:

informed the [applicant that it] . . . had failed to assure that L. K. Comstock had adequately implemented the Quality Assurance Program at the

¹² Summary Disposition at 16 NRC 1915, citing Letter from the staff's Regional Administrator for Region III to Cleveland Electric Illuminating Company (July 13, 1982) at 2.

¹³ Applicant's Motion at 3-5; Staff's Support at 3-4.

¹⁴ Applicant filed the investigative report, attached to a letter from Region III to Cleveland Electric Illuminating Company (September 27, 1982), in order to complete the record by correcting allegedly misleading documents presented by Sunflower in its opposition to summary disposition. Having read these documents, we do not find that the record was misleading or that Sunflower erred by not filing these documents. Consequently, applicant's reason for filing the document is not sustained and our discussion of the document, in the text, is a supplementary reason on which we did not rely for our conclusion.

¹⁵ Summary Disposition at 6, citing the February 8, 1978 letter in which the staff confirmed applicant's stop-work order.

Perry Site by not conducting in-depth reviews to investigate the unsatisfactory and below standard performance rating identified in the AROQPE's [Assessment Reports of Quality Assurance Program Effectiveness] and CPR's [Contractor Performance Reports] during 1981. Further, [applicant] . . . had failed to identify the findings of this investigation independent of the NRC.¹⁶

Consequently, we find a clear logical relationship between the Comstock allegations and the admitted contention.

We also would admit the Comstock allegation at the summary disposition stage regardless of whether it were causally related to the initial contention. Contentions set the stage for discovery. They limit, to some extent, the scope of discovery. However, if an intervenor discovers a genuine issue of fact that reflects on plant safety, then it can establish a genuine issue of fact for trial. The principle is similar to modern federal practice in which pleadings are considered amended as the proof shifts.

A less flexible rule of practice would be inappropriate for our proceedings. To throw out a genuine issue of fact, uncovered during discovery, on technical grounds, would be antithetical to the Commission's role of protecting the public and antithetical to the Board's role of addressing legitimate grievances raised by an intervenor during litigation.

We note that staff characterizes our action on summary disposition as "admitting four new quality assurance issues." We disagree. What we did in the summary disposition decision was to determine what genuine issues of fact existed. What we admitted to hearing were genuine issues of fact that were causally related to the admitted contention and that arose in the course of discovery on the admitted contention. Staff incorrectly implies that we have admitted new contentions.

III. LIMITATION OF INTERPRETATION

Applicant argues that the only genuine issues of fact relate to the quality assurance program of Comstock, a single contractor. We disagree, accepting OCRE's interpretation of our decision, as follows:

[T]he testimony identifies some of the basic causes of QA troubles, among them an overreliance by the utility on its contractors for maintaining a QA program and insufficient utility QA staff to control contractor activities. These are precisely the matters the Licensing Board has, rightly, identified for litigation.¹⁷

On the other hand, we do not believe applicant need be concerned that quality assurance of all contractors' performances is as yet at issue. What is at issue is the

¹⁶ Inspection Report at 95.

¹⁷ OCRE Reply at 9.

"nonconformance trend analysis system" or "overview program," including the use of in-depth reviews and efficient follow-up to cure problems identified in AROQPEs and CPRs. In the first instance, we are interested in the application of these systems to Comstock. In addition, we are interested in the use of these systems to control the quality of work of other contractors. At present, we are not interested in individual instances of nonconformances. Those will be of concern to us only if we find that management's role in QA has been sufficiently suspect to require that we descend to that further level of detail. Evidence concerning nonconformances will be admissible only to the extent that they can be related to the admitted issue, concerning management's role in QA.

This additional interpretation is not intended to supplant the issues we admitted in our Summary Disposition decision. Our review of the wording of those issues failed to disclose any error. Our further explanation is intended only to aid the parties in interpreting our original language, which is still controlling.

IV. SUNFLOWER SELECTED MISLEADING PORTIONS OF DOCUMENTS

Applicant informs us that a portion of the document showed to us by Sunflower indicates that the staff concluded that "a significant breakdown in the electrical contractor's quality assurance had not occurred."¹⁸ He urges that, therefore, we were misled and should reconsider.

On balance, we think it would have been preferable if the entire document had been supplied to us. However, we were not misled. We knew that staff had been satisfied. The staff affidavit informed us of that, and portions of the Region III's July 13, 1982 letter to applicant also indicated staff satisfaction with applicant's performance.¹⁹ We are grateful to applicant for bringing this new information to our attention; however, for reasons discussed in Section II, above, staff's conclusions on this matter are not determinative of the summary disposition motion.

V. SUNFLOWER IMPROPERLY FAILED TO REVEAL COMSTOCK ISSUES IN DISCOVERY

Applicant argues that Sunflower failed properly to answer interrogatories 27 and 28 in its first set of interrogatories, served on October 15, 1981, and that it therefore was unfairly surprised by Sunflower's reliance on these issues. Our reading of the First set of interrogatories suggests that there is some validity to this argument. However, we approve of OCRE's argument that:

¹⁸ Region III's September 27 letter to applicant.

¹⁹ See Summary Disposition at 16 NRC 1915.

Neither staff nor applicant should have been surprised by Sunflower's answer. Sunflower used, as basis for its response, the Commission's Inspection Reports. Sunflower has, from the beginning of this proceeding until the present, relied upon these Inspection Reports. Sunflower indicated this in its intervention petition. Both of its motions to expand Issue #3 included references to Inspection Reports. Applicants are certainly aware that Sunflower's counsel receives these reports from the NRC's Region III.

In fact, applicant apparently anticipated Sunflower's use of Inspection Reports. In their Third Set of Interrogatories and Request for Production of Documents to Sunflower, dated September 30, 1982, Interrogatory #5, applicant asks for information within Sunflower's knowledge involving any QA or construction deficiencies at Perry. Applicant clearly states that "Sunflower need not restate information contained in applicant's reports to the NRC or to the NRC's inspection reports." Thus, Sunflower's "failure" to identify the Comstock problems in its discovery responses is no failure at all, but rather is consistent with applicant's instructions. . . .²⁰

We do not think that applicant can legitimately claim surprise that a Notice of Violation that called into question its "overview program" would be relied on by Sunflower. Its surprise appears to be less from Sunflower's reliance on this Violation than from the Board's acceptance of the relevance of the violation. It could hardly have been unaware of the Notice, which does not appear to have gained anonymity from being among countless other like notices.

Nevertheless, we have considered the information submitted to us by applicant and have discussed it in Section II, above. Even had we permitted a reply, we would not have changed our opinion.

We note that applicant could have brought this "surprise" to our attention before we issued our decision on Summary Disposition. Though our decision may have appeared more rapidly than is customary for such decisions, applicant should have been aware that we often act with comparable speed. Within the time we took to decide the issue, applicant could have telephoned us to tell us it ought to have the right to reply. By waiting, applicant gained the advantage that we might have decided Summary Disposition in its favor, without having a complete investigative report brought to our attention. The effect of applicant's delay, which no doubt was inadvertent (though applicant has not said so), is that applicant is now asking for a second crack at bat when one crack would have done. We also note, without

²⁰ OCRE's Reply at 5-6.

imposing any immediate sanction, that applicant exceeded the 10-day limitation that ordinarily should apply to motions for reconsideration.²¹

Consequently, we consider the claim of surprise to be without merit and to have been untimely, as well.

ORDER

For all the foregoing reasons and based on consideration of the entire record in this matter, it is this 28th day of January, 1983,

ORDERED

Cleveland Electric Illuminating Company, *et al.*'s January 6, 1983 "Motion for Reconsideration of the Licensing Board's December 22, 1982 Memorandum and Order on Summary Disposition of Issue No. 3," is denied.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Jerry R. Kline
ADMINISTRATIVE JUDGE

Glenn O. Bright
ADMINISTRATIVE JUDGE

Bethesda, Maryland

²¹ See *Consumers Power Company* (Big Rock Point), unpublished (December 7, 1982), at 1 (the doctrine of repose ordinarily requires motions for reconsideration to be filed within 10 days of the decision for which reconsideration is sought).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket No. 50-329-CP
50-330-CP
(Remand Proceeding)

CONSUMERS POWER COMPANY
(Midland Plant, Units 1 and 2)

February 18, 1983

The Commission issues a statement in which it (1) explains its reasons for not undertaking *sua sponte* review of ALAB-691, 16 NRC 897 (1982), and (2) warns parties and their attorneys of the risk of serious sanctions occasioned by the making or planning of a deliberate false statement or withholding of material information in connection with licensing matters.

STATEMENT OF THE COMMISSION

The Commission now has before it the latest controversy originating from the Midland construction permit proceeding, a proceeding "now in its second decade." ALAB-691, 16 NRC 897, 902 (1982). We will not repeat here the Appeal Board's discussion of the procedural history leading up to the instant dispute. *See, Id.* at 902-05. Nor do we believe it necessary to review in detail the particular facts giving rise to this case. For the limited purposes of this statement, it is sufficient to note that the present controversy resulted from evidence adduced in 1976 suggesting possible improper conduct on the part of the applicant (Consumers Power Company), Dow Chemical Company and their respective attorneys over the

course of six weeks in 1976 while preparing for Show Cause proceedings ordered by the Commission in response to *Aeschliman v. NRC*, 547 F.2d 633 (D.C. Cir. 1976), *rev'd sub nom.*, *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519 (1978).

Following hearings ordered by the Commission to resolve this question,¹ the Licensing Board concluded that Consumers, Dow and their attorneys had failed to fully discharge their duty of disclosure and that some of the attorneys may have acted improperly in seeking to limit disclosure.² LBP-81-63, 14 NRC 1768, 1800-1801 (1981). Notwithstanding these conclusions, the Licensing Board determined that sanctions were neither warranted nor appropriate. *Id.* On appeal, the Appeal Board affirmed the Licensing Board's finding that sanctions were unwarranted and inappropriate. ALAB-691, 16 NRC at 920. In doing so, however, the Appeal Board based its action on that Board's conclusion that the prefiled written testimony at issue did not omit any material information required to be disclosed under Section 186 of the Atomic Energy Act, as amended, 42 U.S.C. 2236. The Appeal Board further determined that any implied criticism of the conduct by counsel was unjustified. *Id.* at 914 and 916-17.

No petitions for review have been filed with the Commission. Moreover, we have determined that the decision of the Appeal Board does not present a case "of exceptional legal or policy importance" sufficient to require our *sua sponte* review under 10 CFR 3.786(a). Accordingly, the time has come to close the book on this chapter of the Midland CP proceeding. However, in declining to exercise our discretion to take review in this matter, we believe it important to make an observation regarding the type of conduct and attitudes at issue below.

A deliberate false statement or withholding of material information would warrant the imposition of a severe sanction. The time and resources committed to an adjudicatory probing of the facts of this case are evidence of our concern over allegations of this sort. Not only are material false statements and omissions punishable under Sections 234 and 186 of the Atomic Energy Act, but deliberate planning for such statements or concerns on the part of applicants or licensees would be evidence of bad character that could warrant adverse licensing action even where those plans are not carried to fruition. Moreover, we want to warn parties and their attorneys that when they engage in conduct which skirts close to the line of improper conduct, they are running a grave risk of serious sanction if they cross that line.

¹ Memorandum and Order of November 6, 1978 (unpublished).

² There is no dispute that Consumers affirmatively disclosed much of the information at issue as part of the discovery process and that Dow's witness candidly answered all questions posed to him at the 1976 hearing. The specific issue posited before the Licensing Board was whether Consumers and/or Dow had a duty to disclose such information as part of Dow's prefiled, written direct testimony submitted to the Suspension Board in 1976.

Commissioner Gilinsky dissents from the Commission decision not to take review.

Commissioner Roberts concurs in the decision not to take review but dissents from the Commission decision to issue this Statement.

For the Commission*

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 18th day of February, 1983.

*Commissioner Roberts was not present when this Statement was approved but had previously indicated his disapproval. Had Commissioner Roberts been present he would have affirmed his prior vote.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Commissioners:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket No. 50-289-SP

METROPOLITAN EDISON COMPANY, et al.
(Three Mile Island Nuclear
Station, Unit 1)

February 22, 1983

The Commission finds that (1) certain communications between the Commissioners and the NRC staff did not constitute *ex parte* communications as alleged by an intervenor; and (2) denies the intervenor's motion for an evidentiary hearing on the matters involved in the communications.

RULES OF PRACTICE: EX PARTE COMMUNICATIONS

Discussions of general health and safety problems and responsibilities of the Commission are not *ex parte*. 10 CFR 2.780 (d).

ORDER

On November 4, 1982 the Union of Concerned Scientists (UCS) filed an objection to alleged *ex parte* communications between the NRC staff and the Commissioners in the Three Mile Island, Unit 1 (TMI-1) Restart proceeding. UCS alleged that SECY-82-384 ("Three Mile Island, Unit 1 (TMI-1) NUREG-0737 Items Status"), an October 6, 1982 Commission meeting ("Status of Staff Certification and Licensee Compliance with Restart Requirement on TMI-1"), and

SECY-82-111 ("Requirements for Emergency Response Capability") all dealt directly with contested issues in the Restart proceeding.¹ UCS therefore moved the Commission to hold an evidentiary hearing on these matters, allowing all parties to participate, or remand the matter to the Licensing or Appeal Board.

The Commission has examined each of the items cited by UCS. SECY-82-384 and the October 6 Commission meeting involved the status of completion of (1) NUREG-0737 items, and (2) items which must be certified to the Commission as complete prior to restart. They also involved whether the implementation dates for certain other NUREG-0737 items should be deferred.

The Commission in its August 9, 1979 Order establishing the Restart proceeding stated that satisfactory completion of required items would be determined by the Director of Nuclear Reactor Regulation outside of the proceeding. CLI-79-8, 10 NRC 141 (1979). Thus discussions of the status of such items are clearly outside of the proceeding and not *ex parte*. For the same reason, discussions of the *status* of NUREG-0737 items do not constitute *ex parte* communications.

With regard to the five NUREG-0737 items for which deferral was sought, the Commission in CLI-81-3 (13 NRC 291 (1981)) reserved for itself the decision of whether to defer implementation dates. The intent of that Order, which was adopted in response to a motion by the licensee, was to make it clear that changes to implementation dates for long-term items were not within the scope of the proceeding. UCS did not object to licensee's motion. The items for which deferral was sought involve only long-term matters.² The discussions are therefore outside the scope of the proceeding and not *ex parte*.

Moreover, four of the items for which deferral was sought were not within the proceeding, regardless of CLI-81-3. Items II.F.1.4 (containment pressure monitor), II.F.1.5 (containment water level monitor) and II.F.1.6 (containment hydrogen monitor) did not appear in the Commission's concerns in CLI-79-8 which formed the basis for this proceeding, nor were they the subject of any contention.

The aspect of Item 2.B.2.2, plant shielding, for which deferral was sought is similarly outside the scope of the proceeding. UCS Contention 2 stated that "[t]he emergency core cooling system cannot be operated in the bleed and feed mode for the necessary period of time because of inadequate capacity and radiation shielding for the storage of the radioactive water bled from the primary coolant system." LBP-81-59, 14 NRC 1211, 1225 (1981). As explained by the Licensing Board,

¹ UCS also cited SECY-82-111A and 111B.

² For example, item 2.B.3, post accident sampling, falls within a concern listed in CLI-79-8. The Commission's Order included as a short-term item that "licensee shall comply with the Category A recommendations as specified in Table B-1 of NUREG-0578," and as a long-term item that licensee "comply with the Category B recommendations as specified in Table B-1 of NUREG-0578." 10 NRC at 145. Design review for post accident sampling was an item in Category A of NUREG-0578, while completion of supplemental modifications appeared in Category B of NUREG-0578. Licensee has completed the design review and many of the modifications. Thus deferral is being sought only for part of the long-term aspect of this item.

licensee's studies indicated only one area of concern for shielding during feed and bleed cooling, namely that a portion of the high pressure injection (HPI) piping is located in proximity to two motor control centers which perform functions important to safety. Licensee agreed to install, prior to restart, shielding between the HPI piping and the motor control centers. The Board found that this adequately responded to UCS Contention 2(c). The shielding between the HPI piping and the motor control centers has now been installed.

The additional shielding for which licensee is seeking a deferral in the scheduled implementation data, and which staff discussed with the Commission, is designed to avoid possible overexposures in circumstances having nothing to do with feed and bleed cooling. That shielding will be necessary only in the event of a large loss of coolant accident in the reactor system cold leg, together with active failure in the DHR train. This accident scenario has no nexus to the TMI-2 accident and is therefore outside the scope of the Restart proceeding. Thus staff's communications involving deferral of the implementation date for plant shielding did not involve a contested issue and they are not *ex parte*.

In addition, deferral was sought for four items until March 31, 1983, or before restart, whichever is later. The plant will not be ready to restart prior to March 31. Thus these items will be completed prior to restart, and the issue of whether communications regarding deferral of these items were *ex parte* will be moot.

Finally, SECY-82-111, 111A and 111B involve proposed emergency response capability requirements for all plants. Nothing in these documents relates uniquely to TMI-1. Discussions of "[g]eneral health and safety problems and responsibilities of the Commission" are not *ex parte*. 10 CFR 2.780(d). These generic discussions, which did not arise from and are not directly related to the Restart proceeding, are not *ex parte*.

The UCS motion is therefore denied.

Commissioner Gilinsky dissents from this decision.

It is so ORDERED.

For the Commission*

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 18th day of February, 1983.

*Commissioner Roberts was not present when this Order was affirmed, but had previously indicated his approval. Had Commissioner Roberts been present he would have affirmed his prior vote.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillnsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket No. 50-358

**CINCINNATI GAS AND ELECTRIC
COMPANY, et al.**

**(William H. Zimmer Nuclear Power
Station, Unit No. 1)**

February 22, 1983

The Commission denies an intervenor's petition for reconsideration of its July 30, 1982 order (CLI-82-20, 16 NRC 109) not to permit the Licensing Board to reopen the hearing *sua sponte* to consider, as Board issues, eight contentions proposed by intervenor in this operating license proceeding, but with regard to the Licensing Board's earlier decision denying the intervenor's motion for reopening of the record and admission of those contentions to the proceeding, leaves the intervenor free to seek licensing board reconsideration or appellate review as prescribed by agency rules.

ORDER

Miami Valley Power Project's (MVPP's) August 20, 1982 petition for reconsideration of the Commission's order of July 30, 1982 in this matter (CLI-82-20, 16 NRC 109) is denied insofar as the petition requests reconsideration of the Commission's determination not to permit the Licensing Board to reopen the hearing *sua sponte* to consider the eight contentions proposed by MVPP. No fact or argument presented by MVPP alters the Commission's view in this regard as it is

expressed in its July 30, 1982 order.¹ However, as we shall explain more fully below, insofar as MVPP seeks relief from the Licensing Board or appellate review of the Licensing Board's determination that, on balance of the relevant factors, MVPP failed to meet the Commission's standards for the reopening of the record and admission of those contentions,² this order leaves MVPP free to pursue its course in the normal fashion prescribed by agency rules.³

The basis for the Commission's July 30 direction to the Licensing Board to dismiss the eight contentions was the Commission's conclusion that the Licensing Board had not set forth a sufficient justification to consider the eight contentions *as Board issues*. See CLI-82-20, 16 NRC at 110-11. In so concluding the Commission intended no view on the correctness of the Licensing Board's decision that MVPP had not met its burden for reopening the hearing to consider late contentions. The Commission has no view on whether MVPP has met the standards for reopening or for admission of late contentions and does not wish to entertain the matter out of the normal sequence. Thus MVPP may seek reconsideration or further relief from the Licensing Board or appellate review from the Appeal Board as appropriate under Commission rules.⁴

Remaining before us is MVPP's Motion for Notification of All Future Communications Regarding the Third Party Program, as Well as a Prohibition of Further Improper *Ex Parte* Contacts, incorporated in its December 23, 1982 pleading relative to reconsideration. The Commission is denying the first portion of this request. Region III's practice has been to put all such meetings on the public record and this practice is in accord with general Commission policy. However, a blanket requirement would, in the Commission's view, deprive the Region III Administrator of flexibility that may be needed to modify or tailor such a policy to take care of unusual circumstances. Regarding a prohibition on *ex parte* contacts, the *ex parte* rule is not properly invoked where in an enforcement matter the licensee is complying with staff's order and has not sought a hearing, nor is a petition for an enforcement action sufficient to invoke the provisions of 2.780. Accordingly this aspect of MVPP's motion is also denied.

Commissioners Ahearn and Roberts dissent in part from this decision. Their separate views are attached.

¹ Chairman Palladino and Commissioners Ahearn and Roberts comprise a majority against reconsideration of the Commission's denial of the Board's decision to hear contentions as Board issues.

² Licensing Board "Memorandum and Order (MVPP's Motion for Leave to File New Contentions)" (July 15, 1982).

³ Commissioners Gilinsky and Asselstine join Chairman Palladino in this aspect of the order for the purpose of permitting MVPP to seek relief before the Licensing or Appeal Board.

⁴ This result renders it unnecessary for the Commission to decide MVPP's October 11, 1982 motion for leave to file its reply brief and applicant's October 28, 1982 motion to strike that brief.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
the 18th day of February, 1983.

**VIEWS OF COMMISSIONERS AHEARNE AND ROBERTS
DISSENTING IN PART**

We would continue to affirm the Licensing Board's decision that MVPP did not meet the standards for reopening the record.

The Commission's July 30th order reversed the Board's decision to take up the QA/QC issues *sua sponte* and left standing its decision not to grant MVPP's motion to reopen the record. The Board subsequently dismissed the QA/QC contentions and cancelled all preparations for the hearing on QA/QC issues. We expected this would be the clear consequence of the Commission's order. We assumed the Commission at least implicitly affirmed the Board on the question of reopening the record.

The Board's primary criticism of MVPP's position was that it failed to show good cause for filing QA/QC contentions when it did. We found no reason to disagree. With respect to the subsequent motion for reconsideration, as the staff points out, "the documents appear to indicate that the matters could have been raised earlier and that much of the new information submitted by MVPP is cumulative of information already on the public record and which is currently being considered by the Staff in its ongoing investigation." NRC Staff Answer in Support of Miami Valley Power Project's Petition for Reconsideration of the Commission's Order of July 20, 1982 at 6 (September 22, 1982).

Under NRC case law, untimeliness is a substantial consideration when addressing a motion to reopen:

"[T]he proponent of a motion to reopen bears a heavy burden. . . . In the case of a motion which is untimely without good cause, the movant has an even greater burden; he must demonstrate not merely that the issue is significant but, as well, that the matter is of such gravity that the public interest demands its further exploration." *Metropolitan Edison Company*

(Three Mile Island Nuclear Station, Unit No. 2), ALAB-486, 8 NRC 9, 21 (1978).

GAP/MVPP still has not demonstrated the public interest demands that this record be reopened. The primary argument in "Miami Valley Power Project's Petition for Reconsideration of the Commission's Order of July 30, 1982" (August 20, 1982) appears to be that the Commission must hold a hearing as a matter of public relations:

"Under these circumstances, the Commission must choose a public airing of the controversy to dispel the public's doubt about the Commission's commitment to make Zimmer safe." *Id.* at 15.

"It is only through public participation in the licensing process that those who live in the vicinity of Zimmer will accept the plant or recognize legitimacy for the NRC's authority to grant or deny CG&E an operating license." *Id.* at 16.

"In a case where the NRC Staff itself is deeply divided over the corrective action that should be imposed to ensure the future safe construction and operation of Zimmer, public input and oversight are of critical importance.

"Licensing hearings will develop a sound public record on the problem and the corrective actions to be taken at Zimmer. Moreover, from recent information about problems with the QCP at Zimmer, Region III's decision to place CG&E in charge of the program should be re-examined publicly. It is appropriate that the public oversee what progress, if any, CG&E has made to determine the quality of construction of Zimmer and reform its QA program. It *may be* that the licensing hearings will lead to modification of the QCP or conditions placed on any operating license issued to CG&E." *Id.* at 35 (emphasis added).

"Licensing hearings, in which the public can question CG&E about its compliance with NRC directives, are now the only way the public can be convinced that CG&E will operate Zimmer safely and the NRC has a commitment to ensure enforcement of its regulations to protect the public health and safety." *Id.* at 38.

We continue to believe it is not appropriate to hold an adjudicatory hearing simply to inform the public or to convince them that NRC is committed to ensuring the public health and safety and that Zimmer will be safe before it is allowed to operate. As we stated in connection with the previous Commission Order on this issue:

"We believe the primary role of the Board is to adjudicate issues in dispute raised in the hearing process. We do not believe the role of the Board is to address as a technical review body every potential problem. The large

technical staff of the NRC is charged with reviewing, monitoring, inspecting and enforcing actions for nuclear power reactors. The taxpayer provides a very large amount of funds (over \$450 million per year) to support over 3000 staff members of the NRC whose primary function is to insure that the health and safety of the public are protected in the use of commercial nuclear power.

"In a case like this where serious issues have been raised with regard to a plant involved in the review process for an operating license, the NRC staff devotes a large amount of time and effort to resolving those issues. Region III is doing that. The Commission itself has become heavily involved, receiving numerous briefings on the case and providing substantive guidance to the Region. This is as it should be. The allegations will be fully addressed and the appropriate and necessary action taken. A Board is not needed in this case.

"Consequently, we do not believe that reopening the hearing at this late date to address these contentions is the right use of NRC resources." *Cincinnati Gas and Electric Company, et al.* (Wm. H. Zimmer Nuclear Power Station, Unit No. 1), CLI-82-20, 16 NRC 109, 114 (1982) (Additional Views of Commissioners Ahearn and Roberts).

Finally, we have an additional comment with respect to the *ex parte* issue. MVPP argues that Region III's discussions with CG&E violate our regulations, quoting 10 CFR 2.780. However, a portion of 2.780 which was not quoted makes clear that the *ex parte* bar applies to "Commissioners, members of their immediate staffs, or other NRC officials and employees who advise the Commissioners in the exercise of their quasi-judicial functions." Region III is not advising the Commission in the exercise of its quasi-judicial functions, (*i.e.*, decisions in the context of the adjudicatory hearing).¹

¹ They do have contact with the Commission in the exercise of its concurrent enforcement function. However, in that context the *ex parte* rule does not apply. *Cf.* 10 CFR 2.206(c)(1). A complete bar would be unacceptable because the Commission would be unable to fulfill its statutory responsibilities.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Stephen F. Ellperin, Chairman
Christine N. Kohl
Dr. Reginald L. Gotchy

In the Matter of

Docket Nos. 50-522
50-523

PUGET SOUND POWER AND LIGHT
COMPANY, *et al.*

(Skagit/Hanford Nuclear Power
Project, Units 1 and 2)

February 1, 1983

The Appeal Board dismisses an intervenor's appeal from the Licensing Board's rejection of all or part of certain of its contentions where other of its contentions were accepted as litigable.

RULES OF PRACTICE: INTERLOCUTORY APPEALS

The Rules of Practice do not permit a person to take an interlocutory appeal from an order entered on his intervention petition unless that order has the effect of denying the petition in its entirety. 10 CFR 2.714a; *Texas Utilities Generating Company, et al.* (Comanche Peak Steam Electric Station, Units 1 and 2), ALAB-599, 12 NRC 1, 2 (1980), quoting from *Houston Lighting and Power Company* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-585, 11 NRC 469, 470, and ALAB-586, 11 NRC 472, 473 (1980).

APPEARANCE

James B. Hovis, Yakima, Washington, for intervenor Confederated Tribes and Bands of the Yakima Indian Nation.

MEMORANDUM AND ORDER

The Confederated Tribes and Bands of the Yakima Indian Nation, an intervenor in this construction permit proceeding, seeks to appeal the Licensing Board's rejection of part or all of four of its contentions; other of its contentions were accepted as litigable. See Memorandum and Order Restating Admitted Contentions (Jan. 18, 1983) (unpublished). As we did just six months ago with regard to another intervenor's similar appeal in this very proceeding, we summarily dismiss the appeal on the ground that it is unauthorized by the Commission's Rules of Practice. See ALAB-683, 16 NRC 160 (1982). We repeat again what we said there and on numerous other occasions:

Those Rules do not permit a person to take an interlocutory appeal from an order entered on his intervention petition unless that order has the effect of denying the petition in its entirety. 10 CFR 2.714a; *Gulf States Utilities Company* (River Bend Station, Units 1 and 2), ALAB-329, 3 NRC 607, 610 (1976), and cases there cited.

Texas Utilities Generating Company, et al. (Comanche Peak Steam Electric Station, Units 1 and 2), ALAB-599, 12 NRC 1, 2 (1980), quoting from *Houston Lighting and Power Company* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-585, 11 NRC 469, 470, and ALAB-586, 11 NRC 472, 473 (1980).*

The appeal is *dismissed*.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

*As noted in ALAB-599, 12 NRC at 2 n. 1, an intervenor in the Yakima Indian Nation's position must await the rendition of the Licensing Board's initial decision. If dissatisfied with that decision, it may then appeal under 10 CFR §2.762(a). One of the matters that can be raised on such an appeal is whether the Licensing Board erred in rejecting or rewording one or more of the appellant's contentions.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Stephen F. Ellperin
Howard A. Wilber

In the Matter of

Docket Nos. STN-50-528-OL
STN-50-529-OL
STN-50-530-OL

ARIZONA PUBLIC SERVICE
COMPANY, *et al.*
(Palo Verde Nuclear Generating
Station, Units 1, 2 and 3)

February 15, 1983

The Appeal Board affirms the Licensing Board's initial decision in this operating license proceeding (LBP-82-117A, 16 NRC 1964 (1982)) upon completion of *sua sponte* review of the decision and relevant portions of the underlying record. The Appeal Board finds no error warranting corrective action with regard to the Licensing Board's determination in the applicants' favor of the ultimate issue before it: the availability of an adequate supply of condenser cooling water for the Palo Verde facility.

**APPEAL BOARD: SCOPE OF REVIEW (INTERVENTION
PETITIONS)**

An appeal board will not review the grant or denial of an intervention petition unless an appeal has been taken under 10 CFR 2.714a.

APPEAL BOARD: STANDARD OF REVIEW

An appeal board will not give *stare decisis* effect to licensing board conclusions on legal issues not brought to it by way of an appeal. *Duke Power Co.* (Cherokee Nuclear Station, Units 1, 2, and 3), ALAB-482, 7 NRC 979, 981 fn. 4 (1978).

DECISION

On December 30, 1982, the Licensing Board rendered an initial decision in this operating license proceeding involving the three units of the Palo Verde Nuclear Generating Station. LBP-82-117A, 16 NRC 1964. On the basis of its resolution of the matters placed in controversy by intervenor Patricia Lee Hourihan, the Board authorized the Director of Nuclear Reactor Regulation to issue an operating license for Unit 1 following his consideration and determination of any uncontested matters pertaining to the operation of that unit. No like authorization was given the Director with regard to Units 2 and 3. This was because, in a simultaneously entered order, the Board granted as to those two units (but not Unit 1) the late petition for leave to intervene of the West Valley Agricultural Protection Council, Inc. LBP-82-117B, 16 NRC 2024. The Board has reopened the record for the limited purpose of considering the issue raised by the Council's petition and proposes to render a decision on that issue once the record is again closed.

In the absence of exceptions to it, we have examined on our own initiative the initial decision and the relevant portions of the underlying record.¹ That examination has disclosed no error warranting corrective action with regard to the Licensing Board's determination in the applicants' favor of the ultimate issue before it: the availability of an adequate supply of condenser cooling water for the Palo Verde facility.² For this reason, we *affirm*.

¹ The Licensing Board's order on the Council's intervention petition similarly has not been challenged. We do not review the grant or denial of an intervention petition unless an appeal has been taken under 10 CFR 2.714a. Thus, once the time prescribed in that Section for perfecting an appeal had expired, the order below became final. It is to be noted that the issue raised by the Council is entirely discrete from the issues determined in the initial decision. That being so, there is no reason to withhold our examination of the decision to await the Licensing Board's action on the Council's intervention.

² The proposed source of water for the condenser cooling system is effluent piped in from waste water treatment plants in the Phoenix, Arizona, area (the facility is located approximately 36 miles west of Phoenix). Insofar as we are aware, no other nuclear generating station has a like source.

The Palo Verde primary (reactor coolant) and secondary (steam-feedwater) systems derive their water from another source. See generally Applicants' Exhibit W, Palo Verde Final Safety Analysis Report, Section 9.2.4. The adequacy of the water supply for those systems was not brought into question by Ms. Hourihan and, thus, was not considered by the Board below. In this regard, although an insufficient supply of condenser cooling water might necessitate a reduction in power levels (and

(Continued)

In doing so, we are constrained to repeat the note of caution in our *Cherokee* decision several years ago:³

In this uncontested proceeding, we need not (and do not) say that each [ruling on a point of law] is beyond doubt. Indeed, in passing judgment on questions of law in a nonadversary context, the possibility is enhanced that some important consideration will be overlooked by us. It is for this reason that we do not give *stare decisis* effect to licensing board conclusions on legal issues not brought to us by way of an appeal.

A significant portion of the initial decision before us is devoted to certain legal questions presented in connection with Ms. Hourihan's water supply contention. 16 NRC at 1987-90. The Board's conclusions on those questions do not appear to represent a marked departure from established principles. Given the additional fact that no party claims otherwise, we therefore have no hesitancy in endorsing the conclusions as applied to this case. Nonetheless, should one or more of the same questions arise anew in some future proceeding involving another facility, the door will, as it must, be open to the presentation of any considerations that might point to a different result.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

perhaps total reactor shutdown), it would not pose a safety threat. Indeed, it appears that the equipment associated with the condenser cooling system is not required to meet the standards established for facility components that are deemed to be safety-related. See Staff Exhibit 2, Palo Verde Safety Evaluation Report, Section 10.4.5.

³ *Duke Power Co.* (Cherokee Nuclear Station, Units 1, 2, and 3), ALAB-482, 7 NRC 979, 981 fn.4 (1978).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

**Alan S. Rosenthal, Chairman
Dr. W. Reed Johnson
Thomas S. Moore**

In the Matter of

**Docket Nos. 50-445
50-446**

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

February 24, 1983

On the ground that there is no genuine controversy to be decided, the Appeal Board dismisses the appeal of the NRC staff from a licensing board directive that the staff reveal the identity of eight individuals referred to in a staff investigative report it introduced into evidence. On the same ground, the Appeal Board withdraws its prior grant of the staff's petition for directed certification.

RULES OF PRACTICE: EVIDENCE (INFORMER'S PRIVILEGE)

The informer's privilege — the Government's privilege to withhold from disclosure the identity of persons who furnish information of violations of law to officers charged with enforcement of that law — is applicable in NRC adjudicatory proceedings and is expressly embodied in Commission regulations.

RULES OF PRACTICE: JURISDICTION OF APPEAL BOARD

The "case or controversy" restriction imposed upon federal courts by Article III of the United States Constitution does not govern an appeal board's jurisdiction.

Northern States Power Co. (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-455, 7 NRC 41, 54 (1978), remanded on other grounds sub nom. *Minnesota v. Nuclear Regulatory Commission*, 602 F.2d 412 (D.C. Cir. 1979).

APPEAL BOARD: ADVISORY OPINIONS

Appeal boards are disinclined to render advisory opinions absent the most compelling cause to do so. *Ibid.* See also *Tennessee Valley Authority* (Hartsville Nuclear Plants, Units 1A, 2A, 1B, and 2B), ALAB-467, 7 NRC 459, 463 (1978).

RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES

If a person to whom an NRC adjudicatory board directs an order believes that order is incorrect the remedy is to appeal, but absent a stay, to comply promptly with the order pending appeal. This principle is especially applicable to orders issued during trial. See *Maness v. Meyers*, 419 U.S. 449, 458-59 (1975).

APPEARANCES

Sherwin E. Turk (with whom **Guy H. Cunningham, III**, was on the brief) for the Nuclear Regulatory Commission staff.

Nicholas S. Reynolds and **William A. Horin**, Washington, D.C., filed a brief for the applicants, Texas Utilities Generating Company, *et al.*

Juanita Ellis, Dallas, Texas, filed a brief for the intervenor, Citizens Association for Sound Energy.

DECISION

OPINION OF THE BOARD BY MESSRS. ROSENTHAL AND MOORE

Before us is the challenge of the NRC staff to the Licensing Board's September 30, 1982 order (LBP-82-87, 16 NRC 1195) in this operating license proceeding involving the Comanche Peak nuclear facility. That order was entered on the staff's motion for reconsideration of a prior Board directive mandating the disclosure of the identities of ten individuals referred to in an investigative report that the staff had introduced into evidence. Although denying reconsideration, in the

September 30 order the Board amended the directive to require identification of only eight of those individuals.

Given the uncertainty respecting the appealability of the order, the staff filed both exceptions to it under 10 CFR 2.762(a) and, in the alternative, a petition for directed certification under 10 CFR 2.718(i).¹ In scheduling the matter for oral argument, we determined that there was no need to resolve the appealability question. As we then saw it, the issues raised by the staff's challenge to the order below warranted our consideration, whether on the exceptions or in response to the directed certification petition. See our Order of December 30, 1982 (unpublished).

For the reasons set forth below, we have now concluded that it is neither necessary nor desirable to reach those issues here. More specifically, in the particular and unusual circumstances of this case, the Licensing Board's order is appropriately left standing irrespective of the correctness of the bases for it assigned by the Board. Stated otherwise, the validity of the Board's approach to the disclosure question is best left for another day and another proceeding in which, unlike here, the question is presented in the framework of a true controversy.

I.

On June 16, 1980, the Licensing Board admitted a contention advanced by the intervenor Citizens Association for Sound Energy (CASE) relating to the quality assurance and quality control (QA/QC) program for the construction of the Comanche Peak facility. That contention generally asserted that deficiencies in the program raise substantial questions as to the adequacy of the construction of the facility and that, as a result, an operating license for the plant should not issue.²

Prior to the inception of the evidentiary hearing session on Contention 5 in July 1982, CASE submitted the written testimony of Charles A. Atchison, a former Brown & Root employee³ who had served as a quality assurance inspector at the Comanche Peak site. In that testimony, Mr. Atchison recounted his observations

¹ See *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 482-83 (1975).

² Denominated as Contention 5, it reads in full:

Contention 5. 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 CFR 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 CFR §50.57(a) necessary for issuance of an operating license for Comanche Peak.

³ Brown & Root is the construction contractor for the Comanche Peak facility.

of improper QA/QC practices at the site. Additionally, he asserted that he was discharged by his employer when he brought these practices to its attention.⁴

Having learned in advance of the substance of Mr. Atchison's proposed testimony, the staff presented the testimony of Robert G. Taylor (the NRC Senior Resident Inspector at the plant site) and Donald D. Driskill (an NRC investigator).⁵ In addition, the staff introduced into evidence two investigative reports that also related to Mr. Atchison's allegations. Of current concern is one of those reports: No. 82-10/82-05, admitted as Staff Exhibit 199.

In that report, Mr. Atchison was identified by the letter A, and ten other applicant or contractor employees who had been interviewed concerning his allegations were identified by letters (B through K) and job titles. In the wake of questions on CASE cross-examination of Mr. Driskill that sought to determine whether Mr. Atchison's claims had been substantiated by the persons interviewed, the Licensing Board asked the witness to identify, *inter alia*, the interviewees designated by letter in Staff Exhibit 199. Tr. 2478-79, 2484. On behalf of the witness, staff counsel responded that the names of the interviewees would not be disclosed. The reasons assigned were the "informer's privilege" and "the policy of the NRC staff in conducting investigations . . . not to name all of the individuals who are interviewed as part of that investigation." Tr. 2484, 2495-96.

The Board Chairman then asked staff counsel why she did not withdraw Messrs. Driskill and Taylor as witnesses. At this point, counsel for applicants advised the Board that he was prepared to present a witness who could identify the interviewees with a high degree of confidence. Tr. 2498.⁶ The Board thereupon excused the staff witnesses in favor of the applicants' tendered witness, Ronald G. Tolson.

Mr. Tolson testified that he was one of the ten interviewees, designated in Staff Exhibit 199 (at 6) as "Individual H (the site QA manager)." Tr. 2512. He further assigned a name to each of the other individuals who had been identified only by letter in the exhibit. Tr. 2510-13. In response to a question by a Licensing Board member, he stated that he was "certain" that he had correctly identified each individual. Tr. 2511.

In light of this evidence, the Board inquired as to whether the staff wished to recall its two witnesses. After consulting them, staff counsel advised the Board that the witnesses were willing to resume their testimony but that they would

⁴ Testimony of Charles A. Atchison, CASE Exhs. 650, 650A through X; Supplementary Testimony of Charles A. Atchison, CASE Exh. 656. Mr. Atchison's oral testimony commenced at Tr. 3199.

⁵ Staff Exh. 197.

⁶ Applicants' counsel stated that his clients felt "very strongly" that the testimony of the staff's panel was important to demonstrate to the Board that the quality assurance program at Comanche Peak functioned properly. Tr. 2498. He also suggested that the Board resolve the disclosure matter *in camera*. The Board rejected that suggestion. Tr. 2498-99.

neither “confirm or deny” Mr. Tolson’s identifications nor “answer any questions posed to them which name such individuals.” Tr. 2515.

The next day, July 28, the Board Chairman expressly ordered the staff to disclose independently the identities of the ten interviewees and to produce the signed statements they had given to the NRC investigator (summarized in Staff Exhibit 199). Tr. 2729-35. Asserting the need “further [to] consult with the [s]taff on this,” staff counsel did not respond immediately to this directive. Tr. 2735. But the following day, July 29, she reported to the Board that she had contacted the “highest levels of [s]taff management” (Tr. 3049) and that the staff would not turn over to the Board any of the interviewees’ names and would release their statements only with the names deleted. Tr. 3041-42, 3051, 3056. The Board indicated that this was unacceptable and again called for disclosure. Tr. 3056. Counsel thereupon asked the Board to stay its order so that the staff might seek appellate review. The Board denied the request as untimely, adding that the Board had assumed the staff was taking appropriate steps to obtain review and that, had it been requested the previous day, the Board would have granted a stay. Tr. 3072-73.

Six days later, on August 4, the Board issued a written show cause order in which it directed the staff to show cause within twenty days “why sanctions should not be imposed for its refusal to obey the Board’s orders” to disclose the names of the ten letter-designated individuals in the investigative report admitted as Staff Exhibit 199. LBP-82-59, 16 NRC 533, 534.⁷ In this connection, the Board elaborated upon its oral justification for having required disclosure. The informer’s privilege, the Board stated, applies only where an individual has “expressly asked [for] or been promised anonymity in coming forward with information.” *Id.* at 537. Only Mr. Atchison could be classified as an informer; the other individuals were, in the Board’s view, merely “noninformants who [had not] request[ed] secrecy and for the most part expressly waived any anonymity.” *Ibid.* Further, as “officials and employees of the [a]pplicants,” these individuals probably had a duty to respond fully to the NRC investigator, “without any claim to immunity.” *Id.* at 537, 538. Even were these individuals arguably protected by the informer’s privilege, the Board reasoned, that privilege would give way here to the Board’s need to evaluate the credibility of the individuals and that of the NRC investigator so as to reach conclusions on Mr. Atchison’s allegations. The Board also alluded to the “strong public policy” in favor of full disclosure. *Id.* at 538.

On August 24, the staff filed a response to the Board’s August 4 order in which it included a motion for reconsideration. Attached to the response were affidavits of

⁷ Additionally, the Board gave the other parties the opportunity to address what sanctions, if any, might be imposed against the staff for failure to comply with the disclosure order.

staff investigators stating that they had contacted the individuals in the staff's investigative reports. Of the ten individuals (apart from Mr. Atchison) referred to in Staff Exhibit 199, two had explicitly requested that their identity not be disclosed.⁸ Although the other eight apparently had indicated that they did not object to having their names revealed, the staff argued that to reveal them "might indeed compromise the confidentiality of the persons who seek to remain anonymous," and could harm the Commission's investigative ability. Staff Response (Aug. 24, 1982) at 20-21.

As previously noted, in its September 30 order the Board denied the motion for reconsideration but limited the scope of the disclosure order so as to encompass only the eight individuals who had indicated they did not object to their identity being made known. The order concluded with the statement (at 1204):

If the [s]taff fails either to obey this order promptly or to seek appellate review, the Licensing Board will use its authority pursuant to 10 CFR §2.713(c) to impose sanctions upon [s]taff counsel.

This appeal and alternative petition for directed certification ensued.

CASE supports the Licensing Board's action on the facts of this case. Applicants do not take a position on the merits of the disclosure order, but urge us to find that no party to this proceeding has been prejudiced by the staff's failure to comply with that order.

II.

A.

Simply stated, the informer's privilege is

the Government's privilege to withhold from disclosure the identity of persons who furnish information of violations of law to officers charged with enforcement of that law.

Houston Lighting and Power Co. (South Texas Project, Units 1 and 2), ALAB-639, 13 NRC 469, 473 (1981), quoting *Roviaro v. United States*, 353 U.S. 53, 59 (1957). Its applicability in NRC adjudicatory proceedings is well-established;⁹ indeed it is expressly embodied in Commission regulations.¹⁰ And the function the privilege serves in the fulfillment of this agency's health and safety responsibilities is an extremely important one. There is a manifest need to encourage those with knowledge of possible safety-related deficiencies in facility construction or operation to put their information before the Commission. Particularly in the instance of

⁸ Affidavit of Donald D. Driskill and Richard K. Herr (Aug. 24, 1982) at 2.

⁹ *South Texas*, *supra*, 13 NRC at 473; *Northern States Power Co.* (Monticello Nuclear Generating Plant, Unit 1), ALAB-10, 4 AEC 390, and ALAB-16, 4 AEC 435, *aff'd*, 4 AEC 440 (1970).

¹⁰ 10 CFR 2.744(d), 2.790(a)(7); 21.2.

employees of the utility or its contractors, there may well be a decided reluctance to take such action in the absence of an assurance that their anonymity will be preserved — a reluctance founded in the fear of reprisal of some kind.¹¹

Our initial resolve to pass upon the merits of the disagreement between the staff and the Board below respecting the applicability of the informer's privilege here was prompted largely by these considerations. In addition, we were influenced by the obvious fact that, failing our intercession at this juncture, the controversy might be mooted without the staff having had an opportunity to obtain appellate review: once the names are revealed, they cannot be "taken back." See *South Texas, supra*, 13 NRC at 472-73.

At the same time, however, we recognized that the ultimate determination of the dispute would necessitate coming to grips with a number of subsidiary and possibly novel questions, some of which having their foundation in an unclear factual record.¹² Several examples of such issues illustrate the dimensions of the problem. (1) Are persons interviewed during the course of a staff investigation (as distinguished from the usual concept of "whistleblowers") protected by the informer's privilege? (2) If not, is there a comparable privilege with respect to the disclosure of the identity of such persons and, if so, what are its precise metes and bounds? Among other things, in the case of an interviewee, must there have been an explicit request for, and promise of, confidentiality at the time the interview took place?¹³ (3) Is the identity of a "responsible officer" who is under a statutory duty to report potential safety problems to the Commission perforce not within the scope of an informer's privilege (or its equivalent)¹⁴ and, if so, did any of the interviewees involved fall within that classification? (4) Does the fact that eight of the interviewees eventually indicated that they had no objection to the disclosure of their identities constitute a waiver of any privilege against the release of their names? If not, was the reason assigned by the staff for continuing to resist

¹¹ As stated in *Union Electric Co.* (Callaway Plant, Units 1 and 2), ALAB-527, 9 NRC 126, 134 (1979), it is mere "common sense" that "a retaliatory discharge of an employee for 'whistleblowing' is likely to discourage others from coming forward with information about apparent safety discrepancies." This is so notwithstanding the statutory protection against discriminatory retaliation that is provided to employees who, without obligation to do so, supply information about possible safety-related irregularities. See Section 210 of the Energy Reorganization Act of 1974, 42 U.S.C. 5851, and the Commission's implementing regulations, 47 Fed. Reg. 30452 (July 14, 1982) (to be codified in scattered sections of 10 CFR). Moreover, there is no practical means of shielding employee informants from harassment at the hands of fellow employees who may have been involved in the irregularities.

¹² Because the staff's appellate challenge was directed to the denial of the motion for reconsideration, rather than to the original disclosure order, at the threshold we would have had to confront the matter of the standard governing our review of the Licensing Board's action.

¹³ In this connection, staff witness Driskill was unable to recollect whether confidentiality had been requested by any of the ten interviewees referred to in Staff Exhibit 199. Tr. 2480. Given its assertion of a claim of informer's privilege, should not the staff have had that information at hand? If so, was the Licensing Board entitled to rule as it did based upon the record before it?

¹⁴ See Section 206 of the Energy Reorganization Act of 1974, 42 U.S.C. 5846 and the Commission's implementing regulations, 10 CFR Part 21.

disclosure of their identities legally and factually valid? (5) Assuming the existence of a privilege *ab initio*, was it waived when the staff introduced into evidence, for the truth of the matter asserted therein, the investigative report containing summaries of the statements of the unidentified interviewees? If not, what factors should the Licensing Board have considered in determining whether, on balance, disclosure was appropriate?

B.

Questions such as those just outlined normally will receive our attention only if presented in the context of a live controversy. To be sure, as we have had previous occasion to observe, the restrictions placed upon the federal judiciary by the "case or controversy" clause in Article III of the United States Constitution do not govern our jurisdiction. *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-455, 7 NRC 41, 54 (1978), *remanded on other grounds sub nom. Minnesota v. Nuclear Regulatory Commission*, 602 F.2d 412 (D.C. Cir. 1979). In that same decision, however, we went on to make clear our disinclination to render advisory opinions absent the most compelling cause to do so. *Ibid.* See also *Tennessee Valley Authority* (Hartsville Nuclear Plants, Units 1A, 2A, 1B, and 2B), ALAB-467, 7 NRC 459, 463 (1978).

Our first impression of this dispute was that it remained a real one — *i.e.*, that it was a matter of true current significance whether the staff was required to disclose the identity of the interviewees. Once again, it was that belief (coupled with our concern that the informer's privilege be given due recognition where applicable) that undergirded our decision to entertain the staff's challenge. Now after briefing and oral argument, we have concluded that the staff's privilege assertion is, in actuality, moot in the present posture of this case.

When the staff initially advanced the informer's privilege claim, there was no substantial evidence of record as to the identity of the ten interviewees mentioned in Staff Exhibit 199. At that time, then, the question whether their identity should be publicly revealed was genuine. But, as we have seen, in an apparent endeavor to break the impasse between the staff and the Licensing Board, the applicants put on a witness of their own — Mr. Tolson, the site QA supervisor in the employ of the lead applicant. He not only identified each of the interviewees by name, but also stated that he was certain of the correctness of each identification.

It is worthy of at least passing note that, notwithstanding its professed interest in preserving the anonymity of the interviewees, the record reflects the staff made no effort to preclude this testimony or to have it received *in camera*.¹⁵ And neither

¹⁵ The single suggestion of an *in camera* hearing session emanated from applicants' counsel. See fn. 6, *supra*.

before the Licensing Board nor in its appellate briefs and argument did the staff assert that the witness was not in a position to know who the interviewees were. Moreover, any such insistence would have been baseless. After all, in Staff Exhibit 199 each interviewee was referred to by both letter designation *and* job title. In light of his own assignment on the Comanche Peak site, Mr. Tolson necessarily would have known who occupied such roles as “the B&R [*i.e.*, Brown & Root] QA manager” (Individual F); “the TUGCO [*i.e.*, lead applicant] QA manager” (Individual I); and “the TUGCO QA vendor compliance supervisor” (Individual J).

We need not speculate here on why, in these circumstances, the staff elected to persist in its informer’s privilege claim. Whatever may have been the motivation, the cold reality was that the factual foundation for the claim had disappeared. Albeit not initially out of the mouth of the staff, the identity of the interviewees had become public knowledge through the unequivocal testimony of a highly reliable applicants’ witness. It might be added in this connection that, assuming the necessity for corroboration of that testimony, it was later supplied in large measure by Mr. Atchison, the original informant. Tr. 3442-53.¹⁶ Further, whether inadvertently or not, even before the Atchison confirmation staff witnesses Taylor and Driskill referred to three of the letter-designated interviewees by name (in line with the Tolson identification of those individuals). Tr. 2573, 2584, 2593, 2698.¹⁷

In short, we have been invited by the staff to decide difficult (and possibly close) questions in a wholly academic setting. Far from the existence of compelling warrant to do so, there is every reason to reject this invitation and the similar one of our dissenting colleague to take on the role of legislator and decree far-reaching answers to these questions. Our reluctance to embark upon the rendition of advisory opinions has its roots in more than simply the husbanding of resources. Beyond that factor is the consideration that moot controversies (where no concrete interests remain at stake) are very poor vehicles for adjudicatory pronouncements of likely precedential significance. Cf. *United States v. Fruehauf*, 365 U.S. 146, 157, *reh’g denied*, 365 U.S. 875 (1961). In this instance, there will be time enough for the staff to present anew the thorny questions left open here when, and if, their resolution becomes a necessity rather than a mere academic exercise grounded in the staff’s desire to obtain vindication on a matter of perceived principle.

¹⁶ Indeed, Mr. Atchison assigned names to all of the interviewees except the one identified in the report as “H.” As earlier noted, Mr. Tolson had testified that he was “H.” See p. 89, *supra*.

¹⁷ Still further, the names of several of the interviewees appeared in Mr. Atchison’s prefiled testimony. See fn. 4, *supra*. And five of them were identified in the December 3, 1982 recommended decision of a Department of Labor administrative law judge in a proceeding involving Mr. Atchison’s claim that he had been wrongfully discharged by his employer because of the information he had provided the NRC. In the Matter of Charles A. Atchison v. Brown and Root, Inc., Case No. 82-ERA-9, Attachment 1 to CASE’s Brief in Opposition to NRC Staff Exceptions (Dec. 21, 1982).

It should be noted that there was no disagreement among the several independent identification sources respecting what name went with what letter.

III.

The foregoing disposes of the staff's appeal and petition for directed certification. There is, however, a collateral matter that we must address because of its importance to the proper functioning of the Commission's adjudicatory process.

A.

As we have seen, on July 28 the Licensing Board explicitly directed the staff to disclose the identity of the ten interviewees. The following day, July 29, staff counsel orally requested the Board to stay the order to enable it to seek appellate review. The Board denied the request. At that juncture, the staff's duty was plain: either comply with the order forthwith or move before us with dispatch for a stay pending the filing and disposition of an appeal and/or petition for directed certification.¹⁸ But the staff followed neither course: it simply did nothing.

Confronted with this situation, on August 4 the Board entered its order requiring the staff to show cause within twenty days why sanctions should not be imposed upon it for its refusal to obey the disclosure order. Even this development did not induce the staff to obey the disclosure order or to endeavor to obtain a stay from us. Rather, the staff allowed another full twenty days to elapse with the order remaining both in effect and disregarded. Then, on August 24, it filed its motion with the Board for reconsideration in conjunction with the response to the show cause order that was due on that date.

B.

Our preliminary review of the record brought these facts to light. We recognized, of course, that, in denying the motion for reconsideration in the September 30 order, the Licensing Board had withheld the imposition of sanctions against the

¹⁸ The fact that the staff believed that the Licensing Board had erroneously rejected its claim of an informer's privilege did not provide it with yet another alternative. As the Supreme Court has stressed:

If a person to whom a court directs an order believes that order is incorrect the remedy is to appeal, but absent a stay, to comply promptly with the order pending appeal. Persons who make private determinations of the law and refuse to obey an order generally risk criminal contempt even if the order is ultimately ruled incorrect. The orderly and expeditious administration of justice by the courts requires that "an order issued by a court with jurisdiction over the subject matter and person must be obeyed by the parties until it is reversed by orderly and proper proceedings." This principle is especially applicable to orders issued during trial. Such orders must be complied with promptly and completely, for the alternative would be to frustrate and disrupt the progress of the trial with issues collateral to the central questions in litigation.

Maness v. Meyers, 419 U.S. 449, 458-59 (1975) (citations omitted). Although NRC adjudicatory tribunals have not been clothed with the contempt power possessed by the courts, these principles are no less applicable to our proceedings. And there can be no question here that the Licensing Board had the requisite jurisdiction over both the subject matter of the controversy and the staff.

staff. Instead, it gave the staff a fresh opportunity to avoid that result by promptly complying with the disclosure order or, alternatively, seeking appellate review. This generous forbearance on the Board's part did not, however, lessen our concern over the implications of what clearly appeared to be a serious staff misapprehension respecting its obligation to obey an order of an NRC adjudicatory tribunal unless the effectiveness of that order has been deferred or stayed. Accordingly, in scheduling oral argument on the issues raised by the staff's appeal from the September 30 order, we indicated that staff counsel should be prepared "to address the obligation of the staff to comply with a directive of a Licensing Board in the absence of a stay of the directive either by that Board or higher authority." Order of December 30, 1982 at 3 fn. 2.

C.

As presaged by the scheduling order, a substantial portion of our colloquy with staff counsel at argument was devoted to the staff's failure either to have complied promptly with the disclosure order or to have sought and obtained an appellate stay.¹⁹ Although acknowledging that the disclosure order issued on July 28 (and reaffirmed on July 29) was in terms immediately effective, counsel emphatically disclaimed any staff intent to flout that order.²⁰ Reduced to its essentials, his explanation of the staff's conduct in the face of the disclosure order was as follows (App. Tr. 5-8). The staff had apprised the Licensing Board of its intention to seek immediate appellate review of the disclosure order. Despite its recognition of that intent, the Board issued its show cause order three "business days" after the hearing had concluded on July 30²¹ — "before the [s]taff had an opportunity to seek an appeal from the Appeal Board." Moreover, as the staff read it, the show cause order relieved the staff of any pressing need to pursue appellate remedies. Rather, so the argument continued, the show cause order in effect gave the staff license to move for reconsideration of the disclosure order — which, if successful, might obviate an appeal. In this connection, counsel cited one of our decisions in the *Allens Creek* proceeding²² for the proposition that it is not permissible to seek simultaneously both Licensing Board reconsideration and appellate relief.

¹⁹ It should be noted that the lawyer appearing for the staff at oral argument was not the same lawyer that had represented it before the Licensing Board.

²⁰ App. Tr. 6.

²¹ July 30 was a Friday. August 4 (the date of the issuance of the show cause order) was the following Wednesday.

²² *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-630, 13 NRC 84 (1981).

D.

We find the staff's explanation unsatisfactory in each particular. First of all, it is of no moment that the staff intended to take an immediate appeal and had so informed the Licensing Board. Even had it followed through on that objective, the staff still would have been confronted with the need to obtain a stay of the disclosure order *pendente lite*. As is beyond doubt, our Rules of Practice (in common with those governing federal judicial practice) do not provide for an automatic stay of an order upon the filing of a notice of appeal.

Second, we cannot endorse the assertion that the staff lacked an opportunity to seek any appellate relief in the six-day interval between Thursday, July 29 (when the Licensing Board denied the stay request made of it) and Wednesday, August 4 (when the order to show cause issued). Indeed, we see no good reason why a motion for a stay could not have been presented to us as early as Friday, July 30. True, the evidentiary hearing (being held in Fort Worth, Texas) was still in progress on that date and, thus, the lawyer representing the staff at that hearing might not then have been in a position herself to prepare and file the stay papers. We can take official notice, however, that the Hearing Division of the Office of the Executive Legal Director (based in Bethesda, Maryland, where the Appeal Panel is also located) is staffed with numerous lawyers. It is most improbable that they were all then either on out-of-town assignments of their own or engaged in other pursuits that could not be briefly put aside. Moreover, the record reflects that staff counsel in Fort Worth was in direct telephonic communication with her superiors during the confrontation with the Board;²³ presumably, therefore, the Hearing Division had ready access to whatever information might be needed for inclusion in a request for a stay. All this being so, it is fair to conclude that no insuperable obstacles stood in the path of the filing of a stay motion by the close of business on July 30.

Be that as it may, it would appear that assigned staff trial counsel was free to return to Washington on July 30 (the hearing having recessed shortly after 1:00 p.m. that afternoon).²⁴ Consequently, had there been some imperative necessity to await her return before turning to the matter of seeking an appellate stay, the papers could have been prepared over the weekend and filed with us on Monday morning, August 2.²⁵ The concept of "business" days (to which appellate counsel alluded

²³ See Tr. 3049, 3072.

²⁴ Tr. 3563. At oral argument, staff appellate counsel stated that the staff participants in the hearing had "returned that weekend" but did not indicate whether it was immediately following the conclusion of the July 30 session. App. Tr. 5-6. There was no suggestion, however, that trial counsel had further official business to transact in Fort Worth.

²⁵ Had this been done, the Licensing Board doubtless would have withheld the issuance of the show cause order to await our action on the stay motion. In any event, the high probability is that we would have granted an interim *ex parte* stay to allow time for responses to the staff papers and our fuller consideration of the matter.

both in his brief and at oral argument) may well have legitimacy as applied to the conduct of litigation in ordinary circumstances. But it has no meaning where, as here, one's client is faced with an immediately effective order requiring prompt action that it is totally unwilling to take. In that unusual circumstance, there is no such thing as a non-business day — the steps looking to the obtaining of appropriate stay relief must be initiated without differentiation between one day of the week and another.

Third, we have been directed to nothing in the terms of the August 4 show cause order that justifiably could have been construed by the staff as an invitation not merely to move for reconsideration of the disclosure order but, as well, to eschew compliance with the latter order until such time as the Licensing Board received and acted on the motion. This is not to say, of course, that the staff was precluded from seeking reconsideration without an express invitation from the Board. But such a step, just as an appeal, does not have the effect of automatically staying the effectiveness of the order or decision under attack.²⁶ Further, in the totality of circumstances, it would have been reasonable to expect that the staff would have had its reconsideration motion (whether invited or not) on file appreciably earlier than August 24 — a full 27 days after it was first directed to make disclosure of the interviewees' identity.²⁷

E.

Interrelated reasons have constrained us to dwell upon this subject at some length. To begin with, even with the benefit of time to reflect at leisure upon its course of action last summer, the staff apparently still does not apprehend the shortcomings of that course. Rather, as we have seen, at oral argument it attempted (albeit on patently insubstantial grounds) to justify its failure to comply with the disclosure order. Consequently, what transpired here might well be repeated.

Any such recurrence would be intolerable. Accepting counsel's assurance at oral argument that the staff had acted in good faith and without the purpose of flouting the Licensing Board's disclosure order and authority, the fact nevertheless remains that it *did* disobey that order over a protracted period of time and without cause.²⁸ The disregard by a party of an order of an adjudicatory tribunal is a serious

²⁶ *Allens Creek, supra*, does not prohibit seeking a stay from us while a motion for reconsideration is pending before the Licensing Board. Rather, that decision dealt only with the simultaneous filing of both a motion for reconsideration and an *appeal*. (Of course, in situations such as that at bar, appellate stay relief appropriately could be sought only if a stay had been denied by the Licensing Board.)

²⁷ In this regard, the twenty-day period prescribed in the show cause order was for responding to that order and not for seeking reconsideration.

²⁸ At our direction, the staff filed a post-argument brief addressed to two questions raised by us at the argument bearing upon the merits of the disclosure controversy. At the conclusion of the brief (p. 6), the staff sought to "clarify" its position on whether its disregard of the disclosure order extended to

(Continued)

matter in any circumstance. But when that party is the staff of the agency conducting the adjudication, the situation is all the more troublesome.

If its own staff does not manifest a sensitive regard for the integrity of the agency's adjudicatory process — and most particularly the vindication of the authority of those bodies charged with the administration of that process — how can such regard be fairly expected of private parties to our proceedings?²⁹ Beyond that consideration, the staff enjoys a unique position insofar as the imposition of sanctions against it is concerned. Although a licensing board does not have contempt authority, there are remedial measures available to it in the instance of the failure of an applicant or intervenor to comply with its orders. For example, the applicant may be confronted with a denial of its application; the intervenor may find itself dismissed from the proceeding. The staff, however, does not have the same direct personal stake in the outcome of the adjudication as do the applicants and most intervening parties. Rather, its role in the proceeding is that of a protector of a broad public interest. Thus, assuming that the removal of the staff as a party would be a fit remedy for its disobedience of a board order (a question we need not decide here),³⁰ in a real sense the consequences would not be visited upon those responsible for the dereliction.³¹

In short, unlike other parties to a licensing proceeding, the staff puts itself at little, if any, risk when it refuses to comply with a board order. Accordingly, such a refusal is readily susceptible of the interpretation that the staff has no hesitancy to disobey orders with which it strongly disagrees because, as a practical matter, it can do so with impunity. Once again, we accept the staff's oral representation that

September 30. According to the staff, once it had filed its response to the show cause order on August 24, it was relieved of any further obligation to comply with the disclosure order (or seek an appellate stay of it) until such time as the Licensing Board acted upon the response. This is said to be so because the response was accompanied by a renewal of its previously rejected oral request for a Licensing Board stay.

This line of reasoning is as conspicuously devoid of substance as the claims advanced by the staff at oral argument. What it ignores is that a party cannot put off its duty to comply with an immediately effective order by the simple expedient of calling upon the tribunal to consider anew whether a stay (once denied by it) should be granted. In any event, the *post hoc* rationalization does not assist the staff insofar as its inaction over a period of almost a month (between July 29 and August 24) is concerned. And, in the final analysis, whether the staff is deemed to have been in disobedience of the disclosure order for one instead of two months is inconsequential. The staff may think that August 24 was "relatively soon" after the hearing session ended on July 30. Staff Post-argument Brief (Jan. 26, 1983) at 7. But in the context of seeking stay relief, that view is untenable.

²⁹ Assuredly, private parties are entitled to assume that there is not a double standard in this respect: a strict obligation of compliance on their part and a more relaxed obligation in the case of the staff.

³⁰ As we have seen, the Licensing Board's September 30 order mooted the sanctions issue on the condition that there be no future disregard of its directives. See p. 91, *supra*.

³¹ We have not overlooked the authority of a licensing board to discipline counsel "who shall refuse to comply with its directions." 10 CFR 2.713(c). The imposition against staff counsel of one of the sanctions provided for in Section 2.713(c) likely would be appropriate only in circumstances where the disobedience was not in fulfillment of the instructions of higher authority within the agency. Although this matter similarly need not be reached here, it is reasonable to assume that staff counsel below declined to comply with the disclosure order at the direction of either her superiors in the Office of the Executive Legal Director or a ranking official of the NRC office in charge of the investigation of which the interviews were a part. See Tr. 3053-54.

no such thinking undergirded its actions in this case. At the same time, however, it is of obvious importance, not only to it but to this agency as a whole, that in the future the staff take the utmost care to ensure that it does not again open itself to that perception.

The staff's appeal is *dismissed* for want of a genuine controversy; on the same ground, our grant of the petition for directed certification is *withdrawn*.³²
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

[The dissenting opinion of Dr. Johnson follows.]

DISSENTING OPINION OF DR. JOHNSON

As my colleagues explicitly recognize (pp. 91-92, *supra*), the informer's privilege serves an important function in assisting this agency to fulfill its safety responsibilities: it enhances the staff's ability to obtain information from persons who might otherwise be unwilling to aid a staff investigation. But the benefits of the privilege can scarcely be realized to the fullest if fundamental questions concerning its applicability in our hearings are left unresolved. My colleagues agree that such thorny questions exist. See pp. 92-93, *supra* (particularly questions 1, 2, 3 and 5). Rather than taking advantage of the opportunity to address those questions here, they decide instead to walk away from them to await their litigation another day when concrete interests are at stake.

I cannot agree with this action. To be sure, these questions are not easy to resolve but that is not a valid reason for avoiding them. Nor is the fact that the information sought to be protected by exercise of the privilege is already known. For by my colleagues' own admission (p. 93, *supra*), mootness is not a legal bar to our addressing them. The questions raised here relate in a very fundamental and

³² This result does not alter the fact that the staff did seek appellate review and, thus, under the terms of the Licensing Board's September 30 order is not subject to the imposition of sanctions (providing there is no further disregard of its disclosure order).

generic way to the use of the informer's privilege as a valuable tool in NRC investigations. It is likely that some or all of these questions will arise in virtually every case in which a staff investigative report is introduced for use in a hearing. In this case, we saw that the parties and the Licensing Board did not respond very effectively when faced with these questions. In the next case, this sort of confusion may well be repeated, but with the added result of disclosure of information under circumstances that would endanger the well-being of individuals. See p. 92 fn. 11, *supra*.

To me, a staff investigator's ability to make a credible offer of anonymity to individuals who may be potential sources of safety-related information is a matter of major importance and should not be clouded by unresolved questions. Short of resolving them ourselves, I would have advised the staff to seek policy guidance from the Commission on the questions cited above.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Gary J. Edles, Chairman
Dr. John H. Buck
Dr. Reginald L. Gotchy

In the Matter of

Docket No. 50-289
(Design Issues)

METROPOLITAN EDISON COMPANY,
et al.

**(Three Mile Island Nuclear
Station, Unit No. 1)**

February 28, 1983

Ruling on an intervenor's request for subpoenas compelling the attendance and testimony of two named NRC staff members at the Appeal Board's scheduled hearing on emergency core cooling issues in this special restart proceeding, the Appeal Board finds that "exceptional circumstances" exist warranting the issuance of a subpoena requiring the testimony of that employee of the NRC's Office for Analysis and Evaluation of Operational Data (AEOD) with knowledge of the office's views on the subjects of concern, but denies the request for the second subpoena for lack of a showing of "exceptional circumstances."

RULES OF PRACTICE: SUBPOENAS (STAFF WITNESSES)

The Commission's rules provide that the Executive Director for Operations generally determines which staff witnesses shall present testimony. An adjudicatory board may nevertheless order other NRC personnel to appear "upon a showing of exceptional circumstances, such as a case in which a particular named NRC employee has direct personal knowledge of a material fact not known to the witnesses made available by the Executive Director for Operations. . . ." 10 CFR

§2.720(h)(2)(i). See generally, *Pennsylvania Power and Light Company and Allegheny Electric Cooperative, Inc.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-613, 12 NRC 317, 323 (1980).

ADJUDICATORY HEARINGS: SCOPE OF REVIEW

A genuine scientific disagreement on a central decisional issue is the type of matter that should ordinarily be raised for adversarial exploration and eventual resolution in the adjudicatory context. See *Virginia Electric and Power Company* (North Anna Power Station, Units 1 and 2), CLI-76-22, 4 NRC 480, 491 (1976), *aff'd sub nom. Virginia Electric and Power Company v. NRC*, 571 F.2d 1289 (4th Cir. 1978); *Consumers Power Company* (Midland Plant, Units 1 and 2), ALAB-691, 16 NRC 897, 912-13 (1982), *review declined*, CLI-83-2, 17 NRC 69 (1983).

MEMORANDUM AND ORDER

I.

The Licensing Board has issued its partial initial decision dealing with various issues of plant design, modifications, and procedures. LBP-81-59, 14 NRC 1211 (1981). Essentially, the Board concluded that, once various changes are made, TMI-1 can safely be restarted. The Union of Concerned Scientists (UCS) has appealed from that decision.

Following the receipt of briefs and oral argument, we issued an unpublished memorandum and order setting out our preliminary views and concerns regarding the sufficiency of the evidentiary record on the issues of the capability of the so-called "feed and bleed" and "boiler-condenser" processes to remove decay heat from the reactor core in the event of a loss of main feedwater or a small break loss of coolant accident. The Licensing Board had found that the feed and bleed process is a viable means of decay heat removal at TMI-1. We noted, however, that information supplied to us in Board notifications following issuance of the Licensing Board's decision tended to undermine the Board's conclusion. We requested the parties' views regarding a need for reopening the record. Following consideration of those views, we determined that a limited reopening of the record is necessary in order for us to resolve these matters that are central to a determination of whether TMI-1 can safely resume operation. Thus, we instructed the licensee and the NRC staff to submit supplemental testimony and make witnesses available at a reopened hearing. ALAB-708, 16 NRC 1770 (1982). The staff has filed the direct testimony of Dr. Brian W. Sheron, Walton L. Jensen, Jr., and Jared S. Wermiel, in response to our order. UCS now requests that we issue subpoenas

requiring the attendance and testimony of two additional staff members, C. J. Heltemes, Jr., and Frank H. Rowsome, at the reopened hearing.

In support of its request that Mr. Heltemes testify, UCS indicates that on July 1, 1982, a staff report was sent to the Director of the Office of Nuclear Reactor Regulation specifically discussing the reliability and effectiveness of feed and bleed core cooling at TMI-1. Various members of the staff commented on a draft of the report before it was sent to the Director. Included among the comments was a June 10, 1982, memorandum from Mr. Heltemes setting out the views of the Office for Analysis and Evaluation of Operational Data (AEOD). This report and the related memoranda, UCS argues, reveal a disagreement between the official staff position as reflected in the final report and now incorporated in the staff's testimony, on the one hand, and the views of AEOD, on the other. UCS claims that the memoranda suggest that AEOD did not concur in the staff position regarding the reliability and effectiveness of feed and bleed at TMI-1.

In support of its request that Mr. Rowsome testify, UCS indicates that he is the author of a January 29, 1982, report dealing with the feed and bleed process at plants designed by Combustion Engineering. (Mr. Rowsome also testified earlier in this case.) Mr. Rowsome's report, UCS argues, calls into question the reliability of high pressure injection, which is the essential "feed" component of the feed and bleed process. Because the report notes that the problem regarding the reliability of high pressure injection is not unique to Combustion Engineering plants, UCS contends that Mr. Rowsome's conclusions "go to the heart of the issue in this proceeding: the adequacy of decay heat removal."¹

The staff opposes issuance of both subpoenas. Relying in part on affidavits submitted in connection with its answer, the staff claims that UCS has misread AEOD's position and that there is no significant difference of opinion among members of the staff.²

II.

The Commission's rules provide that the Executive Director for Operations generally determines which staff witnesses shall present testimony. An adjudicatory board may nevertheless order other NRC personnel to appear "upon a showing of exceptional circumstances, such as a case in which a particular named NRC employee has direct personal knowledge of a material fact not known to the witnesses made available by the Executive Director for Operations. . . ." 10 CFR §2.720(h)(2)(i). See generally, *Pennsylvania Power and Light Company and*

¹ UCS Request for Subpoenas (February 23, 1983) at 5.

² NRC Staff's Answer in Opposition to UCS's Request for Subpoenas (February 25, 1983) at 3.

Allegheny Electric Cooperative, Inc. (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-613, 12 NRC 317, 323 (1980).

We reviewed the requirement of a showing of "exceptional circumstances" sufficient to warrant calling additional staff witnesses in *Pacific Gas and Electric Company* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-519, 9 NRC 42 (1979). In that case, the Advisory Committee on Reactor Safeguards (ACRS) had accepted certain design bases and criteria utilized in a seismic reevaluation of a completed nuclear power plant even though they were less conservative than those that would be used for an original design. Two ACRS consultants dissented from that view, and we found exceptional circumstances present to warrant the issuance of subpoenas requiring their testimony.³ Three interrelated factors were important to our conclusion: (i) the power plant had been designed and built on a set of scientific assumptions that had been called into question by subsequent information; (ii) a reanalysis of the plant was undertaken so as to consider new estimates; and (iii) the conclusion that the plant could be operated safely was based on theoretical assumptions that were partly untested and previously unused. *Id.* at 46.

The request for the views of AEOD, by way of Mr. Heltemes' testimony, raises a similar, albeit less compelling, confluence of factors. The Licensing Board's decision that the decay heat removal process is satisfactory has been called into question by recently obtained information. We have already concluded that the existing evidentiary record is insufficient to permit us either to affirm or to reject the Board's decision, and we must resolve a central safety issue, one way or the other, on the basis of new information and analyses. The staff testimony supports the Licensing Board's conclusion that the plant may resume operation without unreasonable risk to the public health and safety, although a staff unit that has reviewed the issue may have a somewhat different perspective concerning the efficacy or reliability of a key safety system. In our judgment, such perspective should be made available for our consideration. We note that a genuine scientific disagreement on a central decisional issue is the type of matter that should ordinarily be raised for adversarial exploration and eventual resolution in the adjudicatory context. See *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), CLI-76-22, 4 NRC 480, 491 (1976), *aff'd sub nom. Virginia Electric and Power Co. v. NRC*, 571 F.2d 1289 (4th Cir. 1978); *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-691, 16 NRC 897, 912-13 (1982), *review declined*, CLI-83-2, 17 NRC 69 (1983).

³ The regulations define "NRC personnel" for discovery purposes to include consultants and members of advisory boards such as the ACRS. 10 CFR §2.4(p). We concluded that consultants to advisory boards were also "NRC personnel" for the purposes of the special discovery provisions of 10 CFR §2.720(h)(2)(i).

The staff argues, in part, that “there is no *significant* difference between the AEOD position and the NRC Staff’s position . . .” (emphasis added) and that AEOD’s position is “one of caution” rather than disagreement.⁴ But such characterizations are sufficient, in our view, to suggest that some differences in opinion or approach among staff units may well be involved and are at least worth exploring at hearing.⁵ We thus grant the request for a subpoena for the views of AEOD.⁶

In contrast, we do not believe that there are exceptional circumstances to warrant issuance of a subpoena to compel Mr. Rowsome’s testimony. To begin with, Mr. Rowsome’s report deals only with Combustion Engineering plants. Although it notes that the problem of the reliability of high pressure injection is generic to all pressurized water reactors, including, presumably, TMI-1, Mr. Rowsome expressly testified during the hearing in this case that he is not an authority on TMI and could not therefore reach conclusions about TMI-1 on the basis of his experience with other reactors in the industry. See Tr. 16,929-30. Furthermore, although the Rowsome report raises general problems about the reliability of the high pressure injection aspect of the feed and bleed process, reliability has not been raised by UCS as an issue on appeal insofar as TMI-1 is concerned and is not discussed in the staff’s direct testimony, and our independent review of the record, although not yet complete, has not revealed that the high pressure injection system at TMI-1 is unreliable. In short, nothing in the report suggests that Mr. Rowsome possesses any “direct personal knowledge” regarding matters of concern to us in the reopened hearing or that he could offer testimony directly bearing on issues before us in the reopened proceeding.⁷

A subpoena will issue requiring the testimony of that employee of the Office for Analysis and Evaluation of Operational Data (AEOD) with knowledge of AEOD’s

⁴ NRC Staff’s Answer, *supra* note 2, Ornstein affidavit at 2.

⁵ We note, in this connection, that it is not our purpose in ruling on a request for subpoenas to reach the merits of the controversy or evaluate the truth of the affiant’s assertions. *Diablo Canyon, supra*, at 46.

⁶ An affidavit submitted by Harold L. Ornstein, a Lead Systems Engineer in AEOD, indicates that he was responsible for reviewing the draft report, along with Mr. Carlyle Michelson, Director of AEOD, and that Mr. Heltemes’ role was solely one of transmitting the review comments. In such circumstances, we will issue a subpoena to that employee of AEOD with the requisite knowledge to explain AEOD’s views with regard to feed and bleed, liquid natural circulation, and boiler-condenser operations. We expect AEOD to provide its most knowledgeable witness. The Director of AEOD shall advise us and the parties promptly of AEOD’s selection.

⁷ UCS characterizes the “heart of the issue” before us as “the adequacy of decay heat removal.” Such characterization is too broad. The reopened hearing will not examine all aspects of decay heat removal but simply those discrete matters — not including the reliability of high pressure injection — raised in ALAB-708.

views on feed and bleed, liquid natural circulation, and boiler-condenser operations. Except to the extent granted, the request of UCS is 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 BOARD

Before Administrative Judges:

Peter B. Bloch, Chairman
Dr. Jerry R. Kline
Dr. Hugh C. Paxton

In the Matter of

Docket Nos. 50-266-OLA
50-301-OLA
(ASLBP No. 81-464-05-LA)

WISCONSIN ELECTRIC POWER
COMPANY

(Point Beach Nuclear Plant,
Units 1 & 2)

February 4, 1983

This decision concerns the adequacy of eddy current testing to detect potentially serious defects in corroded steam generator tubes that have been repaired by the insertion of a liner or "sleeve." The Licensing Board concludes that limitations on the sensitivity of eddy current testing do not affect the ability to detect serious flaws that are likely to rupture, either under normal operating conditions or accident conditions. Consequently, the Board approves the issuance of a license amendment to applicant.

RULES OF PRACTICE: FINDINGS OF FACT

There is no penalty assessed against a party that failed to comply with the Board's requests, not reflected in an order, concerning the format for filing Findings of Fact.

RULES OF PRACTICE: PROBABILISTIC RISK ANALYSIS

The regulations do not require the use of a formal, probabilistic risk analysis.

RULES OF PRACTICE: EFFECT OF SUMMARY DISPOSITION

An initial decision in a case in which summary disposition has been granted is limited to the genuine issues of fact that were found to exist.

TECHNICAL ISSUES DISCUSSED

Eddy current testing (steam generator tubes)
Eddy current testing (sleeved steam generator tubes)
Inconel 600, mill annealed and thermally treated
Steam generator, secondary side chemistry
Steam generator (pressurized water reactor), described
Signal to noise ratio (eddy current testing)
Reliability of eddy current testing (small volume defects)
Leak Before Break (steam generator tubes)
Burst tests (steam generator tubes)
Stress corrosion cracking (steam generator tubes)
Intergranular attack (steam generator tubes)
Tube sleeving (steam generator repair)
Sleeving of tubes (steam generator repair)
Corrosion (steam generator tubes)
Hydrostatic testing (steam generator tubes)
Leak monitoring, continuous (steam generator tubes)

MEMORANDUM AND ORDER **(Initial Decision)**

This decision concerns the adequacy of eddy current testing to detect potentially serious defects in corroded steam generator tubes that have been repaired by the

insertion of a liner or "sleeve."¹ The "sleeve" is designed to lend structural strength to the tube by spanning its corroded area.²

We have found limits in the capability of the eddy current test to detect flaws in steam generator tubes. However, we have concluded that these limits of eddy current testing do not seriously detract from its ability to detect flaws that are likely to rupture, either under normal operating conditions or postulated accident conditions. Furthermore, sleeved tubes appear to be safer than other unsleeved tubes that applicant already is licensed to operate. We also have concluded, based on an analysis of various factors affecting the safety of sleeves, that sleeved tubes are safe, without reference to whether they are safer than unsleeved tubes. Consequently, the license amendment should be granted, without any conditions attached at the direction of the Atomic Safety and Licensing Board.

I. DESCRIPTION OF SLEEVING

In order to understand the nature of the problem that gave rise to the issues in this case it is useful to describe briefly the functions of a steam generator in a nuclear power plant.³ All pressurized water nuclear power plants, including the Point Beach units, have two systems of piping to effect the transfer of energy from the reactor core to the turbines which produce electricity. The primary system pumps circulate primary coolant water around the hot fuel rods within the reactor core where the nuclear reaction takes place. The super-heated water then passes through large pipes to the steam generators. In each steam generator — heat exchangers approximately 70 feet high and fourteen feet in diameter — the primary coolant water passes from large pipes into about 3000 smaller tubes which are partially immersed in a separate system of water, the secondary coolant. Heat is transferred through the tube walls from the primary coolant to the secondary coolant, which boils and, in the form of steam, passes through turbines to generate electricity. In order to prevent leaks of primary coolant and radioactivity from the primary system to the secondary coolant, it is necessary to assure the integrity of the entire piping system, including each of the thousands of small tubes inside each steam generator.

¹ This is the only issue remaining in the proceeding because we granted summary disposition of the rest. LBP-82-88, 16 NRC 1335 (1982) (Summary Disposition).

² On July 2, 1981, Wisconsin Electric Power Company (applicant) filed a Technical Specification Change Request, seeking to amend the Point Beach Operating licenses to permit repair of steam generator tubes that have degradation exceeding 40% of the nominal tubewall thickness. The existing plant Technical Specifications require that such tubes be removed from service by "plugging." The proposed Technical Specification change would permit repair of such tubes by "sleeving," leaving the tubes in service.

³ The general description of the role of a steam generator is taken from *Florida Power & Light Co.* (Turkey Point Nuclear Generating, Units Nos. 3 and 4), ALAB-660, 14 NRC 987 (1981) at 992.

At Point Beach, steam generator tubes have experienced substantial thinning and corrosion, caused initially by the use of a phosphate chemistry regime in the secondary side water but continuing to some degree even after the secondary side chemistry was changed to an "all volatile" chemistry regime. As a result, applicant sought to repair these degraded steam generator tubes and, on July 2, 1981, filed a Technical Specification Change Request, seeking to amend the Point Beach operating licenses to permit repair of steam generator tubes that have suffered from corrosion. Without the amendment, applicant would have to remove from service (by plugging both ends of the tube) all tubes that have been degraded by more than 40% of their design (or "nominal") tubewall thickness.

The repair consists of the insertion of a liner or "sleeve" into the degraded tube, spanning the area where the corrosion has occurred. Then the sleeve is joined at its top and bottom to the exterior tube.⁴

There are two steam generators at each of the Point Beach units. Each steam generator contains 3260 inverted, U-shaped vertical tubes. The ends of the tubes pass through and are anchored in the tubesheet. The tubesheet is a large circular steel plate, about 22 inches thick, through which holes are drilled for the tubes. The bottom 2 ½ to 3 inches of the end of each tube is fastened within the bottom of the tubesheet by "rolling," *i.e.*, the tube is mechanically expanded tightly against the walls of the tubesheet hole. The tubes are also welded at the bottom face of the tubesheet. The tubes are not fastened at the top of the tubesheet.⁵

The sleeving process involves the insertion of a smaller diameter, thermally treated Inconel 600 metal sleeve inside a steam generator tube so that the bottom of the sleeve is flush with the bottom of the tube. The sleeve extends beyond the top of the tubesheet, bridging the degraded portion of the tube. The sleeve is bonded to the tube at the bottom and just below the top of the sleeve.⁶

II. COMMENTS ON THE "STATEMENT OF INADEQUATE RECORD"

Wisconsin's Environmental Decade (Decade), the sole intervenor, did not present any witnesses, attempting to rely on cross-examination to establish its case. It also did not file formal findings pursuant to the Board's request.⁷ Instead, it

⁴ See LBP-81-55; 14 NRC 1017 (1981) at 1019.

⁵ Affidavit of David K. Porter (September 28, 1981) at ¶4 (Attachment 1 to "Licensee's [applicant's] Motion for Authorization for Interim Operation of Unit 1 With Steam Generator Tubes Sleeved Rather Than Plugged," September 28, 1981). (Porter Affidavit.)

⁶ The sleeve is designed to extend beyond its upper joint so that the additional length of sleeve would prevent a failure of the upper joint from resulting in an unconstrained rupture. Should the joint fail, the sleeve will remain within the tube, restricting the amount of water that can leak through the joint area. Porter Affidavit at ¶5; Applicant Exhibit 1, §3.2.

⁷ Tr. 18767-78.

filed a five page "Statement of Inadequate Record." That document contains a few relevant and helpful points, but it was a disappointment to the Board because it failed to provide us with any reasoning by which we could dispose of the litigated issue in Decade's favor.⁸

Decade attempts to excuse its Statement on the grounds that it was required to work during the Christmas vacation. However, Decade failed to request a time extension, either during the hearing or in its filing. Furthermore, we know that Decade is aware that it can obtain extensions of time limits for good cause, as it was permitted to file its Motion for Litigable Issues after the time originally set.

Although Decade's filing is a disappointment to us, we do not assess any sanctions against it, primarily because we "requested" the filing of findings but never thought it necessary to order that they be filed. The result is that we will do our best to respond to the few arguments Decade has made and to analyze the validity of the case presented to us in the briefs of the other parties. We are pleased with briefs filed by applicant and by the Staff of the Nuclear Regulatory Commission (staff), which respond well to our requests for a reasoned discussion of the entire record.

III. ANALYSIS AND CONCLUSIONS

In this section of our opinion, we discuss the contention that was admitted to the hearing, the applicable regulatory materials, the facts concerning the reliability of eddy current testing, and the redundant protections from steam generator tube failure available at Point Beach.⁹ Appendix A lists our previous decisions in this proceeding.

⁸ Decade's Statement of Inadequate Record urges the Board to conduct what is essentially a probabilistic risk analysis for steam generator tube burst. Such an analysis would assess the overall risk to public health and safety by considering both the probability of tube burst and the consequences of that event.

In this proceeding the Board has not undertaken such a quantitative analysis, using fault trees, numerical probabilities of failure of components and numerical estimates of overall risk. The Board nevertheless considered, in its Summary Disposition decision, what its course might be should eddy current testing prove to be inadequate for the detection of flaws in sleeved tubes. It therefore requested the applicant and staff to address contingently the safety implications of sleeving if that finding was made. Both did so. We consider those implications in subsequent sections of this decision even though we could rest our decision solely on the demonstrated adequacy of eddy current testing. The record therefore does reflect thorough consideration of both the likelihood of not finding flaws and the consequences of not finding them. Of course, we do not use the format of probabilistic risk analysis, which is not required by Commission policy or regulations.

⁹ To simplify our discussion, we include a list of our previous decisions in Appendix A and a brief statement of the qualifications of each of the witnesses in Appendix B. We consider each of the witnesses to be an expert.

A. The Admitted Contention

This contention, as originally submitted, was quite lengthy and was intertwined with other assertions. The contention was:

Present inspection methods [understood to be limited to eddy current testing¹⁰] in unsleeved tubes have been shown to be inadequate to detect defects, and the complicating presence of the sleeve inside the tube will make the detection of degradation, especially at the joints, even more difficult. Over time, the detection capability will continue to degrade. . . . The inability to adequately detect defects that can lead to primary-to-secondary or secondary-to-primary pathways for leakage will exacerbate the problems indicated in [the other subissues in this allegedly litigable issue.]¹¹

However, our Summary Disposition decision modified this contention by determining that the following genuine issue was admitted to hearing:

That the license amendment should be denied or conditioned because applicant has not demonstrated that eddy current testing is adequate to detect serious stress corrosion cracking or intergranular attack, in excess of the technical specification prohibiting more than 40 percent degradation of the sleeve wall, in sleeves that would be inserted within steam generator tubes.¹²

This admitted genuine issue was discussed in our Summary Disposition decision in some detail, explaining what issues of fact or opinion the Board considered unresolved.¹³

B. Regulation Involved

The Nuclear Regulatory Commission (NRC) regulation covering the adequacy of eddy current testing relates generally to the design of the reactor coolant pressure boundary. That regulation, General Design Criterion 14, Appendix A, 10 CFR Part 50, requires that:

The reactor coolant pressure boundary shall be designed, fabricated, erected and tested so as to have an extremely low probability of abnormal leakage, of rapidly propagating failure, and of gross rupture.

In order to comply with this General Design Criterion, applicant's proposed repair proposal adheres to an industry code, the ASME [American Society of Mechanical Engineers] Boiler and Pressure Vessel Code (Code).¹⁴

¹⁰ Tr. 1237-38.

¹¹ See Summary Disposition 16 NRC 1335 (1982), at 1344.

¹² Id. at 1337.

¹³ Id. at 1338, 1343-48.

¹⁴ Licensee Exhibit I, §3.1.

C. Adequacy of Eddy Current Testing

In this section of our opinion, we will describe eddy current testing (ECT) and then evaluate its reliability for detecting leaks.¹⁵

1. Description of Eddy Current Testing

For ECT, a probe is inserted into the steam generator tube. Electric current within the coils in the probe produces an electromagnetic field. As the probe is moved within the tube, an electric current is induced in the conductive material of the tube or sleeve. This is the eddy current signal that is recorded and interpreted. Degradation in the wall of the tube or sleeve causes variations in the effective electrical conductivity or magnetic permeability of the wall material. These variations are measured directly by changes in the coil voltage of the eddy current probe.¹⁶

ECT at Point Beach is performed by Westinghouse Electric Corporation, which subcontracts the reading and interpretation of the eddy current data to Zetec, Inc.¹⁷ Mr. Denton and Mr. McKee, of Zetec, offered testimony in considerable detail about ECT equipment, the physics of the ECT process, the interpretation of eddy current signals, and the capabilities of ECT for detecting, in the field, stress corrosion cracking (SCC) and intergranular attack (IGA) in tubes and sleeves.¹⁸

The eddy current signals for each tube that is tested are recorded on a magnetic tape. The tape is used to produce a strip chart which converts the record of electromagnetic signals into a linear graph that roughly resembles the record of an electrocardiograph. This chart indicates the presence or absence of defect signals along the tubewall.

If the strip chart indicates that degradation may be present,¹⁹ the magnetic tape recording of the eddy current signals also is used to generate a picture on an oscilloscope. That moving picture is recorded in a still photograph that enables the operator to examine phase differences between signals coming from the outside and inside tube surfaces. That still photograph is then interpreted to determine the depth of penetration of degradation into the tubewall material.²⁰

¹⁵ We have leaned heavily on applicant's Proposed Initial Decision, 17-20, for this portion of our decision.

¹⁶ "Licensee's [Applicant's] Testimony of W. D. Fletcher" (Fletcher), ff. Tr. 1422, at 3-4; Tr. 1462-64, testimony of Clyde J. Denton (Denton).

¹⁷ Tr. 1460-61 (Denton).

¹⁸ Tr. 1462-78 (Denton); Tr. 1608-1723 (Denton, McKee); Applicant Exhibits 2 and 3. IGA is corrosion of the metal grain boundaries of the tube material that does not initially result in separation of the metal grains. SCC entails distinct separation of the metal grains resulting from corrosion. Tr. 1427-31 (Fletcher).

¹⁹ Tr. 1658-1659.

²⁰ Tr. 1608-11; 1473 (Denton).

An eddy current indication of a defect in the tubewall appears as a deviation from a base line drawn along the center of the strip chart. The greater the volume of the defect, the greater the amplitude of the deviation from the base line.²¹ Unwanted signals, or "noise," also appear as deviations from the base line on the chart. Noise is caused by such extraneous sources as conductive impurities deposited on the surface of the tube, magnetite in sludge surrounding the tube, or the uneven inner surface of a structure surrounding the tube — such as the inner surface of the tubesheet hole.²²

An important concept used in diagnosing potential defects is the "signal to noise ratio." This is the ratio of the amplitude of the signal generated by a suspected defect to the amplitude of the noise signals found in the same general region of the strip chart. Multifrequency mixing techniques are used to significantly reduce the amplitude of the noise signals.²³

The amplitude of the eddy current signal is indicative of the volume of the degradation, meaning the amount of separation present in the tubewall; but the amplitude says nothing about the depth of penetration into the tubewall.²⁴ When the eddy current interpreter sees a signal which might indicate degradation, the signal is examined on the oscilloscope.²⁵ When signal-to-noise ratios are less than about three-to-one, operators must exercise substantial judgment about whether or not a defect exists and whether the investigation should be pursued further by reading the signal on the oscilloscope.²⁶ When a photograph of the oscilloscope picture is made, the duration of the exposure is sufficient to depict the two phases of the oscilloscope pattern that are of concern. A picture of the oscilloscope pattern of a crack in a tubewall would typically appear on the scope in the shape of a flattened figure eight.²⁷

The angle between the two significant phases of the oscilloscope picture, as measured with an electronic protractor, indicates the depth of the penetration.²⁸ For defects of very small volume, the figure on the scope may be small, and the phase angle may be difficult to measure precisely. In such cases, the interpreter is expected to take the most conservative reading of the angle, thus tending to overstate the depth of penetration.²⁹

²¹ Tr. 1611, 1620 (Denton).

²² Fletcher, ff. Tr. 1422, at 4.

²³ Fletcher, ff. Tr. 1422, at 4; Murphy, ff. Tr. 1828, at 8; Staff Exhibit 1, at 32.

²⁴ Tr. 1611 (Denton); Tr. 1495-96 (Fletcher); Tr. 1672 (Denton).

²⁵ Tr. 1473, 1610 (Denton); Tr. 1631 (McKee). The voltage of the pattern displayed on the screen, or "voltage lissajous," also provides a rough indication of the volume of the defect. Tr. 1657-58 (Denton).

²⁶ Tr. 1649-50 (Denton).

²⁷ Tr. 1471-73, 1618-20 (Denton); Applicant Exhibit 2, at 1; Applicant Exhibit 3.

²⁸ Tr. 1611-12, 1677 (Denton).

²⁹ Tr. 1622 (Denton).

Under Board questioning the staff stated that they would require a tube to be plugged if the indicated depth of penetration exceeded 40% even under circumstances where the degree of penetration was reported conservatively (*i.e.*, the true penetration was likely to be less than 40%).³⁰

2. Reliability of Eddy Current Testing

The reliability with which eddy current testing detects corrosion flaws depends on the volume of the flaw³¹ in the steam generator tubewall and not on the depth of penetration of the flaw into the tube. This detracts somewhat from the utility of the test since it is the depth of penetration which is the principal variable of interest for licensing; NRC technical specifications require that a tube be plugged when a flaw penetrates the tubewall by 40 percent or more of the wall thickness.

The volume of the flaw is, however, related indirectly to the depth of penetration. Experience indicates that cracks propagate through the tubewall with aspect ratios having a value of about two to five. (The aspect ratio is the ratio of the length of a crack on the outside surface to the depth of penetration.) Thus, field experience shows that cracks in tubes which could be of significance to NRC enforcement of its plugging limits have in most (but not all) instances adequate volume to be detected by eddy current testing.³²

One expert testified that for a flaw with sufficient volume to be detected (*i.e.*, the signal to noise ratio is greater than about 3) a 50 percent wall penetration can be measured with precision (test-retest reliability) of about ± 7 percent. The precision diminishes as the crack size diminishes (*i.e.*, the error increases) so that a 30 percent through-wall crack could be measured with a precision of about ± 13 percent.³³

The likelihood of detection of a crack (as opposed to the precision with which it can be measured) is about 95 percent certainty for a 40 percent penetration having a 150 mil axial surface crack length. A similar crack having only 20 percent penetration might not be detected at all.³⁴

The limits of usefulness of eddy current testing are known. Eddy current testing using bobbin type coils cannot be used to detect circumferential cracks in tubes since the lines of current flow are parallel to such a crack and are therefore not interrupted as they are by axial cracks which are oriented normal to the electric

³⁰ Tr. 1855-56 (Murphy).

³¹ The volume of the flaw is the volume separation in the tubewall or the amount of material that could hypothetically be inserted into the flaw. See Tr. 1695-96.

³² Fletcher, ff. Tr. 1422, pp. 3, 7-8; Murphy, pp. 8, 9.

A penetration of the wall might not be detected, for example, if it has a shape analogous to a small diameter drill hole of small volume. Tr. 1691 (Denton).

³³ Tr. 1690-92 (Denton).

³⁴ Tr. 1695 (McKee).

field.³⁵ However, the mode of cracking generally found is axial because of hoop stresses in the tube. In fact, circumferential cracks have not been found at Point Beach.³⁶

The technique also cannot be relied upon at present to detect intergranular attack (IGA) which is unaccompanied by cracking. This is because the current flow from the probe is not interrupted by IGA alone; the uncracked tube material continues to act as an electrical conductor even though it is corroded. Separation of grain boundaries through cracking is needed for detectability. This has proven to be of significance for locations within the tubesheet where enough sludge has accumulated in the crevice between the tubes and tubesheet wall to prevent separation of grain boundaries in corroded tubes. Tubes leaking within the tubesheet have occasionally not been found by eddy current testing because of this phenomenon.³⁷

Eddy current testing alone cannot be relied upon for diagnosis or detection of corrosion over its full range of possible occurrence. Physical parameters such as interference (from magnetite or copper in sludge), variations in the tube diameter, machine marks, denting in tubes, and small flaw volumes impose limits on detectability.³⁸ As a practical matter this suggests that leaking tubes occasionally will not be detected by eddy current testing.³⁹

The instances where eddy current testing failed to detect either penetrations exceeding the plugging limit or actual leaking tubes are attributable to the flaws being at or below the physical limits of detection. This may occur because of interference of the signal, the small volume of the defect or the constraining effect of sludge within the tubesheet.

The board concludes, however, that the applicant, its consultants and the NRC staff are familiar in detail with the inherent physical limitations of the eddy current technique for detecting stress corrosion cracking. Applicant does not rely, for safety, on eddy current measurements that are outside of the inherent bounds of reliability of the instrument.

The principal safety-related use for eddy current testing in steam generators is for enforcement of NRC's 40 percent plugging limit, which is conservative because it takes into account uncertainties of measurement. Analyses show that uniform thinning completely around the circumference of the tube to 62 percent degradation would not result in tube rupture following a main steam line break. Burst tests on tubes having 40 to 60 percent through-wall penetrations confirm that burst would not occur even at pressures anticipated in a main steam line break.⁴⁰

³⁵ Murphy, 8, 9.

³⁶ Fletcher, ff. Tr., p. 1740.

³⁷ Murphy, ff. Tr. 1828, pp. 5, 6.

³⁸ Fletcher, p. 4.

³⁹ Fletcher, p. 6.

⁴⁰ Fletcher, ff. Tr. 1422, p. 9; Murphy, pp. 3-4.

The purpose for setting plugging limits and for inspection of tubes is to prevent corrosion of tubes from progressing undetected to the point where rupture is likely under either accident conditions or normal operation.⁴¹ It is particularly important to safety to have the capability for detecting relatively large volume defects (those above the plugging limit) so that tubes can be plugged before a hazardous condition arises.

Much was made at hearing about the uncertainties attendant to the lower limits of detection for eddy current testing, where it is beyond question that the technique does not detect every small flaw.⁴² While it was necessary to probe those limits, we now conclude that the limits of detection inherent to eddy current testing do not cause a concern that stress corrosion cracking could progress undetected to the point that large tube rupture from that mechanism is at all likely.⁴³

3. *Detecting Flaws in Sleeves*

To this point, we have discussed difficulties in using eddy current testing in any tube in a steam generator. However, a narrower question rests before us. Applicant is licensed to operate its plant according to its existing technical specifications. It may operate any tube in its steam generator until eddy current tests show 40% or more degradation of the nominal tubewall thickness. At that point, the technical specifications require the tubes to be plugged. Our jurisdiction is to decide whether it is safe to operate those degraded tubes with sleeves rather than plugs. We have no jurisdiction over the safety of the remainder of the steam generator, which applicant already is licensed to operate.⁴⁴

⁴¹ Fletcher, p. 10; Murphy, p. 3.

⁴² Eddy current testing failed to detect the source of a known leak in one steam generator tube, and it is not unusual for a through-wall defect to appear on an eddy current test to be an 80 percent defect. Tr. 1661-64 (Denton). Additionally, an eddy current test sometimes has shown a defect as great as 90 percent that was not detected at all in testing conducted just six months before. Tr. 1643-47 (Denton). This indicates a high degree of uncertainty in these particular readings because reliable laboratory tests conducted on samples of mill annealed Inconel 600 indicate that the maximum rate of deterioration in a highly caustic environment during a six month period was no more than 7.5%. Fletcher, ff. Tr. 1422 at 6.

These limitations in eddy current testing are known. Since 1979, Westinghouse has conducted research to improve the early detection of IGA. Recently, Westinghouse has developed a process for exposing tubing to an acid condition to produce laboratory samples with IGA of various depths of penetration, unaccompanied by cracking. Westinghouse is testing the eddy current response to the IGA which, rather than the relatively sharp deviation caused by an SCC signal, is a "drift" from the base line on the strip chart. On an experimental basis, it now seems possible to detect 20% wall penetration by IGA in the laboratory; and work is continuing to develop a standard that will enable the interpreter to recognize IGA in the field. Tr. 1437-47 (Fletcher).

⁴³ Murphy, pp. 7-8.

⁴⁴ See *Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear 1), ALAB-619, 12 NRC 558, 565 (1980); *Public Service Co. of Indiana, Inc.* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-316, 3 NRC 167, 171 (1976).

We conclude that the sleeving process reinforces and strengthens existing steam generator tubes. No serious question has been raised about the integrity of the joints by which the sleeves are bound to the existing tubes. The result is that, at the time the sleeves are inserted, the new and undegraded sleeve replaces the degraded tube as a portion of the primary pressure boundary of the reactor. At that time, the sleeve enjoys greater integrity than many of the degraded tubes that applicant already is permitted to utilize in its steam generator.

Furthermore, this new primary pressure boundary is made of a corrosion resistant material, thermally treated Inconel 600, which is two to three times more resistant to corrosion than the initial steam generator tubes,⁴⁵ which were not thermally treated to enhance their corrosion resistance.

The safety of the newly installed sleeves may be further enhanced if ongoing research succeeds in improving the ability to detect corrosion using eddy current testing.⁴⁶ This would permit corrective action.

Even if ongoing research does not succeed, sleeved tubes will be safer than unsleeved tubes. To the extent that there may be imprecision in the tests currently in use in steam generator tubes, including eddy current testing and hydrostatic testing,⁴⁷ the insertion of new sleeves provides a margin of comfort not found in other tubes. The other tubes, which have been used for many years, are subject to undetected corrosion; the new sleeves will take many years before their exposure to the steam-generator environment might cause an analogous risk in them.

Sleeves also will initially confront a less hostile environment than will existing tubes. Most sleeves will be protected from the secondary-side environment by the tubes into which they are inserted. They will be exposed to the secondary side only if the repaired tube develops a substantial leak, thus permitting the potentially corrosive materials in the secondary side to touch the sleeve.⁴⁸

Although neither applicant nor staff depends on the presence of the tube around the sleeve to support its belief that the sleeved tubes have an adequate safety margin, it is obvious that the presence of the tube enhances the safety of the sleeve. If the sleeve were to rupture, it is possible that the surrounding tube would be so degraded that it would in no way constrain the resulting leak. However, it is likely that the degradation of the tube would be in a different region than the rupture in the sleeve. In that case, the intact tube may constrain both the rupture and the leak from the sleeve. While there is no assurance that this constraint would occur, this

⁴⁵ Corrosion resistance of thermally treated Inconel 600 has been tested in the laboratory. IGA was shown to have been reduced by two to three times and stress corrosion cracking by about ten times. Fletcher, ff. Tr. 1422, at 6-7; Murphy, ff. Tr. 1828, at 2; Tr. 1483-88 (Fletcher).

⁴⁶ Tr. 1437-47 (Fletcher).

⁴⁷ Discussed below.

⁴⁸ Fletcher, ff. Tr. 1422, at 6.

possibility weighs on the side of greater safety for a sleeved than for an unsleeved tube.⁴⁹

An interesting beneficial side-effect of sleeving is that it will retard the process of corrosion of the surrounding tube. This will occur because the sleeve will somewhat insulate the tube from the heat of the primary system. This reduction in temperature should be accompanied by a reduced rate of corrosion, which is facilitated by heat.⁵⁰

It is also likely that the thermal-hydraulic properties of the tube-sleeve annulus⁵¹ will retard the accumulation of corrosive materials. The most likely pathway for leakage into the annulus would be through the tubewall near the top of the tubesheet; this is the area of the steam generator where the greatest corrosion has occurred.⁵² The sleeve, in direct contact with the heated and pressurized primary coolant, will turn the water in the annulus to steam, which will escape through the leakage pathway from which it entered.⁵³ Consequently, the turnover of water and the deposition of sediment in the annulus would be severely limited,⁵⁴ retarding the rate of accumulation of corrosive materials in the annulus, as compared to the accumulation at the top of the tubesheet. The result is that there would be less sediment to facilitate corrosion of the sleeve, as compared to the amount of sediment facilitating corrosion of an unsleeved tube. Hence, the sleeved tube should be subject to a slower rate of corrosion.

Finally, we conclude that whatever the difficulties of eddy current testing, it is a more accurate instrument for testing the sleeve (below the upper joint) than for testing unsleeved tubes. (We do not examine questions concerning the upper joint because we previously found there was no genuine issue of fact concerning the testing of the upper joint.⁵⁵) The principal reason for increased inspectability is that noise from the tubesheet crevice will be reduced because the sleeve is separated from the crevice by the thickness of the surrounding tube plus the width of the annulus between the tube and sleeve.⁵⁶ The outer surface of the sleeve is 75 mils away from the surface of the tubesheet hole. This significantly reduces the noise level.⁵⁷

⁴⁹ See Marsh, ff. Tr. 1822, at 3-4; Murphy, ff. Tr. 1828, at 4.

⁵⁰ Murphy, ff. Tr. 1828, at 2; Tr. 1769-70 (Fletcher); Tr. 1851, 1859-60 (McCracken).

⁵¹ The space between the tube and sleeve is known as the "annulus."

⁵² Fletcher, ff. Tr. 1422, at 10; Tr. 1767-69 (Fletcher); Tr. 1851 (McCracken).

⁵³ Mr. Fletcher anticipated that only a small amount of water would enter the annulus before flashing to steam. Ordinarily, this would be the case. However, as corrosion progresses a substantial amount of water could leak into the annulus during a period of cold shutdown. It is our conclusion that steam still would form when the generator was returned to service following such a period, so we accept the implications of Mr. Fletcher's analysis for the slightly different hypothetical situation we have envisioned. Tr. 1766-73 (Fletcher); Tr. 1851-52 (McCracken); Tr. 1853 (Murphy).

⁵⁴ See Tr. 1769-71.

⁵⁵ Summary Disposition, at 1347.

⁵⁶ Fletcher, ff. Tr. 1422, at 3-5.

⁵⁷ *Id.* at 4.

In summary, we find that sleeved tubes are safer than unsleeved tubes already present in the Point Beach steam generator. In addition, these tubes are easier to inspect for degradation that may occur. Hence, we conclude that the sleeved tubes will be subject to an extremely low probability of abnormal leakage, of rapidly propagating failure and of gross rupture⁵⁸ and that we should approve the request to amend applicant's operating license to permit the sleeving of tubes that otherwise would be required to be plugged.

D. Safety Factors in Sleeved Tubes

The safety of sleeved tubes does not depend on eddy current testing alone. Consequently, although the admitted contention deals with eddy current testing, our Summary Disposition decision invited evidence concerning the relationship between the testing program and the safety of the reactor.⁵⁹ In response, evidence was submitted that persuades us that protection from steam generator tube failures depends on a series of safety factors, including:

1. Design, fabrication and testing in compliance with the ASME Boiler and Pressure Vessel Code
2. Hydrostatic testing
3. Continuous leak monitoring
4. Leak-before-break characteristics of tubing material
5. Conservative criteria for utilizing eddy current test results
6. Possible leak constraint from the presence of the tube around the sleeve or from the tubesheet, and
7. Likelihood of a less corrosive environment within the sleeve-tube annulus.

In this section of our opinion, we shall discuss each of these safety factors. Although we could rest our opinion solely on the conclusions we reached above concerning the increased safety of sleeved tubes, compared to unsleeved tubes, we also conclude that the combined effect of these seven factors contributes to safety, thereby complying with General Design Criterion 14. Our review of these safety factors also persuades us that it would not be appropriate for us to initiate an inquiry of our own into possible safety or environmental problems with the sleeving project.⁶⁰

⁵⁸ General Design Criterion 14, Appendix A, 10 CFR Part 50.

⁵⁹ See Summary Disposition, at 1346-47.

⁶⁰ Atomic Safety and Licensing Boards have the authority to pursue relevant safety and environmental issues that arise in the course of a proceeding. 10 CFR §2.760a. Although the use of this "*sua sponte*" authority has been made dependent on Boards first notifying the Commission of their action in declaring a *sua sponte* issue, the continued existence of the authority to declare such issues imposes on a Board the responsibility of considering whether or not to declare such issues. Although it may not be strictly necessary to explain why that authority has not been exercised, this Board believes it preferable to expose its decisional process to public scrutiny.

1. *Compliance with ASME Code and Additional Testing*

Steam generators, including the tubes and sleeves, are designed, fabricated and tested in accordance with design criteria which include compliance with the ASME Boiler and Pressure Vessel Code.⁶¹ To further assure itself of the safety of the proposed sleeving repair process, applicant had Westinghouse Electric Corporation conduct extensive analyses and laboratory tests.⁶² The ensuing "Sleeving Report" contains results of a design verification test program whose objective was to assess the structural integrity and corrosion resistance of sleeved tubes.⁶³ The laboratory tests that were performed included a variety of corrosion and structural tests on tube materials and on sample tubes.

At an earlier stage of this proceeding, we addressed a limited number of questions to the applicant concerning possible problems in the Sleeving Report. As a result, we satisfied ourselves that the Sleeving Report was prepared with reasonable care and we were unable to identify any serious deficiencies for us to pursue. At this stage of the proceeding, the Sleeving Report also provides us with assurance that the sleeving project was carefully designed and tested and that there are no important safety or environmental issues for us to pursue.

Sleeved tubes will have greater integrity than unsleeved tubes. The sleeves are made of thermally treated Inconel 600, which has greater resistance to corrosion than the mill annealed Inconel 600 used in the original tubes. Laboratory tests indicate that the rate of propagation of IGA through thermally treated Inconel 600 was 2 or 3 times less than the rate of propagation through the mill annealed tube material. A larger reduction applies to the rate of propagation of SCC.⁶⁴

2. *Hydrostatic Testing*

Previous to the time that sleeved tubes are placed in service,⁶⁵ and periodically thereafter,⁶⁶ applicant will perform hydrostatic tests to locate leaks in tubes. The tests involve pressure differentials substantially in excess of normal operating pressure differentials. The pressure differentials approximate those that would be

⁶¹ Applicant Exhibit 1, §3.1.

⁶² Westinghouse Electric Corporation, *Point Beach Steam Generator Report*, September 1981 (Revised February 1982)(Sleeving Report).

⁶³ Sleeving Report, Chapter 6.0; SER at 20, 23.

⁶⁴ Fletcher, ff. Tr. 1422, at 6-7; Murphy, ff. Tr. 1828, at 2; Tr. 1483-88 (Fletcher).

⁶⁵ See *Safety Evaluation by the Office of Nuclear Reactor Regulation Relating to Full Scale Steam Generator Tube Sleeving at Point Beach Nuclear Plant Units 1 and 2, Docket Nos. 50-266 and 50-301*, July 8, 1982 (SER), at §6.0, p. 34.

⁶⁶ Murphy, ff. Tr. 1828 at 2, 10; Fletcher, ff. Tr. 1422 at 5.

expected to occur during postulated main steam line breaks or loss of coolant accident (LOCA) events.⁶⁷

3. *Continuous Leak Monitoring*

Since primary water contains small amounts of radioactivity that may be detected if it migrates to the non-radioactive secondary side of the steam generator, applicant continuously monitors the secondary system condenser air ejector and steam generator blowdown for radioactivity. The presence of radioactivity in these locations would indicate a leak in the steam generator tubes or sleeves. Even very small leaks in tube sleeves can be detected through this monitoring process.⁶⁸

The NRC has established limits on overall leakage from tubes in a steam generator. If those limits are exceeded, either by leaks through existing tubes or through sleeves, applicant will be required to shut down the reactor for repair. Although some leakage is permitted in recognition of the difficulty of installing entirely leak-tight tubes, leak limits are established in order to assure that the unit would be shut down before the integrity of the leaking tube or tubes could become sufficiently impaired to risk a rupture either under normal operating conditions or postulated accident conditions.⁶⁹

Leak limits are so rigorous that even if the entire leakage occurred through one sleeve, the maximum through-wall crack length that could exist without exceeding the limits for leakage (500 gpd or 0.3 gpm per steam generator) would be about 0.4" at normal operating pressures. Even should a steam line break accident occur at a time that a flaw of that dimension existed, analysis indicates that the sleeve could withstand the increased pressure differential without bursting.⁷⁰

4. *Leak-Before-Break Characteristic of Sleeves*

Another safety factor is that steam generator tubes and sleeves are made of a special material, Inconel 600, selected because of its high ductility and toughness, two characteristics which in combination constitute fracture resistance. In this material, a crack (SCC or IGA) that began to form on the tube or sleeve's outer wall probably would cause a small, detectable leak before it became susceptible to a rupture either during accident or normal operating conditions.⁷¹

⁶⁷ Murphy, ff. Tr. 1828 at 2, 10; Fletcher, ff. Tr. 1422 at 5; SER at 34-35 (approving hydrostatic test plans for mechanically sleeved joints and questioning the adequacy of differential pressures for testing applicant's abandoned plan for an alternate type of brazed upper joint).

⁶⁸ Fletcher, ff. Tr. 1422 at 5-6; Murphy, ff. Tr. 1828 at 2, 10.

⁶⁹ *Id.*

⁷⁰ Fletcher, ff. Tr. 1422, at 8.

⁷¹ Fletcher, ff. Tr. 1422, at 7.

Laboratory and operating experience confirm the validity of the leak-before-break concept. Degraded tubes normally do not suffer large breaks; they penetrate locally, suffering only minor leakage that is readily detectable through continuous leak monitoring. Almost all leakage events in Westinghouse steam generators were of this kind.⁷²

Considering all operating reactors, there are hundreds of steam generators, containing thousands of tubes. In all the years of operation of these tubes, there have been approximately 200 leaks reported to the NRC, and only four of these have involved large leak rates. None of the four occurrences resulted in any unacceptable offsite radiological consequences or any damage to the reactor core. All resulted from unusual circumstances that do not invalidate the leak-before-break characteristic of steam generator tubes.

Important exceptions to the leak-before-break concept have emerged: that hoop stresses (caused by denting at the uppermost tube support plate), mechanical damage from loose parts,⁷³ and substantial thinning⁷⁴ may cause a rapid failure. However, there is no significant denting present at Point Beach.⁷⁵ Applicant is aware of the loose parts problem and has begun monitoring for their presence.⁷⁶ Furthermore, eddy current testing can reliably detect seriously thinned tubes, all of which have been removed from service at Point Beach.⁷⁷ The basic concept, that tubes and sleeves will respond to corrosion by leaking before they break, is still applicable to the sleeving repair at Point Beach.

In addition to operating experience, conservative analyses substantiate the leak before break concept. The maximum primary-to-secondary pressure differential occurs following a postulated feedline break or steam line break accident, which reduces the secondary-side pressure to zero. Analysis of this accident condition for the sleeve indicates that even if there is uniform thinning completely around the circumference, a sleeve can degrade to 38% of its nominal wall thickness and still resist rupture.⁷⁸ This corresponds to 62% degradation, or over 50% more degradation than the 40% degradation whose detection — at any one spot on the tubewall — causes the NRC to require plugging of the tube.⁷⁹

To further confirm the analyses, there have been laboratory tests. These "burst tests" have been performed on portions of tubes removed from Point Beach and

⁷² Fletcher, ff. Tr. 1422, at 8.

⁷³ Murphy, ff. Tr. 1828, at 10; Tr. 1774-78 (Fletcher); see also Marsh, ff. Tr. 1822, at 3.

⁷⁴ Tr. 1774-81 (Fletcher).

⁷⁵ Licensee's response to Questions in Memorandum and Order, dated April 7, 1982. Although there has been some denting in Unit 2, it has not progressed significantly and does not constitute significant tube plate support deformation. Furthermore, these phenomena are not related to sleeving. *Id.* at 1-2.

⁷⁶ Letter to the Atomic Safety and Licensing Board from Bruce Churchill, November 9, 1982.

⁷⁷ Tr. 1774-81 (Fletcher). (Because phosphate chemistry is no longer in use at Point Beach, Mr. Fletcher does not expect new instances of thinning to occur.)

⁷⁸ Sleeving Report at 6.120-6.121.

⁷⁹ Fletcher, ff. Tr. 1422, at 9; Murphy, ff. Tr. 1828, at 3-4.

suffering from IGA of about 40% to 60%. This testing required differential pressures in excess of 5000 psi to cause bursting of the degraded tubes. This indicates substantial additional margin over the conservatively estimated pressures resulting from postulated accidents.⁸⁰

Overall, we are confident that the leak-before-burst concept, under normal operating conditions and postulated accident conditions, is applicable to the Point Beach sleeving amendment.

5. Conservative Criteria for Eddy Current Testing

At Point Beach, hydrostatic testing and eddy current testing programs reduce the risk that serious degradation of tube or sleeve walls may occur without detection. Both tubes and sleeves in which eddy current testing indicates 40% or more degradation must be removed from service.⁸¹ Even though tubes and sleeves with small leaks are not subject to rupture, these testing programs successfully identify partially degraded tubes, and those tubes are removed from service as an added precaution.

As we have just pointed out in the previous subsection of this opinion, eddy current test indications of 40% degradation cause tubes and sleeves to be removed from service. This represents more than a 50% safety margin, even were the degradation to be uniform for the entire outer diameter of the tested tubes.

We are convinced that eddy current testing, used in this conservative manner, contributes to the overall safety of the sleeved tubes.

6. Possible Leak Constraint from the Tube or Tubesheet

Most of the sleeved portion of the tubes lies within the tubesheet. In that area, which is the area in which IGA has been found when tube samples have been removed from the steam generator, the tube is tightly constrained by the tubesheet, minimizing any potential for rupture.⁸² If rupture of the sleeve were nevertheless assumed to occur within the tubesheet as a result of IGA or SCC, the leak path would be obstructed by the narrow tube-to-tubesheet crevice, and the leak rate would be significantly reduced compared to the rate postulated to occur above the tubesheet from a ruptured tube.⁸³

Sleeving would provide an additional barrier against leakage. Even if the sleeve begins to rupture, the event may be terminated or severely limited if it occurs in an

⁸⁰ Fletcher, ff. Tr. 1422, at 6-7; Murphy, ff. Tr. 1828, at 2; Tr. 1483-88 (Fletcher).

⁸¹ SER at 21.

⁸² Murphy, ff. Tr. 1283, at 6.

⁸³ Fletcher, ff. Tr. 1422, at 10; Murphy, ff. Tr. 1828, at 6.

area of the original tube which has sufficient remaining strength to resist rupturing at the corresponding point on the tubewall. If the tube does remain intact at that point, then it may prove an effective barrier to any leakage at all to the secondary side. In the alternative, leakage may occur into the sleeve-tube annulus and thence, through a hole in the sleeve, to the secondary side. However, such a leak undoubtedly would occur at a far slower pace than a fishmouth rupture or double-ended break in a single tube, not supported by a sleeve.⁸⁴ Even if these benefits of the sleeving configuration are not realized, there is no reason to believe that a rupture of a sleeve would be worse than the rupture of an unsleeved tube.⁸⁵

7. *Less Corrosive Environment in the Annulus*

The rate of corrosion in tubes or sleeves depends on the environment to which they are exposed. The outer diameter of the sleeve will not be exposed to the secondary-side environment unless degradation in the original tube propagates through-wall and the original tube's grain boundaries separate enough to admit solution from the non-pressurized secondary side into the annulus.⁸⁶ This would require substantially more degradation of the tube than would occur before it was removed from service because of fears that it could not withstand operating pressures or accident conditions. Hence, there ordinarily will be a substantial delay before the sleeve is exposed to a corrosive environment.

Should a corrosive environment occur in the annulus, the leak into the annulus would probably occur in the tubesheet area, where sludge is deposited. Thence, the corrosive material would travel to the bottom of the annulus, within the tubesheet crevice. In that location, it is possible that a corrosive environment could develop, but there is no reason to believe that the rate of corrosion would be any worse than what already is found in the tubesheet crevice. Consequently, the sleeves would never be exposed to a more corrosive environment than are tubes. Also, the location of the corrosion — at the bottom of the annulus — only creates a risk of a constrained leak, rather than a guillotine or fishmouth rupture.⁸⁷

We have discussed, above, the testimony of Mr. Fletcher concerning the properties of the annulus and the reason for believing that the fluid turnover rate and sedimentation rate would be low in that area.

⁸⁴ Marsh, ff. Tr. 1822, at 3-4; Murphy, ff. Tr. 1828, at 4.

⁸⁵ *Id.*

⁸⁶ Fletcher, ff. Tr. 1422, at 6.

⁸⁷ Tr. 1767-70, 1766-73 (Fletcher); Tr. 1851-52 (McCracken); Tr. 1853 (Murphy). The implications of a constrained leak are discussed in subsection 6, *supra*.

8. Conclusion

The uncontradicted evidence shows that sleeving enhances safety, both from the point of view of increased integrity of the primary pressure boundary and decreased consequences of a breach in the pressure boundary.⁸⁸ Sleeving will provide lower probabilities of the occurrence of the three events — abnormal leakage, rapidly propagating failure, and gross rupture — which are required to be minimized by General Design Criterion 14.⁸⁹ We therefore conclude that there is no serious safety or environmental issue of which we are aware that requires us to undertake our own further inquiry.

ORDER

For all the foregoing reasons and based on consideration of the entire record in this matter, it is this 4th day of February, 1983,

ORDERED

1. The sole remaining genuine issue of fact in this proceeding, concerning the adequacy of eddy current testing of sleeved steam generator tubes, is dismissed.
2. We authorize the Director of Nuclear Reactor Regulation to issue a license amendment to Wisconsin Electric Power Company, concerning the repair of steam generator tubes at its Point Beach nuclear plant by sleeving, subject to understandings of record, that:
 - a. Steam generator tubes that have been previously subject to explosive plugging shall not be sleeved;
 - b. Brazed joints shall not be employed;
 - c. Should eddy current testing indicate 40 percent or more degradation from the nominal tubewall thickness of a sleeve, the sleeved steam generator tube shall be plugged; and
 - d. Leak limits previously imposed on the repaired steam generators shall continue to apply.
3. Pursuant to 10 CFR §2.760(a) this is an 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.
4. 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.

⁸⁸ We examined this question with especially great care because Mr. Marsh's testimony indicates that there may be a substantial risk from the rupture of only one or two steam generator tubes. Marsh, ff. Tr. 1822 at 5; Tr. 1839-41.

⁸⁹ Fletcher, ff. Tr. 1422, at 12.

5. 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.

6. 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 that comply with the requirements of §2.762.

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

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE**

**Hugh C. Paxton
ADMINISTRATIVE JUDGE**

**Jerry R. Kline
ADMINISTRATIVE JUDGE**

**APPENDIX A
PUBLISHED POINT BEACH BOARD ORDERS**

Title	Date of Document	LBP No.
MEMORANDUM AND ORDER (Requesting Additional Information)	10-01-81	81-39
MEMORANDUM AND ORDER (Setting Agenda for October 9 Conference Call)	10-07-81	81-43
MEMORANDUM AND ORDER (Concerning Further Board Questions)	10-13-81	81-44

Title	Date of Document	LBP No.
MEMORANDUM AND ORDER (Concerning the Admission of a Party and Its Contentions)	10-13-81	81-45
MEMORANDUM AND ORDER (Setting Agenda and Rules for October 29-30 Hearing)	10-15-81	81-46
MEMORANDUM AND ORDER (Authorizing Issuance of a License Amendment Permitting Return to Power with Up to Six Degraded Tubes Sleeved Rather Than Plugged)	11-05-81	81-55
MEMORANDUM AND ORDER (Concerning Preliminary Confidentiality Issues)	12-21-81	81-62
SUPPLEMENTARY ORDER (Concerning Issuance of a Protective Order)	01-07-82	82-2
MEMORANDUM AND ORDER (Concerning Reconsideration of Confidentiality Issues)	01-28-82	82-5A
MEMORANDUM AND ORDER (Concerning the Burden of Going Forward on Confidentiality Issues)	02-02-82	82-6
MEMORANDUM AND ORDER (Concerning a Motion to Compel and Other Matters)	02-19-82	82-10
MEMORANDUM AND ORDER (Concerning a Motion to Certify a <i>Sua Sponte</i> Question)	02-26-82	82-12
MEMORANDUM AND ORDER (Concerning a Motion to Reconsider)	03-19-82	82-19A

Title	Date of Document	LBP No.
MEMORANDUM AND ORDER (Concerning Reconsideration of a Motion to Certify a <i>Sua Sponte</i> Question)	03-31-82	82-24A
MEMORANDUM AND ORDER (Concerning a Motion to Compel)	04-22-82	82-33
MEMORANDUM AND ORDER (Concerning a Motion to Release to the Public Certain Safety Information Which Is Part of the Record in This Case but Is Proprietary to Westinghouse Electric Corporation)	05-26-82	82-42
MEMORANDUM AND ORDER (Concerning Summary Disposition Issues)	10-01-82	82-88

APPENDIX B

QUALIFICATIONS OF WITNESSES

Applicant's Witnesses

W. D. Fletcher, Manager of Steam Generator Development and Performance Engineering in the Nuclear Technology Division of the Westinghouse Electric Corporation. He has a Masters degree in Chemistry from Fordham University, 1960. Since 1970 he has been directly involved in development and design activities related to Westinghouse steam generators. He is credited with a variety of professional publications, including publications about Westinghouse steam generators, primary coolant chemistry in PWRs and corrosion of stainless steel.

Clyde J. Denton, a participant in the group that originated eddy current testing of steam generators and presently general manager of Zetec, Inc. He has an A.A.S. from the Milwaukee School of Engineering and has been doing eddy current testing since 1956.

Edward O. McKee, a technician with 11 years' experience in interpreting eddy current data. He has evaluated all ECT data for both Point Beach units.

Staff's Witnesses

Emmett L. Murphy, Senior Systems Engineer in the staff's Operating Reactors Assessment Branch. He has a Masters of Science Degree in Civil Engineering and a Bachelor of Science Degree in Aerospace Engineering, both from the University of Maryland. He has worked for nine years in the nuclear field, including six years as structural engineer at the Bettis Atomic Power Laboratory of Westinghouse Corporation. Since July 1979 he has been working for the staff almost exclusively on safety reviews of steam generators that have experienced significant tube degradation.

Ledyard B. Marsh, Section Leader of staff's Reactor Systems Branch. He has a Masters of Science in Nuclear Engineering from the University of Washington, was an officer in the Navy Nuclear Power Program from 1970 to 1974, and joined the Reactor Systems Branch in 1976.

Timothy G. Colburn, staff's Project Manager for the Point Beach reactors. He has a B.S. in mechanical engineering from Notre Dame, worked in the Navy's nuclear power program and was employed by Potomac Electric Power Company.

Conrad E. McCracken, Section Leader of the staff's Chemical Technology Section of the Engineering Branch. He is a registered Professional Corrosion Engineer who was qualified in submarines for all nuclear duties by the United States Navy and who served as Manager of Chemistry Development for Combustion Engineering Corporation from 1966 to 1981, when he joined the staff as a senior chemical engineer.

Note: Wisconsin's Environmental Decade did not call any witnesses.

APPENDIX C

COMMENT ON LIMITED APPEARANCE STATEMENTS

In preparing this decision, we remember the people who addressed us when we sat in a Limited Appearance session in Two Rivers, Wisconsin on November 17, 1982. Although there are many people living near Point Beach who are pleased with the use of nuclear reactors to generate electricity,⁹⁰ the people who addressed us were thoughtful people with serious doubts. One of the speakers, Mr. Edward Klessig, said what many had on their minds:

We pride ourselves on being practical farmers. We service most of our own equipment. The proposed sleeving repair process reminds us of fixing a sophisticated hay bailer or combine with a piece of bailing wire.

As farmers and food producers we love the land. We don't want to risk contaminating the precious soil and the food chain with radioactive isotopes, at best, or total disaster at worst.⁹¹

We are aware of these citizen concerns and of the trust that is placed in us to resolve the matter before us. We are particularly aware that a license amendment dealing with "tube sleeving" does superficially resemble a patchwork repair. Consequently, we have been especially attentive to our record, which contains numerous tests and analyses that have been relevant to our deliberations either at this or at an earlier stage of the proceeding.

We hope that if Mr. Klessig and his fellow citizens should read this memorandum that they will be assured that the steam generator repair has been engineered with great care. Even should they disagree with our conclusion that none of Decade's contentions is valid and that there is no serious safety or environmental issue for us to raise ourselves, we hope they will realize that our decision to approve the pending license amendment has not been lightly taken.

⁹⁰ The Town Board of the Town of Two Creeks unanimously supports the "economic and efficient way of producing electricity" at Point Beach and approves of the proposed sleeving process. Letter to Mr. Peter Bloch (November 29, 1982).

⁹¹ Tr. 10009.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

James P. Gleason, Chairman
Dr. Oscar H. Paris
Frederick J. Shon

In the Matter of

Docket Nos. 50-247-SP
50-286-SP
(ASLBP No. 81-466-03-SP)

CONSOLIDATED EDISON COMPANY
OF NEW YORK
(Indian Point, Unit No. 2)

POWER AUTHORITY OF THE STATE
OF NEW YORK
(Indian Point, Unit No. 3)

February 7, 1983

The Licensing Board rules on responses to its reformulation of emergency planning contentions.

MEMORANDUM AND ORDER
(Formulating Final Contentions on Commission Questions 3 and 4)

Pursuant to the Board's request in our Order of January 7, 1983 (LBP-83-1, 17 NRC 33), responses to the reformulation of contentions under Commission Questions 3 and 4 have been received from the Power Authority of the State of New York (Power Authority), Consolidated Edison Company of New York (Consolidated Edison or Con Edison), the Staff, and the following Intervenors: Union

of Concerned Scientists/New York Public Interest Research Group (UCS/NYPIRG), Parents Concerned About Indian Point (Parents), West Branch Conservation Association (WBCA), and Westchester Peoples Action Coalition (WES-PAC). We here consider and render judgment on those responses in sequence of the numbered contentions. First, some comments are necessary in connection with statements included in the responses of the Licensees, the Power Authority and Consolidated Edison. No purpose would be served by discussing their reiteration of the Commission's guidance to the Board of July 27, 1982 (CLI-82-15, 16 NRC 27) since the Board, itself, set forth those criteria in its January 7, 1983 order and we will continue to follow our understanding of those directives in the formulation of these contentions. We have, of course, evaluated Licensees' arguments that the Board only failed to apply the Commission's guidance correctly on the contentions we have recommended retaining; on those we deleted the Licensees deemed our judgment discerning.

Both the Power Authority and Consolidated Edison discuss the effect that the FEMA "120-day clock" process should have in eliminating emergency planning issues in the proceeding. They cite our prior statements that the relevancy of some of the contentions might change where the emergency planning deficiencies alleged in the contentions were involved in the remedial efforts. We believe the parties misconstrue both the Commission's intent and ours in delaying the reformulation of contentions until receipt of FEMA's report of progress on the deficiencies, which has since been given to the Commission and served on the parties. It was our objective, and we believe the Commission's, to delay hearing testimony on contentions under Questions 3 and 4 until after the FEMA report in order to make such testimony more relevant, and therefore more meaningful, than it would be if based on emergency planning deficiencies which no longer existed. It was not our intent, nor could it be if we are to carry out the Commission's charge, to substitute the Board's opinion of the "current status and degree of conformance with NRC/FEMA guidelines" of State and local emergency planning for a judgment based on probative evidence of record resulting from the adjudicative consideration of these issues. We did require sponsors of emergency planning contentions to report their continued support or withdrawal of their contentions after reviewing the FEMA report. Whether their testimony and evidence is revised in the light of the emergency planning improvements embodied in that report remains to be evaluated at a subsequent point in these proceedings. Here, we judge solely the admissibility of their contentions.

Contention 3.1

Emergency planning for Indian Point Units 2 and 3 is inadequate in that the present plans do not meet any of the sixteen mandatory standards of 10

CFR §50.47(b), nor do they meet the standards of Appendix E to 10 CFR Part 50.

Both the Power Authority and Consolidated Edison object to the admission of this contention as being too broad or vague in meeting specificity requirements. Consolidated Edison asks that we reformulate the contention in light of the FEMA report, a subject discussed above. Both Licensees object to a number of the bases cited on the grounds that they allege as deficiencies in planning standards matters not required by regulatory guidelines, a conclusion we concur with in connection with certain bases submitted by WESPAC and the Rockland Citizens for Safe Energy (RCSE). *Pro se* intervenors, such as WESPAC and RCSE, are not held in NRC proceedings to a high degree of technical compliance with legal requirements and, accordingly, as long as parties are sufficiently put on notice as to what has to be defended against or opposed, specificity requirements will generally be considered satisfied. However, this is not to suggest that a sound basis for each contention is not required to assure that the proposed issues are proper for adjudication in this proceeding. An acceptable basis in connection with Question 3 must allege some failure in meeting planning standards required by the regulations. The following bases do not meet that test for this contention: WESPAC 1 g) h); 2 a) b); 3 a) b) c) d), and RCSE 2. Accordingly, these bases will be eliminated from the contention. The Licensees allege that NYPIRG's response to our January 7 order does not contribute anything to the specificity required for this contention, and the Board concurs. With regard to the remaining bases, the Board concludes the required degree of specificity has been submitted and these are cited in the Appendix to this decision.

For the reasons noted *supra* in treating of the FEMA report, we decline to reformulate this contention.

Contention 3.2

Emergency planning for Indian Point Units 2 and 3 is inadequate in that the plans make erroneous assumptions about the response of the public and of utility employees during radiological emergencies.

This contention was eliminated by our January 7, 1983 order on the grounds that it failed to identify a specific lack of conformance with NRC/FEMA emergency planning guidelines, that it showed no clear nexus to the central point of this investigation, *i.e.*, the high population density in the vicinity of Indian Point, and that it did not raise an issue unique to Indian Point. The Licensees support our ruling on Contention 3.2 in their answers to our January 7, 1983 order, and the NRC Staff takes no position with respect to it. All of the Intervenor who responded to our January 7, 1983 order, on the other hand, object strenuously to the elimination of 3.2.

UCS/NYPIRG argues that the contention challenges the methodology used by the planners to meet NRC/FEMA guidelines in NUREG-0654 and the regulations in 10 CFR Part 50. UCS/NYPIRG considers a critique of the assumptions upon which the plans are based to be critical to determining the degree of conformance with NRC/FEMA guidelines. UCS/NYPIRG, WESPAC, and Parents all argue that human response factors are uniquely important to Indian Point because the high population density in the vicinity of the plants would exacerbate consequences resulting from the failure of human factors assumptions to hold in a radiological emergency. They maintain that the dense population coupled with the geographical, meteorological, and roadway features of the area will adversely affect human responses in an emergency.

UCS/NYPIRG and Parents both point out that this Board has already heard testimony from Westchester County witnesses which addresses erroneous assumptions about human response factors made in the emergency planning. The Board is prompted to note that earlier in this proceeding we heard testimony from Rockland County witnesses which also addressed erroneous assumptions made about human responses in an emergency. Similarly, the subject was addressed by the FEMA witnesses who testified earlier. Further, our perusal of testimony filed recently by the Power Authority (Testimony of Robert L. DuPont, M.D., at 9, 22) suggests that even the Licensees consider evidence on human response to a radiological emergency to be relevant; although that testimony is offered under Commission Question 1, it could as well have been offered under Contention 3.2.

We believe that the Intervenor has successfully argued their points with respect to the relevance of Contention 3.2 to determining the degree of conformance of the emergency plans with NRC/FEMA guidelines and with respect to the unique importance of human factors assumptions in the Indian Point emergency plans. Moreover, the testimony that we have already heard on human factors from the counties and from FEMA, and that which has been offered by the Licensees, convince us that we should proceed to thoroughly ventilate this subject. If we are to consider the evidence already heard on human factors, and we believe we must, it would be fundamentally unfair to the Intervenor if we did not also allow them to present evidence on the issue. Therefore, Contention 3.2 must be reinstated. In readmitting this contention, we feel compelled by our dissenting colleague's arguments to point out that we do not believe that the contention is a challenge to the Commission's regulations. We do not read it to mean that there is no way a proper plan could be drawn using correct assumptions. The contention challenges only the assumptions used in drawing up the plan that the Licensees have offered to demonstrate compliance with the regulations.

Our reconsideration of Contention 3.2 has also convinced us that, as originally admitted, it is overly vague. Therefore, we have reformulated it to provide some additional specificity.

Contention 3.2 is reformulated and admitted as follows:

Contention 3.2 (final form)

The emergency plans for Indian Point Units 2 and 3 do not conform with NRC/FEMA guidelines because the assumptions made therein with respect to human response factors during a radiological emergency are erroneous. Hence, the estimates of evacuation times and of the feasibility of timely evacuation for certain areas are incorrect.

DISSENTING OPINION OF JUDGE GLEASON:

I have dissented from my colleagues in admitting this contention since, in my judgment it challenges NRC regulations. This, we have been directed to prohibit by the Commission's Order of July 27, 1982. Additionally, I believe the contention is defective due to vagueness and as a result it lacks the requisite degree of specificity.

Contention 3.3

The present estimates of evacuation times, based on NUREG-0654 and studies by CONSAD Research Corporation and by Parsons, Brinkerhoff, Quade & Douglas, Inc., are unreliable. They are based on unproven assumptions, utilize unverified methodologies, and do not reflect the actual emergency plans.

The Power Authority objects to this contention on the basis that it does not contribute materially to Commission Question 3 because it fails either to rebut FEMA's evacuation time estimates or to provide any estimate of its own of the minimum hours' warning needed for an effective evacuation of a 10-mile quadrant. The Board is unaware of any contention that is more material to Question 3 than this one, and whether estimates by FEMA or others are valid in response to the Commission's directive to attempt to establish a minimum warning time can only be developed within the hearing environment itself. The contention as stated heretofore will be retained.

Contention 3.4

The Licensees cannot be depended upon to notify the proper authorities of an emergency promptly and accurately enough to assure effective response.

Both Licensees object to the admission of this contention on the grounds that it lacks specificity and factual bases. The Power Authority argues additionally that

the contention fails to identify any lack of conformance with NRC/FEMA guidelines and therefore does not seem important to answering Commission Question 3. The Staff takes no position with respect to Contention 3.4.

The Intervenors allege that the Licensees have a history of inadequate notification of the NRC when incidents have occurred at the plant, and they cite specific examples. We believe they have provided factual bases with adequate specificity. Certainly a history of performance can be relevant to a judgment about future performance. The current status of emergency plans should include revisions of administrative control to assure prompt notification in the future and hence compliance with 10 CFR Part 50.47(b)(5 and 6), but we must determine in the hearing whether that is the case. Therefore, Contention 3.4 shall be retained.

We agree with the Licensees, however, that Contention 3.4 lacks adequate specificity. We perceive that the Intervenors intend to challenge the adequacy of the administrative control involved in notification and shall reformulate the contention in light of that understanding. The reformulated Contention 3.4 follows:

Contention 3.4 (final form)

The administrative control of notification procedures at Indian Point Units 2 and 3 is so deficient that the Licensees cannot be depended on to notify the proper authorities of an emergency promptly and accurately enough to assure effective response.

Contention 3.6

The emergency plans and proposed protective actions do not adequately take into account the full range of accident scenarios and meteorological conditions for Indian Point Units 2 and 3.

This contention is objected to by both Licensees and the Staff. They argue that there has been no proper allegation of noncompliance with regulatory guidelines since there is no requirement that a full range of accident scenarios be considered in the development of protective actions. We concur that as far as accident scenarios are concerned, the position of the Licensees and the Staff is correct. Accordingly, this part of the contention represents a challenge to the Commission's regulations which, pursuant to Commission guidance, is not permissible in considering contentions under Question 3. This part of contention 3 will be deleted from the proceeding. We reach a different result, however, for that part of the contention relating to meteorological conditions. 10 CFR Part 50.47(b)(9) calls for the development of adequate methods, systems and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition and this development requires site specific meteorological conditions

and information. See NUREG-0654/FEMA-REP-1, Rev. 1, Appendix 2. We accept this part of the contention for litigation, reformulated as follows:

Contention 3.6 (final form)

The emergency plans and proposed protective actions do not adequately take into account meteorological conditions for Indian Point Units 1 and 2.

The bases for this contention are indicated in the Appendix to this decision. The basis (d) of WESPAC Contention 3 which deals with the effectiveness of drills is excluded from this contention since it relates to drills, not emergency plans or protection actions.

Contention 3.7

The problems of evacuating children from threatened areas have not been adequately addressed in the present emergency plans.

This contention is objected to by both Licensees. The objection by Consolidated Edison is that the contention lacks specificity and adequate factual bases. As interpreted by the Board, this contention challenges the adequacy of those provisions in the emergency plans that relate to the handling and transportation of children during a radiological emergency where evacuation procedures are being implemented. Accordingly, the contention possesses the required degree of specificity and is admitted to the proceeding.

Contention 3.9

The road system in the vicinity of the Indian Point plant is inadequate for timely evacuation.

Both the Power Authority and Con Edison raised objections to Contention 3.9. The Power Authority suggests that the contention implies additional offsite planning measures and should be considered, if anywhere, under Commission Question 4. In addition, the Power Authority asserts that the contention is unlikely to assist the review of warning time estimates because the bases supporting the contention are insufficient and because the relationship between the contention and time estimates is unclear. Con Edison also challenges the adequacy of the bases and argues that the contention does not address nonconformance with NRC/FEMA guidelines as required by the Commission under Commission Question 3.

We have not been persuaded by Licensees' arguments. We find that the adequacy of the road system for timely evacuation is central to Commission Question 3, both with respect to the question of the degree of conformance with

NRC/FEMA guidelines and with respect to determining the minimum number of hours' warning for an effective evacuation of a 10-mile quadrant at Indian Point.

10 CFR §50.47(a)(2) requires a review of "FEMA findings and determinations as to whether state and local emergency plans are adequate and capable of being implemented." Whether or not the road system is adequate for timely evacuation is a key component for the determination of the adequacy of the plan and whether it is capable of being implemented. Moreover, NUREG-O654/FEMA-REP-1, Rev. 1, Nov. 1980, Evaluation Criterion J8, requires that Licensees' plan provide time estimates for evacuation within the plume exposure EPZ and that these time estimates be in accordance with Appendix 4. Section III of Appendix 4 requires a review of the road network and analyses of "travel times and potential locations for serious congestion in potential corridors."

We have already heard the testimony of NRC Staff witness Thomas Urbanik, II, concerning the evacuation time estimate studies for Indian Point Units 2 and 3. Both Dr. Urbanik's testimony and Appendix 4 to NUREG-0654/FEMA-REP-1 clearly indicate that consideration of the roadway network is inextricably related to a determination of a time estimate for evacuation.

Therefore, Contention 3.9 shall be retained.

Contention 3.10

See Contention 4.4, *infra*.

Contention 4.1

The plume exposure pathway EPZ should be expanded from its present 10-mile radius in order to meet local emergency needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries.

Both Con Edison and the Power Authority object to Contention 4.1 on the grounds that the bases supporting the contention are inadequate and contemplate a larger expansion of the plume EPZ than "about 10 miles." The Power Authority acknowledges that the Commission has specifically expressed an interest in the substance of this contention and that the Commission indicated in its July 27, 1982 order that this issue should be litigated under Commission Question 3.

Upon consideration of these arguments we have determined that the size and configuration of the plume exposure EPZ is of particular interest to the Commission and should be litigated.

We note that the Commission stated in its July 27 order that it intended to address the plume exposure pathway EPZ under Commission Question 3. We have

considered reformulating Contention 4.1 to make it a contention under Commission Question 3 and decided against such a change. The substance of the contention would be the same under either Commission Question. Since we have already received testimony on this Contention the record will be less confusing if the contention retains its original number. Therefore, Contention 4.1 shall be retained as reformulated in our January 7, 1983 order.

Contention 4.2

The following specific, feasible offsite procedures should be taken to protect the public:

- a) Potassium iodide should be provided in an appropriate form for all residents in the EPZ.
- b) Adequate sheltering capability should be provided for all residents in the EPZ.
- c) License conditions should prohibit power operation of Units 2 and 3 when the roadway network becomes degraded because of adverse weather conditions.
- d) The roadway network should be upgraded to permit successful evacuation of all residents in the EPZ before the plume arrival time.

The Power Authority and Con Edison raise objections to Contention 4.2. They allege that a "sound basis" has not been demonstrated for each of the suggested measures, as required by the Commission's July 27 order. Both assert that the bases provided fail to demonstrate that the suggested measures would have special risk-reduction significance at Indian Point in comparison with risks posed by other nuclear plants. Power Authority suggests that such a showing is the "threshold test" for admission of contentions under Commission Question 4. Con Edison claims that there must be a showing that "the risk of Indian Point is such that 'further exploration' in this proceeding of these measures which are not required by NRC/FEMA guidelines is justified," *i.e.*, the risk is greater than the spectrum of risks posed by other nuclear plants. We dismiss these arguments as distortions of the Commission's guidance in its July 27 order. The Commission did not establish a "two-prong test" for the admission of contentions under Commission Question 4 as Licensees seem to be trying to imply. The Commission did require that a "sound basis" be provided for these contentions.

Con Edison also asserts that the contention and its subparts lack the requisite specificity, do not show that the proposed measures are feasible, and make no nexus between the population density and the proposals. Finally, both Con Edison and Power Authority argue that Contention 4.2(c) does not concern an offsite emergency procedure and is therefore beyond the scope of Question 4.

We have re-examined the contentions and their bases in light of these arguments. We have decided to strike the basis listed in RCSE's Supplement, because on closer examination it does not appear to be a sound basis for any of the proposed measures.

However, we continue to find that UCS/NYPIRG did present in its bases a sound basis for the admission of the four subparts to Contention 4.2. Whether these measures are feasible will be determined by our analysis of the evidence presented during the hearing. These proposed measures are being considered in light of the population density in the vicinity of Indian Point. There is no requirement that parties draw a nexus between each proposed measure and population density. Finally, although Contention 4.2(c) may not appear to involve an offsite procedure, it is specifically related to an offsite condition which is important for consideration of offsite emergency planning at Indian Point.

Therefore, Contention 4.2 shall be retained as stated in our Order of January 7, 1983 with RCSE's supplement deleted from the bases.

Contention 4.3

There are no feasible offsite emergency procedures which can adequately protect the public.

This contention was deleted because it and the bases offered to support it failed to offer specific suggestions for improving emergency planning and only provided criticisms already covered in contentions under Commission Questions 1 and 3. Both Licensees, in their responses to our January 7, 1983 order support the deletion of this contention. The NRC Staff and Intervenor UCS/NYPIRG and Parents take no position on the elimination of Contention 4.3. WESPAC does not object to the deletion, either, provided it can present testimony with respect to roads under Contention 3.9; since WESPAC is co-lead Intervenor under 3.9 (which is being retained) we expect it to introduce such testimony.

Intervenor WBCA was the only party to object to the Board's deletion of Contention 4.3. WBCA argues that the road network surrounding Indian Point would make offsite emergency procedures infeasible and that the Board should hear testimony on that subject. But the adequacy of the road system will be covered under Contentions 3.9 and 4.2(d). WBCA also argues that FEMA's estimate of population density within the EPZ is too low, which would make the emergency procedures infeasible. The validity of the assumptions on which evacuation times are estimated, such as the assumed density of people in the EPZ, will be litigated under Contention 3.3, for which WBCA is a contributing Intervenor. We need not litigate these issues twice.

For the foregoing reasons, we see no reason to reinstate Contention 4.3.

Contention 4.4

The emergency plans should be upgraded by taking account of special groups with special needs in emergencies. In particular, provisions must be made for evacuating persons who are dependent upon others for their mobility.

We deleted this contention in our Order of January 7, 1983, because the contention and its bases failed to offer specific additional emergency planning measures that should be required. But because the contention's bases did mention specific inadequacies in the plan that are important to answering Commission Question 3, we reformulated Contention 4.4 and assigned it a new number, as follows:

Contention 3.10

The emergency plan fails to conform to NUREG-0654 in that, contrary to Evaluation Criterion II.J.10.d., proper means for protecting persons whose mobility may be impaired have not been developed. Specifically, adequate provisions have not been made for groups named in the bases submitted by the following contentions:

WESPAC 6

Parents I, basis (22) and II, basis (7)

UCS/NYPIRG I(B)(2), basis (6) and I(A), basis (7).

Neither Licensee objects to the Board's reformulation and renumbering of Contention 4.4. The Staff takes no position with respect to our action on this contention. Intervenor UCS/NYPIRG and Parents likewise take no position with respect to reformulation. WESPAC does not object to the reformulation and renumbering, based on its "understanding that the 'groups' referred to in Contention 3.10 include all groups originally identified in WESPAC Contention 6." Finally, WBCA reminds the Board that it had been included as a co-lead Intervenor with WESPAC on Contention 4.4, on the basis of oral argument (Tr. 809 ff.; Memorandum and Order of April 23, 1982 (LBP-82-34, 15 NRC 895)), and requests that it be designated co-lead with respect to Rockland County under Contention 3.10.

We find no reason to modify our ruling with respect to the reformulation of Contention 4.4 as Contention 3.10, and we rule that the Intervenor assignments to 3.10 will be the same as designated for 4.4.

Contention 4.5

Specific steps must be taken by NRC, State, and local officials to promote a public awareness that nuclear power plant accidents with substantial offsite risks are possible at Indian Point.

Our Order of January 7 eliminated Contention 4.5 for lack of sufficient basis. We noted also that the essence of that contention was encompassed in other contentions already admitted to litigation.

UCS/NYPIRG objects to our deletion of Contention 4.5. Intervenor argues that the Commission's December 22, 1982 decision (CLI-82-38, 16 NRC 1698) permitting operation despite persisting emergency planning deficiencies, in some fashion "has undermined the planning process" and can be corrected only by "vigorous NRC action to promote the importance of emergency planning."

We do not deem this statement to be the needed sound basis for the deleted contention. Indeed, actions by the Commission are clearly binding on this Board, and the notion that we should admit a contention based fundamentally upon criticism of the Commission's considered action would fly in the face of the Commission's inherent right to supervise this hearing.

We see no reason to alter our previous decision. Contention 4.5 will not be litigated here.

Contention 4.6

A maximum acceptable level of radiation exposure for the public must be established before any objective basis will exist for adequate emergency planning.

We rejected this contention in our January 7, 1983 order as an impermissible challenge to the regulations with neither a basis nor clear connection to the unique environment of Indian Point.

UCS/NYPIRG would have us retain the contention, arguing that establishment of acceptable dose levels would "be a yardstick against which to measure evacuation time estimates." That clearly would be equally true at any other plant and clearly the Commission has not opted to establish this particular yardstick. Nor can the assertion that Indian Point's milieu is especially populous (or even especially difficult to evacuate) form a basis, *ipso facto*, for the use of this yardstick, absent some compelling reason for assuming that the "minimum-number-of-hours-warning" figure that the Commission directed us to seek would be meaningless to the Commission without such a yardstick.

The contention will remain deleted.

Contention 4.7

The emergency plans should be upgraded to provide more adequate methods for alerting and informing persons who are deaf, blind, too young to understand the instructions, or who do not speak English.

Both Power Authority and Con Edison raise objections to reformulated Contention 4.7. They argue that the contention should be rejected because it fails to suggest the specific methods which should be provided. In addition, they make the same assertion that they made with respect to Contention 4.2, that Intervenors must demonstrate how the nearby population affects the risk posed by Indian Point as compared to other plants and how the suggested measures would reduce that risk. We reject Licensees' argument that such a threshold demonstration is required for admission of a contention under Commission Question 4 for the same reasons we set forth in our consideration of this argument under Contention 4.2.

We continue to find that the contention and its bases meet the required standard of specificity and that the bases provide a sound basis for the contention's admission. We find it sufficient that Intervenors have identified the specific aspects of the plan which need to be upgraded and have provided sound bases for these recommendations.

Therefore, Contention 4.7 shall be retained as reformulated in our January 7, 1983 order.

UCS/NYPIRG Proposed Contentions I and II and Parents' Proposed Contention XIV ¹

NYPIRG Proposed Contentions

- I. The exercise process is not an adequate basis for determining aspects of emergency response capability for an accident at Indian Point.
- II. Letters of agreement, memoranda of understanding, and mutual aid agreements signed by the responsible local officials and by the emergency workers themselves should be the determining criteria in evaluating emergency response capability.

Parents' Proposed Contention

- XIV. Preparedness should be demonstrated by the willingness and ability of emergency workers in the field, by commitments in the form of letters of agreement from all emergency response agencies including schools, bus companies, fire departments, ambulance corps, and local Red Cross chapters, and by the approval, in the form of signatures on the plan, of elected officials of local governments which will be called upon to implement the plans.

¹ Parents' filing of December 24, 1982, at page 5, styled this Contention "XIV." We used that designation in our Order of January 7, 1983. In their present filings, both Parents and UCS/NYPIRG style the contention "Contention IV." We here retain the original designation.

We declined to admit these contentions, finding that they were either impermissible challenges to the regulations or were subsumed in other, previously admitted contentions depending on their exact interpretations.

UCS/NYPIRG now argues that these contentions should be admitted. WESPAC also argues for their admission, and Parents argues for admission of its own Contention XIV.

The gist of the arguments for admission of UCS/NYPIRG I is that present scenarios for the planning exercise do not provide the "level of extensiveness of testing . . . to identify all defects" (WESPAC) nor do they "test a major portion of the elements" (UCS/NYPIRG) in emergency planning. UCS/NYPIRG also states that our failure to provide an opportunity for intervenors to present a direct case will deprive this Board and the Commission of needed information.

An intervenor seeking to introduce a contention so late in the process must bear a heavy burden to show that the contention is admissible. We see no strong basis for admissibility in the bare assertions that a carefully constructed exercise, devised by experts in the field, cannot accomplish its purpose. We still decline to admit new Contention I.

As for new UCS/NYPIRG II and Parents' XIV, the present submissions do not offer any substantial additional bases for the contentions nor do they point to matters which would be unresolved by the admission of the earlier contention our order named. In the latter regard, WESPAC expresses the "hope" that "testimony regarding the commitment of emergency workers to fulfill their roles" will not be excluded in treating Contention 3.1. We see no reason why such testimony should be excluded.

Our decision on admitting the proposed new contentions stands: all three will be rejected.

Time for Filing Supplemental Testimony

The due date for submission of supplemental testimony under Commission Questions 3 and 4 shall be extended one week, from February 14 to February 21, 1983.

ORDER

For all the foregoing reasons and based upon a consideration of the entire record in this matter, it is this 7th day of February 1983

ORDERED

1. The following contentions shall be retained without reformulation: 3.1, 3.3, 3.7, 3.9, 3.10, 4.1, 4.2, and 4.7;

2. The following contentions have been reformulated and admitted: 3.4 and 3.6;
3. The following contention has been reinstated and reformulated: 3.2;
4. The following contentions have been deleted: 4.3, 4.5, 4.6, and all proposed new contentions.
5. The date for filing supplemental testimony on Commission Questions 3 and 4 is extended to February 21, 1983.

**THE ATOMIC SAFETY AND
LICENSING BOARD**

James P. Gleason, Chairman
ADMINISTRATIVE JUDGE

Dr. Oscar H. Paris
ADMINISTRATIVE JUDGE

Frederick J. Shon
ADMINISTRATIVE JUDGE

Bethesda, Maryland

APPENDIX

Commission Question 3

What is the current status and degree of conformance with NRC/FEMA guidelines of state and local emergency planning within a 10-mile radius of the site and, of the extent that it is relevant to risks posed by the two plants, beyond a 10-mile radius? In this context, an effort should be made to establish what the minimum number of hours' warning for an effective evacuation of a 10-mile quadrant at Indian Point would be. The FEMA position should be taken as a rebuttable presumption for this estimate.

Contention 3.1

Emergency planning for Indian Point Units 2 and 3 is inadequate in that the present plans do not meet any of the sixteen mandatory standards of 10 CFR 50.47(b), nor do they meet the standards of Appendix E to 10 CFR Part 50.

The bases for this contention are set forth in the following filings:

- 1) UCS/NYPIRG's "Contentions of Joint Intervenors Union of Concerned Scientists and New York Public Interest Research Group," dated December 2, 1981 (hereinafter UCS/NYPIRG Contentions) (*See* Contention I(A));
- 2) NYPIRG's Submission of December 28, 1982;
- 3) WESPAC's "Contentions of the Westchester People's Action Coalition," dated December 1, 1981 (hereinafter WESPAC Contentions) (*See* Contentions I(a-f, i-j) and 2(c-f); and
- 4) RCSE's "Supplement to Petition: Contentions," dated December 1, 1981 (hereinafter RCSE's Supplement) (*See* Contentions 3 and 5).

Contention 3.2

The emergency plans for Indian Point Units 2 and 3 do not conform with NRC/FEMA guidelines because the assumptions made therein with respect to human response factors during a radiological emergency are erroneous. Hence, the estimates of evacuation times and of the feasibility of timely evacuation for certain areas are incorrect.

The bases for this contention are set forth in the following filings:

- 1) UCS/NYPIRG Contentions (*See* Contention I(B)(1));
- 2) WESPAC's Contentions (*See* Contention 4 and bases (g) and (h) of Contention 1);
- 3) Parents' "Contentions of Parents Concerned About Indian Point," dated December 2, 1981 (hereinafter Parents' Contentions) (*See* Contention III (bases 1-5)).

Contention 3.3

The present estimates of evacuation times, based on NUREG-0654 and studies by CONSAD Research Corporation and by Parsons, Brinkerhoff, Quade & Douglas, Inc., are unreliable. They are based on unproven assumptions, utilize unverified methodologies, and do not reflect the actual emergency plans.

The bases for this contention are set forth in the following filings:

- 1) UCS/NYPIRG Contentions (*See* Contention I(B)(2));
- 2) WBCA's "West Branch Conservation Association's Reply to Objections to Its Filed Contentions," dated January 11, 1982 (hereinafter WBCA's Reply) (*See* Contention in reply to Question 3).
- 3) RCSE's Supplement (*See* Contention 1).

Contention 3.4

The administrative control of notification procedures at Indian Point Units 2 and 3 is so deficient that the Licensees cannot be depended on to notify the proper authorities of an emergency promptly and accurately enough to assure effective response.

The bases for this contention are set forth in the following filings:

- 1) RCSE's Supplement (*See* Contention 2, bases (a) and (b));
- 2) WESPAC's Contentions (*See* Contention 2, bases (a) and (b)).

Contention 3.6

The emergency plans and proposed protective actions do not adequately take into account the full range of meteorological conditions for Indian Point Units 2 and 3.

The bases for this contention are set forth in the following filing:
UCS/NYPIRG Contentions (*See* Contention I(B)(a)).

Contention 3.7

The problems of evacuating children from threatened areas have not been adequately addressed in the present emergency plans.

The bases for this contention are set forth in the following filings:

- 1) Parents' Contentions (*See* Contention I, bases (4), (5), (6), (7) and (15)); and
- 2) Parents' Revision (*See* Contention V, bases (1)-(10)).

Contention 3.9

The road system in the vicinity of the Indian Point plant is inadequate for timely evacuation.

The bases for this contention are set forth in the following filings:

- 1) WESPAC Contentions (*See* Contention 5); and
- 2) WBCA's Reply (*See* Contention in reply to Question 1).

Contention 3.10

The emergency plan fails to conform to NUREG-0654 in that, contrary to Evaluation Criterion II.J.10.d., proper means for protecting persons whose mobility may be impaired have not been developed. Specifically, adequate provisions have not been made for groups named in the bases submitted for the following contentions:

WESPAC 6

Parents I, basis (22) and II, basis (7)

UCS/NYPIRG I(B)(2), basis (6) and I(A), basis (7).

The bases for this contention are set forth in the following filings:

- 1) WESPAC's Contentions (*See* Contention 6);
- 2) Parents' Contentions (*See* Contention I, basis (22) and Contention II, basis (7));
- 3) Parents' Revision (*See* Contention X); and
- 4) UCS/NYPIRG Contentions (*See* Contention I(B)(2), basis (6) and Contention I(A), basis (7)).

Commission Question 4

What improvements in the level of emergency planning can be expected in the near future, and on what time schedule, and are there other specific offsite emergency procedures that are feasible and should be taken to protect the public?

Contention 4.1

The plume exposure pathway EPZ should be expanded from its present 10-mile radius in order to meet local emergency needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries.

The bases for this contention are set forth in the following filings:

- 1) UCS/NYPIRG Contentions (*See* Contentions II(A), II(B), and III(C));
- 2) Parents' Contentions (*See* Contention II, basis (7)); and
- 3) Parents' Revision (*See* Original Contention II and Proposed Contention VII, based on Memorandum and Order, April 23, 1982 basis 2).

Contention 4.2

The following specific, feasible offsite procedures should be taken to protect the public:

- a) Potassium iodide should be provided in an appropriate form for all residents in the EPZ.
- b) Adequate sheltering capability should be provided for all residents in the EPZ.
- c) License conditions should prohibit power operation of Units 2 and 3 when the roadway network becomes degraded because of adverse weather conditions.
- d) The roadway network should be upgraded to permit successful evacuation of all residents in the EPZ before the plume arrival time.

The bases for this contention are set forth in the following filing:

UCS/NYPIRG Contentions (*See* Contention III(A), subparts (a),(b), (c), and (e)).

Contention 4.7

The emergency plans should be upgraded to provide more adequate methods for alerting and informing persons who are deaf, blind, too young to understand the instructions, or who do not speak English.

The bases for this contention are set forth in the following filings:

- 1) Parents' Contentions (*See* Contention I, bases (2), (17), and (22); and Contention II, basis (7));
- 2) Parents' Revision (*See* Contention XIII); and
- 3) WESPAC's Contentions (*See* Contention 2, bases (e) and (f)).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Lawrence Brenner, Chairman
Dr. Richard F. Cole
Dr. Peter A. Morris**

In the Matter of

**Docket Nos. 50-352-OL
50-353-OL**

**PHILADELPHIA ELECTRIC COMPANY
(Limerick Generating Station,
Units 1 and 2)**

February 10, 1983

On the basis of guidance provided by the Commission's policy statement on Table S-3 fuel cycle impacts, 47 Fed. Reg. 50,591 (Nov. 8, 1982), the Licensing Board does not admit a late contention alleging that the Applicant's Environmental Report inadequately considers the uncertainties associated with the environmental and health impacts of wastes sealed in a permanent repository. The contention was based on the decision in *NRDC v. NRC*, 685 F.2d 459 (D.C. Cir. 1982), *cert. granted*, 51 U.S.L.W. 3419 (Nov. 29, 1982).

**NEPA: CONSIDERATION OF IMPACTS OF URANIUM FUEL
CYCLE**

Under the Commission's statement of policy on Uranium Fuel Cycle Impacts, the Licensing Board is directed not to admit a contention alleging that the uncertainties associated with impacts of wastes sealed in a permanent repository are inadequately considered in the Applicant's Environmental Report.

MEMORANDUM AND ORDER REJECTING TABLE S-3 FUEL-CYCLE CONTENTION

On June 16, 1982, Limerick Ecology Action (LEA) and the Environmental Coalition on Nuclear Power (ECNP) jointly moved for leave to file a new contention. The proposed contention alleged that in merely reproducing Table S-3 pursuant to 10 CFR § 51.20(e), the Applicant's Environmental Report inadequately discusses the environmental and health impacts of the uranium fuel cycle associated with proposed operation of the Limerick facility. The basis, and justification offered for filing this contention late, was the then-recent holding in *Natural Resources Defense Council v. Nuclear Regulatory Commission*, 685 F.2d 459, 494 (D.C. Cir. 1982), *cert. granted*, 51 U.S.L.W. 3419 (November 29, 1982) that the current "final" S-3 rule (as well as predecessor S-3 rules) ". . . are invalid due to their failure to allow for proper consideration of the uncertainties that underlie the assumption that solidified high-level and transuranic wastes will not affect the environment once they are sealed in a permanent repository."

By order of July 1, 1982, we granted Applicant's requests both to defer ruling on the proposed contention and to extend Applicant's time to respond to the contention until five days after publication in the *Federal Register* of anticipated Commission guidance on the implementation of the Court of Appeals decision. We also extended the NRC Staff's time to respond until ten days after publication of the Commission guidance. As we discuss below, the Commission issued its guidance over three months ago in the form of a Statement of Policy, and pursuant to it the proposed contention may not be admitted as an issue for litigation. "Licensing and Regulatory Policy and Procedures for Environmental Protection; Uranium Fuel Cycle Impacts," 47 Fed. Reg. 50,591 (November 8, 1982). The Applicant and NRC Staff have both inexplicably failed to file responses in the required time frame, although that time frame had been established pursuant to Applicant's own request. Given the S-3 policy statement, we will proceed without their advice. The Applicant and NRC Staff, and indeed all parties, are warned that such defaults are viewed with great disfavor by this Board and could easily result in matters being found against them, or other sanctions. *See, e.g.*, 10 CFR §§2.707, 2.718.

The history and background of the Commission's consideration of the environmental impact of the nuclear fuel cycle attributable to individual nuclear power plants is well summarized in a recent Appeal Board decision, and will not be repeated here. *See Mississippi Power & Light Company, et al.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725 (1982). The current "final" Table S-3 rule (10 CFR §§51.20(e) and 51.23(c)), as promulgated in 1979 (44 Fed. Reg. 45,362), is a table which generically establishes the numerical quantification of fuel cycle releases attributable to a reactor, and precludes litigation of the amounts of these releases in individual licensing proceedings. In

its S-3 decision, the Court of Appeals found that since an April 1978 clarifying amendment to the interim S-3 rule, health effects could be considered in individual licensing proceedings. Only the quantification of environmental effects addressed by the S-3 table were precluded from litigation. The Court also found that at least since the final rule, the Commission had made clear that in addition to health effects, socioeconomic and cumulative effects of fuel cycle impacts could be considered in individual proceedings. *Natural Resources Defense Council v. NRC*, *supra*, 685 F.2d 459, 477-78, 486-88, 494. See also *Grand Gulf*, *supra*, 16 NRC 1729.

The proposed late-filed contention, when read without the basis section, addresses "environmental and health impacts of the uranium fuel cycle" attributable to the Limerick facility. This would be impermissibly broad and vague, particularly for a late-filed contention given the history of the scope of litigation, as summarized above, permitted by the S-3 rule. However, as is made clear from the basis section of the contention, and the reliance on the Court of Appeals S-3 decision as justification for late filing, the contention seeks to assure proper consideration in this proceeding of the defect in the final S-3 rule found by the Court of Appeals; *i.e.*, that the rule gives inadequate consideration of the uncertainties of the impacts of wastes sealed in a permanent repository. This view of the scope of the contention is reinforced by the petitioners' views that its admission would be unlikely to expand the proceeding significantly since they expect the defect found by the Court will be cured by generic amendment of Table S-3. Petition, para. 11.

Having construed the contention so that it would appear to be admissible given the Court's S-3 ruling, we must nevertheless reject it as instructed by the Commission's S-3 policy statement, by which we are bound. *Grand Gulf*, *supra*, 16 NRC 1731, n.8. In its policy statement, the Commission notes that the D.C. Circuit has stayed its mandate with the knowledge that the Commission would proceed in reliance on the final S-3 rule during such a stay. 47 Fed. Reg. 50,592-93. As indicated above, the Supreme Court has granted certiorari. Accordingly, we are directed by the Commission "to proceed in continued reliance on the Final S-3 rule until further order from the Commission, provided that any license authorizations or other decisions issued in reliance on the rule are conditioned on the final outcome of the judicial proceedings." *Id.*, at 50,593.

The Commission's policy statement explains that to engage in case-by-case litigation of this matter ". . . would reintroduce the significant burdens the [S-3] rule was intended to relieve." 47 Fed. Reg. 50,592. The Commission's policy statement recounts that the Commission previously has had reasonable confidence that safe waste disposal will be available when needed (42 Fed. Reg. 34,391 (1977); *NRDC v. NRC*, 581 F.2d 166 (2d Cir. 1978)); and that it is now completing the so-called "waste confidence" proceeding (44 Fed. Reg. 61,372

(1979)) to reassess whether there is reasonable assurance that safe waste disposal will be available when needed. 47 Fed. Reg. 50,592. The Commission states that:
Should the "waste confidence" proceeding arrive at an outcome inconsistent with this policy judgment, the Commission will immediately inform the Congress and will reassess the positions taken in this policy statement. *Id.*, at 50,592.

and concludes that:

Considering the rule's limited purpose and taking into account the Commission's "waste confidence" proceeding, the Commission continues to believe that the record of the final S-3 rulemaking contains adequate information on waste disposal uncertainties to support continued use of the fuel cycle rule. *Id.*, at 50,593.

Accordingly, the Table S-3 fuel-cycle contention proposed by intervenor LEA and petitioner ECNP is not admitted.¹ Future Commission guidance on this subject will be applied to the Limerick facility and any license authorizations which may be issued in the interim will be conditioned on the final outcome of the judicial proceedings.

FOR THE ATOMIC SAFETY
AND LICENSING BOARD

Lawrence Brenner, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland
February 10, 1983

¹ In view of our action in a separate order dismissing ECNP's one other pending contention, ECNP has been denied admission as a party in this proceeding.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ivan W. Smith, Chairman
Dr. Walter H. Jordan
Dr. Oscar H. Paris

In the Matter of

Docket Nos. 50-514-CP
50-515-CP
(ASLBP No. 75-281-10-CP)

PORTLAND GENERAL ELECTRIC
COMPANY, *et al.*
(Pebble Springs Nuclear Plant,
Units 1 and 2)

February 24, 1983

MEMORANDUM AND ORDER TERMINATING
PROCEEDING

Pursuant to 10 CFR 2.107(a), the Board grants, without prejudice, the Applicants' request of November 12, 1982 to withdraw the applications for the Pebble Springs construction permits in Docket Nos. 50-514 and 50-515. The proceeding is terminated.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Ivan W. Smith, Chairman
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland
February 24, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Marshall E. Miller, Chairman
Dr. Cadet H. Hand, Jr.
Gustave A. Linsenberger, Jr.

In the Matter of

Docket No. 50-537-CP
(ASLBP No. 75-291-12)

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

February 28, 1983

Having considered relevant contested issues and environmental and site suitability matters, the Licensing Board authorizes the Director of Nuclear Reactor Regulation to issue a limited work authorization (LWA-1) for the Clinch River Breeder Reactor Plant, subject to certain Staff proposed limitations for the protection of the environment committed to by Applicants.

LIMITED WORK AUTHORIZATION: APPLICABILITY

Section 50.10(e) of 10 CFR is applicable to this first-of-a-kind Clinch River Breeder Reactor Plant.

TECHNICAL MATTERS DISCUSSED

A. Contested Issues: Site suitability, source term, dose guidelines and accident considerations; environmental effects of accidents; effects of accidents on

nearby facilities; genetic and somatic effects of accidents' safeguards and security; fuel availability and reprocessing; alternative sites; programmatic objectives and design alternatives.

B. Uncontested Matters: Demography; emergency plans; meteorology; hydrology; geology and seismology; land and water use impacts; terrestrial and aquatic impacts of operation; and socio-economic considerations.

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PARTIAL INITIAL DECISION (Limited Work Authorization)

INTRODUCTION AND SUMMARY

This Partial Initial Decision concerns an application of the United States Department of Energy (DOE), Tennessee Valley Authority (TVA), and Project Management Corporation (PMC) (Applicants) for a limited work authorization for the proposed Clinch River Breeder Reactor Plant (CRBRP). The facility will be located on the Clinch River in Oak Ridge, Tennessee. This decision will address the Applicants' request for an LWA-1 in accordance with 10 CFR §50.10(e)(1) and (2), by making findings on all pertinent radiological, site suitability and environmental issues.

On October 11, 1974, Applicants applied to the Atomic Energy Commission (AEC), predecessor to the Nuclear Regulatory Commission (NRC),¹ for a Construction Permit and a Limited Work Authorization (LWA-1) under Section 104(b) of the Atomic Energy Act of 1954, as amended (42 U.S.C. §2011 *et seq.*) for the facility. The Commission issued a notice of hearing on the application for the construction permit which was published June 18, 1975 (40 Fed. Reg. 25708). The application sought authority to construct a demonstration plant under DOE's Liquid Metal Fast Breeder Reactor (LMFBR) Program. The proposed facility is designed to use a liquid-sodium-cooled fast breeder reactor to produce 975 megawatts of thermal energy (MWT), with a net electrical output of approximately 350 megawatts. The proposed site is owned by the United States of America and is presently in the custody of TVA and DOE. The proposed location is on the north side of the Clinch River in the town of Oak Ridge, Roane County, Tennessee, about 25 miles west of Knoxville.

The notice of hearing set forth the requirements pursuant to the Atomic Energy Act of 1954, as amended, and the National Environmental Policy Act of 1969 (NEPA), which are to be met prior to the issuance of construction permits. The notice of hearing also provided that any person whose interest might be affected by the proceeding could file a petition for leave to intervene pursuant to 10 CFR §2.714. Additionally, the notice of hearing designated an Atomic Safety and Licensing Board (Board) for this proceeding.

As stated in the notice of hearing, the Board may conduct a separate hearing and issue a partial decision on issues pursuant to NEPA, general site suitability issues specified by 10 CFR §50.10(e), and certain other possible issues for a limited work authorization. A partial decision addressing the remaining radiological health and

¹ The Energy Reorganization Act of 1974 (P.L. 93-438, 88 Stat. 1233, 42 U.S.C. §5814) abolished the AEC, established the NRC and transferred the AEC's licensing functions under the Atomic Energy Act of 1954, as amended, to the new Commission.

safety issues, together with this Board's ultimate decision on issuance of the construction permits, will be issued after the conclusion of public hearings on the remaining radiological health and safety aspects of the application.

Pursuant to the notice of hearing, timely petitions for leave to intervene were filed by the State of Tennessee on July 17, 1975, and an amendment postmarked September 24, 1975; Roane County, Tennessee, on July 17, 1975, and an amended petition on August 29; the City of Oak Ridge, Tennessee, on July 17, 1975, and an amendment on January 22, 1976; Natural Resources Defense Council, Inc., the Sierra Club and East Tennessee Energy Group on July 18, 1975. A petition for leave to intervene out of time was filed by Lenoir City, Tennessee on July 7, 1976.

The State of Tennessee was admitted as a party to the proceeding by the Special Prehearing Conference Order of October 9, 1975. On March 29, 1982, the State of Tennessee filed a motion to withdraw as a party under 10 CFR §2.714, but asked to be allowed to continue to participate as an "interested state" under the provisions of 10 CFR §2.715. This motion was granted on March 31, 1982. On October 9, 1975, Roane County was admitted as a party to the proceeding. On November 17, 1976, it asked to withdraw as a party, and its withdrawal was authorized on December 13, 1976.

The Board admitted the City of Oak Ridge as an intervening party to the proceeding on March 4, 1976. On August 20, 1982, the City of Oak Ridge requested leave to withdraw as a party to the proceeding but would continue to participate as an "interested municipality" under 10 CFR §2.715(c). On September 7, 1982, the Board granted the motion.

Regarding the Natural Resources Defense Council, Inc., Sierra Club, and East Tennessee Energy Group's joint petition to intervene, the Applicants' answer filed on July 25 and the Staff's answer filed on July 31 conceded that interest was sufficiently shown by each group and at least one relevant contention was sufficiently pleaded to satisfy the requirements of 10 CFR §2.714. The Board admitted each group as a party to the proceeding on October 9, 1975. The Intervenor's requested the withdrawal of the East Tennessee Energy Group as an intervening party on February 8, 1982, and the request was granted on February 11, 1982.

The untimely petition of Lenoir City to intervene was denied on August 26, 1976, by the Board issuing an "Order Denying Motion for Leave to Intervene Out of Time and Petition for Leave to Intervene Filed by Lenoir City *et al.*" This denial of intervention was based on no good reason being shown for petitioners' tardiness in seeking intervention, for not satisfying the provisions of 10 CFR §2.714(a) for untimely intervention petitions, for not submitting sufficient factual bases for their contentions, and for unsigned supporting affidavits and unverified petition by

persons who had no direct personal knowledge necessary to state interests or bases for the contentions of each petitioner.²

The parties to this proceeding are the Applicants, the NRC Staff, and the Natural Resources Defense Council, Inc. and the Sierra Club (Intervenors). The State of Tennessee (State) and City of Oak Ridge (City) participated as an "interested state" or "municipality," pursuant to 10 CFR §2.715(c).

Extensive prehearing activities³ were engaged in by the parties, and by March, 1977, the Staff had issued a Site Suitability Report (SSR) and a Final Environmental Statement (FES). LWA evidentiary hearings were scheduled to commence June 14, 1977.

On April 22, 1977, the Energy Research and Development Administration (ERDA), predecessor to DOE, moved that all hearing procedures be suspended because the Carter Administration had determined that construction of the CRBRP would be indefinitely deferred. As a result, on April 25, 1977 the Board ordered the hearing procedures and schedules to be suspended.

In the ensuing four year period, the project continued design, research and development and procurement activities, while licensing activities remained suspended. In each of those years, Congress acted to preserve the project by providing substantial funding.⁴

In August, 1981, President Reagan signed the Omnibus Budget Reconciliation Act of 1981 (Pub. L. No. 97-35), which expressed the intention that the project be expeditiously completed.⁵ In a Nuclear Policy Statement of October 8, 1981, the President directed that "government agencies proceed with a demonstration of breeder reactor technology, including completion of the Clinch River Breeder Reactor."⁶

² In the Matter of Project Management Corp., *et al.* (Clinch River Breeder Reactor Plant), LBP-76-31, 4 NRC 153 (1976), *aff'd*, ALAB-354, 4 NRC 383 (1976). Citations to the record will be in the following form: (a) Applicants' Exhibits — App. Ex.; Staff Ex.; Intervenors — Int. Ex. (b) Citations to prefiled testimony will include both the exhibit number and page, and the transcript (Tr.) page. (c) Citations to numbered paragraphs of Findings of Fact will be to Finding No.

³ Intervenors filed fifteen sets of interrogatories, seven sets of requests for admissions, and four requests for production of documents against the Applicants. Intervenors filed twenty-two sets of interrogatories, seven sets of requests for admissions, and three requests for production of documents against the NRC Staff. Appeals arose concerning the admissibility of two Intervenor contentions which sought to litigate certain programmatic issues previously considered in ERDA's LMFBR Program Environmental Statement (*See United States Energy Research and Development Administration, et al.* (Clinch River Breeder Reactor Plant), CLI-76-13, 4 NRC 67 (1976)), and the untimely petition for leave to intervene of fourteen counties and municipalities in the vicinity of the site (*See Project Management Corporation, et al.* (Clinch River Breeder Reactor Plant), ALAB-354, 4 NRC 383 (1976)).

⁴ Pub. L. No. 95-240, March 7, 1978; Pub. L. No. 95-482, October 18, 1978; Pub. L. No. 96-86, October 12, 1979; Pub. L. No. 96-369, October 1, 1980; Pub. L. No. 96-536, December 16, 1980; Pub. L. No. 97-12, June 5, 1981.

⁵ *See* H.R. Rep. No. 97-208, 97th Cong. 1st Sess. (1981); 127 Cong. Rec. S 8998 (1981); 127 Cong. Rec. H 5817-18 (1981).

⁶ 17 Weekly Comp. of Pres. Doc. 1101-1102 (October 12, 1981).

On January 11, 1982, the Applicants filed a motion to lift the suspension of hearings, and on January 19, 1982, the Board granted this motion and issued a Notice of Prehearing Conference. On February 9-10, 1982, the Board held a prehearing conference, and February 11, 1982, issued an Order establishing a schedule for all activities necessary for commencement of evidentiary hearings concerning LWA matters on August 23, 1982.

Pursuant to the Board's February 11, 1982 Order, all contentions related to the Construction Permit (CP) application were identified. The Intervenor's restated or revised their original contentions, and filed additional contentions based upon new information. Upon consideration of the pleadings filed by the parties and two sets of prehearing meetings with the parties, the Board issued two Orders Following Conference with Parties, dated April 14 (LBP-82-31, 15 NRC 855 (1982)) and April 22, 1982 (unpublished), which ruled upon the admissibility, scope, and applicability (LWA vs. CP) of Intervenor's contentions, as follows:

- (a) Contentions 4 (safeguards), 5 (site meteorology and population density and risks to industrial facilities near the site), 6 (fuel cycle), 7 (alternative sites and designs), 8 (decommissioning),⁷ and 11(b), (c) and (d) (genetic and somatic health effects of CRBRP operation and site suitability dose guidelines), were admitted for resolution in the LWA proceedings (Order Following Conference with Parties, April 14, 1982).
- (b) Contentions 9 (emergency planning), 10 (sodium fires), and 11(a) (as low as reasonably achievable) were admitted, but deferred for the CP proceedings⁸ (Order Following Conference with Parties, April 14, 1982).
- (c) Contentions 1, 2 and 3 (severe accidents in CRBRP) were admitted, subject to certain limitations on the scope of review for purposes of site suitability and environmental findings at the LWA stage⁹ (Order Following Conference with Parties, April 22, 1982).

⁷ During a telephone conference between the Board and parties on December 7, 1982, Intervenor's requested leave to withdraw Contention 8, and the Board granted Intervenor's request (See also Tr. 4956-57).

⁸ Intervenor's original Contention 1 (LWA procedure is inapplicable to first-of-a-kind reactors) was denied, as it presented an ultimate legal question for the Board following the taking of evidence (Order Following Conference with Parties, April 14, 1982 at 856). Contentions 16 (radioactive river sediments), 17 (DOE planning for availability of fuel for CRBRP), and 22 (application of "as low as reasonably achievable" to accidents) were denied (*Id.* at 858-59). Contentions 20, 21 and 24 were withdrawn (*Id.* at 860-61). Contention 18 (quality assurance) was denied without prejudice to filing a contention with the requisite specificity and basis for the CP proceedings (*Id.* at 860).

⁹ On June 11, 1982, Intervenor's "Petition to Delineate the Scope of the LWA Proceeding" sought direct review of this ruling from the Commission. The Petition was denied by the Commission, by unpublished Order dated November 17, 1982.

Extensive discovery ensued, during which all parties met the deadlines established by the Board's February 11, 1982 Prehearing Conference Order.¹⁰ On June 11, 1982, the Staff issued its updated Site Suitability Report (SSR) which concluded that the Clinch River site was suitable for a reactor of the general size and type described in the application from the standpoint of radiological health and safety (NUREG-0786). On July 13, 1982, the Advisory Committee on Reactor Safeguards (ACRS) issued a letter which supported the NRC Staff's site suitability conclusion.¹¹ On July 19, 1982, the Board issued a Notice of Evidentiary Hearing and Prehearing Conference, which ordered that hearings commence in Oak Ridge on August 23, 1982, on the issues and contentions admitted for the purpose of a limited work authorization hearing pursuant to 10 CFR §50.10(e). On July 19, 1982, the NRC Staff issued and served upon all parties its update to the 1977 CRBRP FES.¹² In issuing that document, the Staff determined that it should be issued as a Draft Supplement to the 1977 FES, and that it should be circulated for public comment before issuance of a Final Supplement.

As a result of the decision to circulate the Draft Supplement to the FES, the schedule for hearings on environmental issues contemplated by the Board's February 11, 1982 Prehearing Conference Order could not be met. Upon consideration of motions filed by Applicants and Intervenors, and after hearing extensive argument during a conference with the parties, the Board issued an Order dated August 5, 1982 which scheduled hearings on radiological site suitability issues (portions of Intervenors' Contentions 1, 2, 3 and Intervenors' Contentions 2(e), 11(d)(1) and (2)), and ruled that hearings on environmental issues would await issuance of the Final Supplement to the FES.¹³

After completion of site suitability hearings on August 23-27, 1982, the Board issued an Order establishing the schedule for completion of hearings on environmental issues. Pursuant to this Order, the Board reopened discovery on all environmental issues¹⁴ and set hearings for November 16-19, 1982, and December 13-17, 1982 to take evidence concerning the remaining environmental issues (Board Order, dated August 31, 1982). In October, 1982, the Staff issued the "Supplement to Final Environmental Statement, etc.," NUREG-0139, Supplement No. 1, Vols. 1 and 2.

¹⁰ By April 30, 1982, Applicants and Staff had updated their responses to Intervenors' 1975-77 discovery. As of the close of discovery on June 30, 1982, Intervenors had also filed four sets of interrogatories, four sets of requests for admissions, and three requests for production of documents, and had deposed five persons from the NRC Staff and eleven persons from the Applicants.

¹¹ Staff Ex. 4.

¹² Staff Ex. 13.

¹³ Intervenors filed with the Appeal Board a Petition for Directed Certification in regard to this Order, which was denied on August 25, 1982. *United States Department of Energy, et al.* (Clinch River Breeder Reactor Plant), ALAB-688, 16 NRC 471 (1982).

¹⁴ Pursuant to this Order, Intervenors filed one additional set of interrogatories against the Staff (27th Set), and took eight depositions of more than twenty Staff witnesses.

Neither the State of Tennessee Attorney General nor the City of Oak Ridge participated actively in the evidentiary hearings. However, they had previously been granted the status of "interested" governmental entities. The Board received the "Position Paper of the Tennessee Attorney General on Socio-Economic Impact Matters and Other Matters Relating to the Clinch River Breeder Reactor Plant," dated November 10, 1982, and "The City of Oak Ridge's Statement Relative to the Socio-Economic Impact of the Clinch River Breeder Reactor Plant," dated November 12, 1982. At the direction of the Board (Tr. 3356-58; Tr. 7104), the Applicants and Staff filed Responses to the Attorney General's Position Paper and the City's Statement on January 11, 1983. Neither the Attorney General nor the City conducted cross-examination, presented witnesses, or introduced documentary evidence concerning the socio-economic matters raised by their respective Position Paper and Statement.

Limited Appearance statements were received from members of the public in Oak Ridge during the hearing sessions held on August 23-27 and November 16-19, 1982. Presentation of evidence on all LWA issues extended over the three hearing sessions for a total of thirteen days, and was completed on December 16, 1982.

On December 16 and 17, 1982, and on January 4 and 5, 1983, the Board heard closing arguments from all parties, specifically addressing the record evidence and disputed issues as to all LWA contentions.

The decisional record in this proceeding consists of:

- (a) the Commission's Notice of Hearing;
- (b) the material pleadings filed herein, including the petitions and other pleadings filed by the parties, and the Orders issued by the Board during the course of the proceeding;
- (c) the Exhibits received into evidence as indicated in Appendix A hereto; and
- (d) the transcript, consisting of 7,105 pages (witnesses who testified are listed in Appendix D hereto).

In making its findings in this proceeding, the Board reviewed and considered the entire record, all of the closing arguments, and proposed findings of fact and conclusions of law submitted by the parties. All of the proposed findings of fact and conclusions of law submitted by the parties which are not incorporated directly or inferentially into this Partial Initial Decision, are rejected as being unsupported in fact or in law or as being unnecessary to the rendering of this Partial Initial Decision.

In considering a limited work authorization in this proceeding, the Board is required to make findings and determinations of two general types: (1) the findings required by 10 CFR §51.52(b) and (c) (environmental findings), and (2) a determination that, "based upon the available information and review to date, there is reasonable assurance that the proposed site is a suitable location for a reactor of

the general size and type proposed from the standpoint of radiological health and safety considerations . . ." (site suitability determination) (10 CFR §50.10(e)(2)).

The contested factual issues in this proceeding can be aligned into eight clusters of issues as follows:

- (a) There is one set of site suitability issues. It encompasses portions of Intervenor's Contentions 1, 2 and 3 (site suitability and accident considerations) and Contentions 2(e) and 11(d)(1) (adequacy of dose guidelines).
- (b) There are seven sets of environmental issues. These are encompassed by Intervenor's Contentions 2(f) and (g), and 3(c) (environmental effects of severe accidents), 5(b) (risk to nearby energy and national security facilities due to CRBRP accidents); 4 and 6(b)(4) (safeguards and security impacts); 6(b)(1) and (3) (fuel cycle impacts); 5(a) and 7(c) (alternative sites), 7(a) and (b) (programmatic objectives and alternative designs), and 11(b) and (c) (genetic and somatic effects of CRBR operation). These contested issues are resolved in the Opinion, Sections I through VIII, and Findings of Fact, Section A, *post*.

In Findings of Fact, Section B, *post*, the Board finds that the Staff and the Applicants have properly described and given appropriate consideration to certain uncontested site suitability matters such as the characteristics of the reactor design and proposed operation, the population density and use characteristics of the site environs, and the physical characteristics of the site. Insofar as they were not covered in contested issues in this proceeding, appropriate consideration was also given to matters included in exclusion area control, emergency planning, meteorology, hydrology, geology, seismology and foundation engineering.¹⁵

The Board further finds that as to environmental matters, insofar as they are not included in the disposition of contested issues, compliance has been shown with the requirements of NEPA, Section 102(A), (C) and (D), and 10 CFR Part 51. The Findings of Fact, Section B, *post*, show that the Staff's Final Environmental Statement as supplemented, is a comprehensive and adequate review and evaluation of the environmental impacts resulting from CRBR plant construction and operation.¹⁶

There are also two ultimate questions of law presented for determination. Intervenor's original Contention 1, which alleged that the LWA procedure is not applicable to first-of-a-kind reactors, presents an ultimate legal question to be determined in light of the evidence in the record as a whole (Order Following Conference With Parties, April 14, 1982 at 856). In addition, the Position Paper of the Tennessee Attorney General and the Statement of the City of Oak Ridge

¹⁵ Staff's Ex. 1, Site Suitability Report, NUREG-0786, dated June, 1982.

¹⁶ Staff Ex. 7 and 8.

present questions of fact and law concerning the need for additional socio-economic monitoring and license conditions for mitigation of impacts resulting from CRBRP construction and operation. These two matters are considered and resolved in the Conclusions of Law, *post*.

OPINION

I. Site Suitability and Accident Considerations

Three contested issues are addressed with respect to site suitability. They comprise portions of Contentions 1, 2, 3 and 11¹⁷ and may be stated as follows:

¹⁷ Those portions of Contentions 1, 2, 3 and 11 relevant to this discussion are Contention 1(a); Contention 2(a)-2(e) and 2(h); Contention 3(b) and 3(d); and 11(d)(1), 11(d)(2). Appendix B provides the full text of all contentions. However, for convenience, those portions of the contentions relevant to this discussion are stated here:

1. The envelope of DBAs should include the CDA.
 - a) Neither Applicants nor Staff have demonstrated through reliable data that the probability of anticipated transients without scram or other CDA initiators is sufficiently low to enable CDAs to be excluded from the envelope of DBAs.
2. The analyses of CDAs and their consequences by Applicants and Staff are inadequate for purposes of licensing the CRBR, performing the NEPA cost/benefit analysis, or demonstrating that the radiological source term for CRBRP would result in potential hazards not exceeded by those from any accident considered credible, as required by 10 CFR §100.11(a), fn. 1.
 - a) The radiological source term analysis used in CRBRP site suitability should be derived through a mechanistic analysis. Neither Applicants nor Staff have based the radiological source term on such an analysis.
 - b) The radiological source term analysis should be based on the assumption that CDAs (failure to scram with substantial core disruption) are credible accidents within the DBA envelope, should place an upper bound on the explosive potential of a CDA, and should then derive a conservative estimate of the fission product release from such an accident. Neither Applicants nor Staff have performed such an analysis.
 - c) The radiological source term analysis has not adequately considered either the release of fission products and core materials, e.g. halogens, iodine and plutonium, or the environmental conditions in the reactor containment building created by the release of substantial quantities of sodium. Neither Applicants nor Staff have established the maximum credible sodium release following a CDA or included the environmental conditions caused by such a sodium release as part of the radiological source term pathway analysis.
 - d) Neither Applicants nor Staff have demonstrated that the design of the containment is adequate to reduce calculated offsite doses to an acceptable level.
 - e) As set forth in Contention 11(d), neither Applicants nor Staff have adequately calculated the guideline values for radiation doses from postulated CRBRP releases.
 - h) Since neither Applicants nor Staff have established that the models, computer codes, input data and assumptions are adequately documented, verified and validated, they have also been unable to establish the energetics of a CDA and thus have also not established the adequacy of the containment of the source term for post accident radiological analysis.
3. Neither Applicants nor Staff have given sufficient attention to CRBR accidents other than the DBAs for the following reasons:
 - b) Neither Applicants' nor Staff's analyses of potential accident initiators, sequences, and events are sufficiently comprehensive to assure that analysis of the DBAs will envelope the entire spectrum of credible accident initiators, sequences, and events.

(Continued)

- (a) Whether core disruptive accidents should be considered as design basis accidents for the purposes of site suitability analysis;
- (b) Whether the designated site suitability source term results in radiological consequences that envelop the spectrum of design basis accidents; and
- (c) Whether the proposed containment design will reduce off-site doses to levels within the dose guideline values recommended for site suitability analysis.

Features are incorporated in the design of the CRBR to prevent progression of an accident to the point of causing core damage (called a core disruptive accident, or CDA¹⁸). These features, which involve the application of proven technology, provide for two redundant, diverse, independent, fast-acting shutdown systems for the CRBR and for removal of reactor decay heat by a shutdown heat removal system (SHRS) that has four independent heat removal paths. These features also include means to render unlikely the occurrence of a double-ended inlet pipe rupture and methods to maintain the balance between heat generation and heat removal in individual subassemblies. Inclusion of such features can inhibit the initiation of a CDA; and thus these features lend credibility to the proposition that CDAs need not be included within the envelope of design basis accidents (DBAs¹⁹) for the CRBR.²⁰

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- d) Neither Applicants nor Staff have adequately identified and analyzed the ways in which human error can initiate, exacerbate, or interfere with the mitigation of CRBR accident.
11. The health and safety consequences to the public and plant employees which may occur if the CRBR merely complies with current NRC standards for radiation protection of the public health and safety have not been adequately analyzed by Applicants or Staff.
- d) Guideline values for permissible organ doses used by Applicants and Staff have not been shown to have a valid basis.

- (1) The approach utilized by Applicants and Staff in establishing 10 CFR §100.11 organ dose equivalent limits corresponding to a whole body dose of 25 rems is inappropriate because it fails to consider important organs, e.g., the liver, and because it fails to consider new knowledge, e.g., recommendations of the ICRP in Reports 26 and 30.

- (2) Neither Applicants nor Staff have given adequate consideration to the plutonium "hot particle" hypothesis advanced by Arthur R. Tamplin and Thomas B. Cochran, or to the Karl Z. Morgan hypothesis described in "Suggested Reduction of Permissible Exposure to Plutonium and Other Transuranium Elements," *Journal of American Industrial Hygiene* (August, 1975).

¹⁸ *Core Disruptive Accidents* (CDAs) — sometimes referred to as hypothetical core disruptive accidents (HCDAs) — are those accidents in which the physical and/or mechanical integrity of the core has been altered to an extent that effective core cooling cannot be maintained. The loss of effective core cooling geometry may result in the release of originally clad or contained fuel into the reactor vessel in some combination of solid, liquid or vapor forms and may be accompanied by a mechanically damaging energy release.

¹⁹ *Design Basis Accidents* (DBAs) are those accidents whose likelihood of occurrence is deemed to be credible and for which the ESFs of a specific facility assure that the health and safety of the general public will not be endangered. DBAs are considered to be of insufficient severity to cause a loss of coolable geometry within the core.

²⁰ Finding No. 1-11.

Applicants and Staff have taken a nonmechanistic²¹ analysis approach to establish that component designs and functional characteristics can prevent DBAs from progressing to CDAs, within state-of-the-art technology. Intervenor hold that faced with nonexistent empirical or analytical evidence to support the reliability of the CRBR design approach, CDAs must be included within the envelope of design basis events. Prior experience with accidents at domestic and foreign sodium-cooled nuclear facilities is not persuasive with respect to including CDAs for the purpose of site suitability assessment, although this experience has been useful in guiding the design of CRBR safety systems. Whereas operator errors and common cause failures can conceivably defeat the intent of engineered safety features (ESFs²²), this possibility has been recognized and deliberate measures taken to assure that safety is not compromised.²³

A site suitability source term (SSST²⁴) analogous to that used for LWRs was adopted by the Staff and modified to account for the CRBR fuel makeup. The SSST is the starting point from which design specific and site specific considerations were then used to compute dose results to the general public following an upper bound or conservative DBA in the CRBRP. The DBA dose results are considered to be acceptable because they fall well below the dose guidelines²⁵ of 10 CFR Part 100.

For this comparison, the LWR dose guidelines were modified in an appropriate manner to account for additional critical human organs (lung and bone) that could be impacted by CRBR radioactivity releases.²⁶ Intervenor made three specific challenges regarding lack of conservatism of the dose guideline values used. Each of these challenges was addressed and reviewed by Applicants and/or Staff and shown to be inappropriate.²⁷

²¹ *Mechanistic and Nonmechanistic* approaches to accident analyses are terms used to distinguish between an accident initiation and progression that follows from credible initiating events (mechanistic), and a "what-if" accident or failure hypothesized to occur in the absence of an identified or credible initiating event (nonmechanistic).

²² *Engineered Safety Features* (ESFs) refer to those design concepts, components or subsystems of a facility that have been adopted to mitigate the consequences of off-normal operating conditions or accidents. A paramount objective of all nuclear facility designs is that the ESFs perform in a manner that permits achieving and maintaining facility shutdown in a manner that does not endanger the health and safety of the general public.

²³ Finding No. 12-16.

²⁴ *Site Suitability Source Term* (SSST) refers to the quantities of radioactive materials released from the core of a specific reactor as the result of an off-normal operating occurrence. Whether these releases ultimately threaten the general public and the environment is a separable consideration that depends upon site specifics and the efficacy of the ESFs.

²⁵ *Dose Guidelines* — are those upper limit or bounding radiation doses to the general public that must not be exceeded as the result of any accident deemed credible for a facility under consideration. Unlike the SSST, the dose guideline values are not specific to any particular facility design; nor are they site specific. The dose guidelines do not represent acceptable doses to the general public nor design or accident mitigation objectives, rather they are criteria that must be met in order that a particular site be judged acceptable as the locale for a proposed facility.

²⁶ Finding No. 17-18.

²⁷ Finding No. 19-25.

The containment/confinement design of the CRBRP has been shown capable of performing its intended function to accommodate all credible design basis threats and hold doses to the general public below guideline values, without requiring any technological innovations. A spectrum of accidents more severe than design basis has also been analyzed. For the most probable of these, the containment systems function as designed, and dose guideline values are not exceeded. Accidents of higher severity have been postulated for which containment failure occurs and dose guidelines are exceeded. The Staff's final position on the adequacy of the containment/confinement design will be presented when its SER is published.²⁸

The Board is not persuaded by the evidence of record to date — nor at this juncture do we need to so find — that the CRBR will be built and operated in a manner that precludes the necessity for considering CDAs within the design basis. It is our opinion, consistent with the preceding discussion, that Applicants, Staff and Intervenors have identified no threshold matters that would prevent attaining such an objective. However, we foresee a heavy burden upon these parties at the construction permit phase of evidentiary hearings to provide sufficient evidence to permit a resolution of this question.

II. Environmental Effects of Severe Accidents

This topic is subsumed within portions of Intervenors' Contention 2 and Contention 3.²⁹ In support of these contentions, Intervenors have lodged specific challenges to the adequacy of the Staff's analyses reported in FES Supplement Appendix J. From those analyses, the Staff concluded that the environmental risks of both design basis and beyond-design-basis accidents are comparable to those from LWRs, and that the CRBR meets the basic requirements of the Staff.³⁰

²⁸ Finding No. 26-30.

²⁹ The relevant portions of these two contentions are as follows:

2. The analyses of CDAs and their consequences by Applicants and Staff are inadequate for purposes of licensing the CRBR, performing NEPA cost/benefit analysis, or demonstrating that the radiological source term for CRBR would result in potential hazards not exceeded by those from any accident considered credible, as required by 10 CFR 100.11(a), fn. 1.
 - f) Applicants have not established that the computer models (including computer codes) referenced in Applicants' CDA safety analysis reports, including the PSAR, and referenced in the Staff CDA safety analyses are valid. The models and computer codes used in the PSAR and the Staff safety analyses of CDAs and their consequences have not been adequately documented, verified or validated by comparison with applicable experimental data. Applicants' and Staff's safety analyses do not establish that the models accurately represent the physical phenomena and principles which control the response of CRBR to CDAs.
 - g) Neither Applicants nor Staff have established that the input data and assumptions for the computer models and codes are adequately documented or verified.
3. Neither Applicants nor Staff have given sufficient attention to CRBR accidents other than the DBAs for the following reasons:
 - c) Accidents associated with core meltthrough following loss of core geometry and sodium-concrete interactions have not been adequately analyzed.

³⁰ Finding No. 31-33.

Staff's estimate of a 10^{-4} per year frequency for core degradation due to an LOHS event appears to be reasonable. Various failures contributing to such an event have frequencies that support the LOHS analysis.³¹ The conclusion that design features can mitigate the frequency and severity of PHTS pipe ruptures has not been controverted. A pipe rupture probability of 10^{-7} to 10^{-9} per year of CRBR operation appears reasonable.³²

Containment failure mitigation systems can be lost for upwards of one day (due to the loss of onsite and offsite power) without invalidating the Appendix J breach of containment analysis. LWR experience with containment failure to meet leak test requirements does not represent a valid flow in the Staff's estimates of failure frequencies.³³

The likelihood of simultaneous failure of both RSSs (estimated by Staff at less than 10^{-5} per demand) is reasonable based upon proposed design features and is not altered by the proposed ATWS rule for LWRs.³⁴

In summary, it is the Board's opinion that the Staff's Appendix J analysis is adequately supportive of the conclusion that the environmental risks from severe accidents will not be significantly different from those associated with LWR accidents. This opinion explicitly recognizes the limitations of analyses predicated at this stage of the proceeding upon a design concept.

III. Accident Effects on Y-12 Plant and Other Nearby Facilities

The facilities of interest in this part of Contention 5³⁵ are the Oak Ridge Gaseous Diffusion Plant (K-25), the Y-12 plant, and the Oak Ridge National Laboratory (ORNL). The Board, upon reviewing the record, is unable to identify "other proposed energy fuel cycle facilities" which would be affected by CRBR operation. All three of the facilities of interest are owned and operated by the U.S. Department of Energy (DOE).³⁶

The K-25 facility is located about 2.5-3.5 miles NNW of CRBR. Its primary role is to enrich uranium for power reactors though some development work is being performed there on advanced uranium enrichment techniques. Even if K-25 were to be taken out of service, other gaseous diffusion plants in the DOE system

³¹ Finding No. 34-37.

³² Finding No. 37-38.

³³ Finding No. 39.

³⁴ Finding No. 40.

³⁵ Contention 5(b): Since the gaseous diffusion plant, other proposed energy fuel cycle facilities, the Y-12 plant and the Oak Ridge National Laboratory are in close proximity to the site an accident at the CRBR could result in the long term evacuation of those facilities. Long term evacuation of those facilities would result in unacceptable risks to the national security and the national energy supply.

³⁶ Finding No. 41.

are available and could be adjusted to meet the uranium-enrichment needs of the nation.³⁷

The Y-12 plant is located about 8.5 miles ENE of CRBR. This plant's role is to produce components and subassemblies for nuclear weapons and to support certain weapons development and testing programs. The Y-12 plant has no role in national energy.³⁸

The third facility, ORNL, is located 4-5 miles ENE of CRBRP. Research in many fields of modern science and technology is conducted at ORNL. Even the long-term evacuation of ORNL is not likely to impact the national energy supply.³⁹

Despite the fact that operations at these facilities could be interrupted over a long term and not have significant effects on the nation's energy supply, Applicants and Staff have calculated the effects of postulated CRBRP accidents on all three facilities.

Calculations were first made by Staff and Applicants for a Site Suitability Source Term (SSST) accident which gives an "SSST release" of radioactive materials from the CRBRP. This SSST release is a more severe release than for any design basis accident (DBA).⁴⁰

The calculated radiation doses to people at the various facilities, assuming that an SSST accident occurs, are as follows:

Applicants' Calculations
Doses in rem

	K-25	Y-12
Whole body	0.096	0.006
Thyroid	0.554	0.034

Staff's Calculations
Doses in rems

	K-25	Y-12
Whole body	0.019	negligible
Thyroid	0.320	0.011

Doses at ORNL for an SSST accident are computed by the Staff to be less than at K-25.⁴¹

³⁷ Finding No. 41-42.

³⁸ Finding No. 41, 44.

³⁹ Finding No. 41, 44.

⁴⁰ Finding No. 49.

⁴¹ Finding No. 45, 47, 48.

Guidance in common use for determining when evacuation is necessary is provided by the EPA Protective Action Guidelines (PAGs).

These PAGs are:⁴²

Whole body	1-5 rem
Thyroid	5-25 rem

Therefore, neither short- nor long-term evacuation of these facilities will be required in the event of an SSST accident, an accident worse than the design basis.

Calculations of doses at K-25, Y-12 and ORNL were also made by Applicants and Staff for source terms larger than the SSST. These larger source terms result from CDA's which are described in Section I of this Opinion. As the source terms are assumed to get larger and larger because of accidents of increasing severity, the effects on these offsite facilities become increasingly worse. At some point in this progression, evacuation of the facilities would be dictated, and at some further point, one can imagine consequences which could even require long-term evacuation of the facilities. This, of course, is the subject of Contention 5(b). However, the Board has already concluded for the purpose of this LWA-1 proceeding that no threshold matters have been identified that would prevent achieving the objective of preventing DBAs from progressing to CDAs.⁴³ The Board will review this matter of preventing DBAs during the construction permit phase of these hearings. For the purpose of this Partial Initial Decision, however, the Board has reasonable assurance that this question of long-term evacuation of nearby facilities has been adequately analyzed.

The Board would like to take note of one other subject which was raised during the hearing of Contention 5(b). This is the subject of the EPA's Protective Action Guidelines and their relationship to possible accidents at the CRBR. The CRBR is, of course, to be loaded with fuel of significantly different isotopic composition than other licensed reactors. Accidental releases then will be made up of concentrations of radioisotopes which are unique to the CRBRP type of reactor. The Staff's witnesses have testified that there is no guidance on bone surface dose for evacuation purposes and that this dose could be controlling though this has not been determined. These doses seem to come mainly from alpha particle emitters such as plutonium which originate in the reactor fuel.⁴⁴ Applicants' witnesses acknowledged that there is no PAG for bone dose.⁴⁵ Therefore, the Board will instruct the parties to this proceeding to address further this question during the

⁴² Finding No. 50.

⁴³ See Section I, Site Suitability, of this Opinion.

⁴⁴ Finding No. 53.

⁴⁵ Finding No. 54.

upcoming Construction Permit hearings. Specifically, the Board will hear testimony on whether the PAGs currently in use for evacuation planning purposes should be revised for use at CRBR to take account of those possible radioactive releases unique to CRBR, especially the actinide elements including plutonium.

IV. Genetic and Somatic Effects of CRBR Operation

Contentions 11(b) and 11(c)⁴⁶ concern the adequacy of both Staff's and Applicants' analyses of genetic and somatic health effects⁴⁷ from the operation of CRBR. However, Intervenor neither question the validity of the methodology nor the actual values of estimates of biological effect calculated by the Staff and Applicants. Rather, Intervenor contend that the Applicants and Staff are remiss for not considering the range of effects and the uncertainty in health risk estimators⁴⁸ presented by other workers in the field of radiation dose effects. The Staff and Applicants introduced evidence by experts in the fields of radiation health effects.⁴⁹

The testimony indicates that the BEIR-III Report risk estimation values used by the Staff and Applicants lead to upper limit estimates of genetic effects.⁵⁰ The cancer risk estimator values used by the Staff were based on models described in the BEIR-I Report, and are consistent with the recommendations of other major radiation protection organizations such as the International Commission for Radiation Protection (ICRP), the National Committee for Radiation Protection (NCRP)

⁴⁶ The full text of all admitted contentions is provided in Appendix B. For convenience, the text of Contentions 11(b) and 11(c) is stated here:

11. The health and safety consequences to the public and plant employees which may occur if the CRBR merely complies with current NRC standards for radiation protection of the public health and safety have not been adequately analyzed by Applicants or Staff.
 - b) Neither Applicants nor Staff have adequately assessed the genetic effects from radiation exposure including genetic effects to the general population from plant employee exposure.
 - c) Neither Applicants nor Staff have adequately assessed the induction of cancer from the exposure of plant employees and the public.

⁴⁷ *Genetic Effects* are those health conditions that are capable of being transmitted from parents to their offspring and subsequent generations but are not expressed in the exposed parents. *Somatic Effects* are health conditions expressed in the individuals who are themselves exposed to ionizing radiation. The term "Somatic Effects," as discussed in this proceeding, refers to cancer.

⁴⁸ *Risk Estimator* is the number of cases of a particular health effect in a population per unit of radiation dose; for example, the number of cases of cancer in a population of 1,000 per rem of radiation dose.

⁴⁹ Intervenor cite a number of experts who believe the Staff cancer risk estimation, 135 per one million person-rem, is low or probably low by factors ranging from 3 to 28 (Int. Ex. 22 at 35-36, Tr. 6229-30). The Board considers this testimony as reiterating Intervenor's assertion that the Staff and Applicants did not consider the uncertainties in health risk estimators and range of health effects proposed by experts other than those used by their own witnesses (Finding No. 67-69).

⁵⁰ Both Staff and Applicants use the BEIR-III (1980) Committee estimators for genetic effects. For somatic effects the Applicants use BEIR-III estimates and the Staff uses BEIR-I (1972) Committee estimators. The values of the risk estimators from these sources fall within overlapping ranges. The BEIR-I and BEIR-III are reports of committees of the National Academy of Sciences (Finding No. 62).

and the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR). These organizations represent the views of the overwhelming majority of the members of the scientific community.⁵¹

Further, the health effect estimates made by both the Staff and Applicants contain a number of conservative assumptions that include assumptions on radiation health effect risk estimators and dose-effect models.⁵²

Although approaching the estimation of genetic effects by slightly different means,⁵³ both Staff and Applicants conclude that the risk of such effects from CRBR operation is so small as to be undetectable in the population around CRBR.⁵⁴ A Staff witness, who served on the BEIR-III Committee calculated the combined increase in risk to the general public around CRBR and to the CRBR occupational work force to be 0.00002 percent as an upper limit for the first generation risk and a smaller risk in subsequent generations.⁵⁵ Applicants estimated similarly small values of genetic effects for both of these groups.

Both Applicants and Staff conservatively estimate numbers of somatic effects, the upper bound estimates of which are similarly small. The Staff estimates 0.14 additional cancer deaths per reactor year in the occupational work force and Applicants 0.07 to 0.2 cancers per reactor year in this occupational group.⁵⁶ The estimates of cancers in the general population around the CRBR are orders of magnitude smaller. These values can be contrasted to the approximately 16 percent of the population (or 160 per 1,000) which would be expected to die of cancer in the absence of CRBR.⁵⁷

The Applicants' and Staff's expert testimony in the fields of genetics and radiation health effects persuades the Board that the somatic and genetic effects of the operation of CRBR have been adequately considered. The estimated total number of effects would be a very small, and probably unmeasurable, fraction of those that would occur naturally in the population in the absence of CRBR.

V. Safeguards and Security

The safeguards issue essentially involves the adequacy of analyses of the environmental effects and costs of providing security and safeguarding CRBRP

⁵¹ For genetic effects, the Staff testified that the estimates (used by both the Staff and Applicants) given in the BEIR-III Report constitute the most appropriate basis for estimating the genetic effects likely to result from the operation of the CRBR (Staff Ex. 12 at 6, Tr. 4117. Finding No. 64).

⁵² *Dose-Effect Models* are mathematical representations of how the number of potential health effects changes over the range of possible radiation doses.

⁵³ Finding No. 59-60.

⁵⁴ Finding No. 62.

⁵⁵ *Ibid.*

⁵⁶ Finding No. 65-66.

⁵⁷ Finding No. 67.

and its supporting fuel cycle facilities.⁵⁸ Contentions 4 and 6(b)(4) challenge the Applicants' and the Staff's analyses of the consequences of acts of theft, sabotage or terrorism, and of the programs or security measures adopted to prevent such actions.⁵⁹ The Applicants assert the evidence shows that it is feasible to design a safeguards system for CRBRP and its fuel cycle facilities, such that the risks of theft or sabotage can be made acceptably low at reasonable costs.⁶⁰ The Staff believes that the consequences of successful acts of sabotage or theft could be severe and are unacceptable, but it has concluded that there is reasonable assurance that the Applicants' safeguards system will effectively protect against these risks.⁶¹

To evaluate the feasibility of a safeguards system, it is first necessary to identify the nature and extent of potential risks or dangers. The Applicants have developed studies to describe a profile of potential adversaries, their capabilities and motivations, and their objectives. The DOE has performed studies, some in communication with the intelligence community, to identify a range of potential threats rather than a single design basis threat.⁶²

The objectives of the CRBRP safeguards systems are: (1) to deter malevolent actions directed at the facilities, (2) to prevent the success of such attempts if they occur, and (3) to minimize the potential consequences of any successful malevolence. These objectives are to be met by the development of an integrated system combining physical protection and material control and accounting (MC&A).

⁵⁸ The regulations dealing with safeguards-type issues are set forth in 10 CFR Part 73.

⁵⁹ Contention 4. Neither Applicants nor Staff adequately analyze the health and safety consequences of acts of sabotage, terrorism or theft directed against the CRBR or supporting facilities nor do they adequately analyze the programs to prevent such acts or disadvantages of any measures to be used to prevent such acts.

- (a) Small quantities of plutonium can be converted into a nuclear bomb or plutonium dispersion device which if used could cause widespread death and destruction.
- (b) Plutonium in an easily usable form will be available in substantial quantities at the CRBR and at supporting fuel cycle facilities.
- (c) Analyses conducted by the Federal Government of the potential threat from terrorists, saboteurs and thieves demonstrate several credible scenarios which could result in plutonium diversion or releases of radiation (both purposeful and accidental) and against which no adequate safeguards have been proposed by Applicants or Staff.
- (d) Acts of sabotage or terrorism could be the initiating cause for CDAs or other severe CRBR accidents and the probability of such acts occurring has not been analyzed in predicting the probability of a CDA.

Contention 6. The ER and FES do not include an adequate analysis of the environmental impact of the fuel cycle associated with the CRBR for the following reasons:

- (b) The impacts of the actual fuel cycle associated with CRBR will differ from the model LMFBR and fuel cycle analyzed in the LMFBR Program Environmental Statement and Supplement. The analysis of fuel cycle impacts must be done for the particular circumstances applicable to the CRBR. The analyses of fuel cycle impacts in the ER and FES are inadequate since:
 - (4) The impact of an act of sabotage, terrorism or theft directed against the plutonium in the CRBR fuel cycle, including the plant, is inadequately assessed, as is the impact of various measures intended to be used to prevent sabotage, theft or diversion.

The complete text of all admitted contentions is set forth in Appendix B, *post*.

⁶⁰ App. Ex. 39 at 4; Tr. 3477.

⁶¹ Staff Ex. 10 at 5-6; Tr. 3736-37, 3744-46; Finding No. 103-115.

⁶² Finding No. 70-71.

Physical protection components have been developed and tested over a period of years. These include sensors such as microwave, ultrasonic and buried cable, closed circuit television (CCTV) for surveillance and assessment of unusual incidents, and personnel access controls and physical barriers. Armed protective response and recovery forces have also been trained.⁶³

An important element of the safeguards system for CRBRP and its supporting fuel cycle facilities will be the material control and accountability for plutonium moving throughout the system. Material control procedures are in effect to provide surveillance and control of special nuclear materials, and include methods such as two-person rule, access controls, security seals, and surveillance. Accountability systems generate and maintain data on the location and status of special nuclear material inventories, and the equipment and procedures used to verify the physical inventory through measurements.⁶⁴

Inherent and specific plant design characteristics must also be considered in evaluating potential risks of theft and sabotage directed at CRBRP. Fresh fuel will be delivered in 3000-pound containers by trucks, which will be Safe Secure Transport (SST) types operated by armed couriers under DOE Transportation Safeguards System (TSS) management. The fuel assemblies will be intact during their entire lifetime in the plant, requiring remote handling through sophisticated computer systems to obtain access. All fuel handling will be under closed circuit television coverage, monitored by guard forces. Irradiated fuel is both radiologically and thermally very hot, which makes it an extremely unattractive target of theft.⁶⁵

Sabotage as an event is marginally possible, even though it is not considered a likely event. Accordingly, a rigorous analysis has been made concerning potential credible scenarios involving radiological sabotage, as defined by NRC regulations (10 CFR §73.2(p)). Deliberate attempts to initiate a transient and a resultant severe accident would require the manipulation of complex electronic circuitry. Any mistake by a saboteur would result in a reactor scram shutdown. Also, upon any indication of abnormal conditions, the reactor could be scrambled from several remote locations and placed in a safe shutdown condition.⁶⁶

Multiple layers of safeguards are provided to preclude failure to scram. Access is closely limited to authorized personnel. Any saboteur would have to manipulate equipment at two or more locations within the plant almost simultaneously, as well as having detailed knowledge of the design and operation of the protection and control systems. Multiple and complex sensors will be built into the security system. Logic train circuit panels will be provided in both the primary and

⁶³ Finding No. 73, 81, 87.

⁶⁴ Finding No. 75, 87.

⁶⁵ Finding No. 74, 76, 79, 87, 97, 99.

⁶⁶ App. Ex. 39 at 31; Tr. 3505; Finding No. 78, 79.

secondary plant protection systems. Efforts to bypass the logic train circuits or to defeat their systems of relays would result in alarms to the operator, or might cause scram.⁶⁷

The safeguards and security systems for the CRBR plant have been subjected to detailed professional analyses, including studies performed by Sandia Laboratories and Science Applications, Inc. (SAI). Those sabotage and diversion studies have involved the use of such technologies as probabilistic risk analysis and fault tree analysis.⁶⁸

The operational features of the plant security system include the professional selection, screening and continuous observation and evaluation of plant personnel. Physical security design features provide the highest protection of vital areas, which are the most sensitive areas within the plant. Accordingly, four security areas with increasing degrees of security will be designated as (1) controlled area, (2) isolation zone, (3) protected area, and (4) vital areas. These areas will be separated by function, with access strictly controlled and monitored by sophisticated computer and electronic systems using advanced safeguards technology.⁶⁹

Inherent safety-related features will further make the plant risks associated with sabotage, theft or diversion extremely low. These features include seismically hardened structures, reinforced concrete walls to resist tornado or turbine-generated missiles, reactor containment and confinement, redundancy of safety-related equipment, and physical separation of safety-related equipment.⁷⁰

The capital costs for CRBRP safeguards and security systems have been estimated at \$3.8 million, and the operating costs at \$2.5 million per year during the demonstration period. These costs are less than one percent of the total cost of constructing and operating the facility during the five-year demonstration period, and do not significantly affect the cost-benefit balance.⁷¹

In addition to the CRBR plant itself, the instant contentions also refer to its supporting fuel cycle facilities. These facilities are or will be DOE government-owned facilities, subject to DOE safeguards and security. These safeguards and security systems will be required to meet and to have a level of effectiveness not less than that required by NRC regulations. In addition, these supporting facilities and transportation links are not unique, but they are similar to other power reactors and DOE production and transportation activities.⁷²

There are three types of supporting facilities or activities involved in safeguards and security matters. The first concerns fuel fabrication, which will be performed at the Secure Automated Fabrication (SAF) line to be constructed in DOE's Fuels

⁶⁷ App. Ex. 39 at 28-32; Tr. 3502-06; Finding No. 78, 79.

⁶⁸ App. Ex. 39 at 34-36; Tr. 3508-10; Finding No. 72, 80.

⁶⁹ Finding No. 79, 81, 83.

⁷⁰ Finding No. 77, 79, 81, 87.

⁷¹ App. Ex. 39 at 49-50; Tr. 3523-24; Finding No. 86, 87.

⁷² App. Ex. 39 at 16-21, 51-56, 79; Tr. 3489-94, 3525-30, 3553; Finding No. 70, 87, 88, 102.

and Materials Examination Facility (FMEF) at the Hanford Reservation in Richland, Washington. That facility is now under construction and is expected to be in operation within three years. It will be protected by an integrated safeguards system composed of a physical security and material control and accountability systems.⁷³ The costs associated with the physical protection of fuel fabrication operations required for the CRBRP are estimated at an initial investment of \$1.5 million, and annual costs of \$0.8 million.⁷⁴

The second supporting facility with safeguards importance concerns the reprocessing of spent fuel discharged from the CRBRP. This reprocessing is expected to occur in DOE's proposed Demonstration Reprocessing Plant (DRP). Extensive conceptual designs for this plant have been developed at the Oak Ridge National Laboratory. Reprocessing CRBRP fuels is very similar to ongoing activities in existing nuclear facilities, and will involve similar risks and similar safeguards systems.⁷⁵ Estimated *pro rata* costs arising from fuel reprocessing are projected to be about \$4 million for initial capital costs, and about \$1.1 million for annual operating costs.⁷⁶

The third activity to be considered in connection with the physical protection of nuclear materials involves the transportation of fresh fuel to and spent fuel from CRBRP. Transportation will use the existing DOE transportation system for strategic special nuclear materials. This transportation system has been carefully designed and continuously tested to assure a high level of safety and security protection for nuclear materials. It is an effective combination of specially designed transportation equipment, nationwide communications, and armed couriers.⁷⁷ The transportation costs associated with the physical protection of the transportation of fresh fuel for CRBRP will be only a small incremental increase to the existing transportation system. It is estimated to be less than \$1 million per year. The costs associated with safeguarding the transportation of spent fuel from CRBRP are estimated at \$200,000 per year.⁷⁸

High level radioactive waste (HLW) will be stored in accordance with the physical security program at the reprocessing plant prior to shipment. Its transportation to a repository will be conducted in a manner similar to the transportation of spent fuel, *supra*, utilizing heavily shielded casks resistant to penetration for sabotage. The repository for HLW will be licensed by NRC, which will establish the requisite security and safeguards requirements to be met by DOE. The costs of

⁷³ App. Ex. 39 at 51-55; Tr. 3525-29; Finding No. 89, 90.

⁷⁴ App. Ex. at 56-58; Tr. 3530-32; Finding No. 91.

⁷⁵ App. Ex. 39 at 67-75; Tr. 3541-49; Finding No. 92-95.

⁷⁶ App. Ex. 39 at 76-7; Tr. 3550-51; Finding No. 96.

⁷⁷ App. Ex. 39 at 58-66; Tr. 3532-40; Finding No. 97-99.

⁷⁸ App. Ex. 39 at 67; Tr. 3541; Finding No. 100.

adequate safeguards for high level waste are estimated to be small and do not affect the cost-benefit ratio.⁷⁹

The consequences of successful acts of sabotage or theft of plutonium, which could be used in either explosive or dispersal devices, would be unacceptable. Accordingly, the Staff has analyzed the safety and environmental impacts of the safeguards systems necessary to render very unlikely any successful acts of sabotage or theft. The combined effectiveness of physical protection and material control and accounting systems was evaluated. The Staff analyzed potential theft and sabotage threats, with the design basis threats contained in 10 CFR 73.1(a) representing the Staff's best judgment of the characteristics of potential adversaries toward nuclear activities (Finding No. 103-106, 108-109, 112, 122).

The Staff concluded that the DOE regulations and Orders provide safeguards adequate to repel acts of sabotage or theft equal to or greater than the NRC design basis threats (Finding No. 113-114). The Applicants have committed to meet all DOE safeguards and security Orders (Finding No. 107). DOE will also be subject to NEPA requirements pertaining to the environmental effects of its activities, under DOE's NEPA responsibilities as a federal agency (Finding No. 111). The environmental impact of necessary safeguards measures will be negligible compared to the overall environmental impact of the fuel cycle, and their dollar cost will also be comparatively insignificant (Finding No. 115-116).

The Intervenor listed certain events claimed to constitute empirical evidence that successful theft or sabotage is credible. These events included possible thefts at the NUMEC plant and at Wilmington, Delaware, and possible sabotage of VEPCO Surry reactors and the Iraqi reactor being fabricated in France (Tr. 3899-3900). However, the evidence showed that none of these events even remotely involved facilities subject to a level of safeguards comparable to those to be provided at CRBRP and its supporting facilities (Tr. 3800-17; Finding No. 117).

The Intervenor also contend that safeguards may involve civil liberties restrictions such as warrantless searches or arrests, or the imposition of martial law. These speculative risks are not shown to be any greater than those involved in military nuclear programs or the use of commercial nuclear reactors. In any event, there is no reason to assume a significant breakdown of traditional respect for constitutional rights and liberties (Finding No. 119).

Intervenor's uncertainties concerning DOE's compliance with its safeguards commitments are not based upon any evidence that NRC will not enforce its regulatory requirements as to the CRBRP (10 CFR Parts 70 and 73; Finding No. 120-122). The record also shows that both DOE and the other Applicants are

⁷⁹ App. Ex. 39 at 78; Tr. 3552; Finding No. 101.

strongly committed to the establishment and operation of effective safeguards and security systems.

There is reasonable assurance from the evidence of record that the Applicants' safeguards system will be effective in protecting CRBRP against theft and sabotage, and that the environmental effects were adequately addressed by the Applicants and were reasonably assessed by the Staff in compliance with NEPA.

VI. Fuel Cycle Issues

The fuel cycle issues discussed in this section are subsumed within Contention 6(b)(1) and Contention 6(b)(3).⁸⁰ Four arguments were made by Intervenor to support these contentions:

- (a) The isotopic concentrations of Pu-238 and Pu-241 may be underestimated for CRBR spent fuel, causing the plutonium dose from fuel reprocessing to be underestimated by a factor of from 2 to 4.3;
- (b) By not considering alternative reprocessing facilities, environmental risks from fuel reprocessing were not conservatively estimated;
- (c) Inadequate containment factors⁸¹ for fuel cycle support facilities were used; and
- (d) Environmental impacts from radiological releases associated with handling wastes were improperly evaluated.

The various activities and facilities required to provide and dispose of fuel and blanket assemblies for the CRBR have been described in detail. The radiological impacts associated with all aspects of the fuel cycle have been analyzed and reported. They are small compared with the U.S. population dose attributable to natural background.⁸²

The dependency of radiological impacts upon plutonium isotopic concentrations was examined to determine whether said impacts were adequately assessed. To be conservative, higher burnup LWR fuel (20 percent Pu-240 content) was used for analysis rather than that from which CRBR fuel is to be fabricated (12 percent

⁸⁰ These portions of Contention 6 read as follows:

6. The ER and FES do not include an adequate analysis of the environmental impact of the fuel cycle associated with the CRBR for the following reasons:

(b) The analysis of fuel cycle impacts in the ER and FES are inadequate since:

- (1) The impact of reprocessing of spent fuel and plutonium separation required for the CRBR is inadequately assessed;
- (3) The impact of disposal of wastes from the CRBR spent fuel is inadequately assessed.

⁸¹ *Containment Factor*, as used in this context, refers to plutonium cleanup and is the ratio of the amount of plutonium released to the environment by a particular facility over a given period of time to the total amount of plutonium handled by that facility in the same period of time.

⁸² Finding No. 123-125.

Pu-240). The effect upon reprocessing was examined since that activity contributes the largest dose.⁸³ Since over 99 percent of the dose attributable to reprocessing comes not from plutonium but from tritium and carbon-14 in the spent fuel, the overall radiological impact from reprocessing is insensitive to the plutonium isotopic content values assumed. There is an adequate supply of the lower burnup LWR spent fuel proposed for CRBR use and should a change to higher burnup fuel be proposed, NRC analysis of such a change would be a prerequisite to its adoption.⁸⁴

The plan of reference for reprocessing CRBR spent fuel is to utilize a yet-to-be-built DOE developmental reprocessing plant (DRP) and the radiological impacts of reprocessing were analyzed on the basis of performance characteristics of that proposed facility. The two isotopes that would contribute the most to reprocessing impacts (tritium and carbon-14) were very conservatively assumed to enter the DRP undiminished in amount from that produced in the reactor. In reality, much of the tritium (about 90 percent) produced in the reactor fuel will have been removed during reactor operation after having diffused through the fuel cladding. Carbon-14 produced in the fuel cladding will remain there and will be disposed of with the cladding in a permanent repository. As the result, the calculated DRP reprocessing impact is about a factor of five higher than is actually expected and conservatively bounds the impacts of alternative reprocessing facilities. The five-year operational demonstration period of the CRBR does not require the availability of the DRP. If no reprocessing were undertaken and the spent fuel were stored, environmental impacts would be significantly lessened.⁸⁵

The adequacy of plutonium containment factors used to assess the radiological impacts from operation of the CRBR fuel cycle facilities was reviewed. Intervenors hold that experience at operating facilities shows about a ten-fold poorer performance with respect to containment factors than that projected for the CRBR fuel facilities. A performance improvement of this magnitude, if needed, can readily be achieved by adding additional filtration elements or by enlarging the size of pipes or ducts. Experience indicates that the assumed containment factors are achievable. A comparison of historical plutonium releases from the Rocky Flats facility with what might be expected from CRBR support facilities is inappropriate because of significant differences between the two facilities.⁸⁶

The requirements generated by CRBR operation for the handling of high level radioactive wastes are similar to those of the commercial nuclear power industry. The quantity of high level CRBR wastes will be a small fraction of the waste

⁸³ Finding No. 125.

⁸⁴ Finding No. 126-129.

⁸⁵ Finding No. 130-132.

⁸⁶ Finding No. 133-136.

handling capability needed to support that industry, and the radiological impacts have been conservatively overestimated by a factor of about three, as reported by the Staff. Even so, the number of estimated health effects per year from such wastes is small compared with draft EPA standards for waste disposal.⁸⁷

In summary, it is the Board's opinion that no substantive challenges have been lodged successfully against the proposed design, operation and related environmental impacts with respect to the CRBR fuel cycle support activities. Within the context of those parts of Contention 6 addressed in this Opinion section, fuel cycle matters have been adequately analyzed for a facility of the general size and type of the CRBR.

VII. Alternative Sites

Contentions 5(a) and 7(c) concern allegations that the CRBRP site is less favorable than most sites used for LWR's and less favorable than that of several alternative sites.⁸⁸ In the Commission's August 17, 1976 decision, it stated, "In considering alternatives, including non-TVA siting alternatives, in the present proceeding, the following general principle should be observed: consideration of alternatives need go no further than to establish whether or not substantially better alternatives are likely to be available" (CLI-76-13, 4 NRC 67 at 92). The Board recognizes this language to be controlling. Moreover, we hold that the language in the Proposed Rule on alternative sites (45 Fed. Reg. 24168 (April 9, 1980)), which defines a two-part methodology to determine if a given alternative is "obviously superior," does not differ significantly from the Commission's "substantially better" test set forth in its decision in the instant case.⁸⁹

The evidence of record supports the Applicants' and Staff's conclusions rejecting the alternative siting concepts of a hook-on plant, co-location, and underground siting.⁹⁰

The Staff considered alternative sites both within TVA and DOE. Some of the alternative sites had lower population densities and more favorable atmospheric

⁸⁷ Finding No. 137-140.

⁸⁸ Contentions 5(a) and 7(c) state:

5. Neither Applicants nor Staff have established that the site selected for the CRBR provides adequate protection for public health and safety, the environment, national security, and national energy supplies; and an alternative site would be preferable for the following reasons:
 - a) The site meteorology and population density are less favorable than most sites used for LWRs.
7. Neither Applicants nor Staff have adequately analyzed the alternatives to the CRBR for the following reasons:
 - c) Alternative sites with more favorable environmental and safety features were not analyzed and insufficient weight was given to environmental and safety values in site selection.

⁸⁹ Finding No. 142.

⁹⁰ Finding No. 144.

dispersion characteristics than the Clinch River site. However, all of the sites, including Clinch River, meet Regulatory Guide 1.23 and 1.145 as to their meteorology, and meet Regulatory Guide 4.7 as to population density.⁹¹

Appendix J of the FESS (Staff Ex. 8) indicates that the risks associated with severe accidents at CRBRP are small and generally comparable to those associated with light water reactors. Moreover, the risks associated with routine releases during normal operation are likewise small. Further, the doses calculated for the site suitability source term (SSST), which are greater than those associated with design basis accidents, were well below the 10 CFR 100 dose guidelines.⁹²

The comparison of the CRBRP site with the alternative sites showed that some of the alternative sites within the TVA service area possess certain advantages over the Clinch River site and that all three potential DOE sites had lower population densities and more favorable atmospheric dispersion characteristics. However, given the small and environmentally acceptable impacts of the proposed LMFBR at Clinch River, the reduction in doses that are calculated at the alternative sites does not lead to the conclusion that the alternative sites are either substantially better or obviously superior. That is, the projected dose reductions at the alternative sites do not represent a significant difference in predicted environmental impacts.⁹³

A total of 11 sites, including the Clinch River site, within the TVA service area were analyzed, as well as sites within DOE's jurisdiction. The analyses of DOE sites screened out all but three sites. The factors which eliminated most of these sites were lack of available cooling water, high surrounding population density, and insufficient land.⁹⁴ The overall review of alternative sites included examination of the hydrology, water quality, aquatic biological resources, terrestrial resources, water and land use, socio-economics, population, and atmospheric dispersion characteristics of the proposed sites.⁹⁵ The Staff independently reviewed the alternative sites and selected an appropriate slate of alternative (candidate) sites for analysis. The Staff then concluded that no alternative TVA site would be environmentally preferable, and therefore none would be substantially better than the CRBRP site.⁹⁶

The Proposed Rule on site selection operates at two levels. The first level represents an evaluation of the population of candidate sites based upon environmental considerations. As we have opined above, none of the alternative sites appears to be substantially better or obviously superior to the Clinch River site, and one could close the analysis there. However, the Proposed Rule also provides for a

⁹¹ Finding No. 145-146.

⁹² Finding No. 160, 163.

⁹³ Finding No. 151-52, 162-63.

⁹⁴ Finding No. 149-151.

⁹⁵ Finding No. 145-47.

⁹⁶ Finding No. 147.

second level of analysis which considers institutional, economic and programmatic requirements. In that second-level analysis, a balancing and determination can be made to determine whether a particular alternative site is obviously superior.⁹⁷

For the LMFBR, there are programmatic objectives which are site dependent. The Applicants have identified these as the goal of utility participation and programmatic timing. Utility participation by TVA has contributed to the design and will contribute to construction and eventual operation. It was the position of both the Staff and the Applicants that utility participation was not available at any of the alternative national (DOE) sites.⁹⁸

As for programmatic timing, which is set at "as soon as possible," there would be an inevitable delay in switching to any alternative site at this late date. Estimates of that delay are from 33 months to 43 months. Such a delay would add substantial economic costs.⁹⁹

To justify a change in sites, one would have to establish that a substantial reduction in risks and lessening of environmental consequences could be obtained from the alternative site. The evidence of record does not indicate that substantial risk reductions or environmental benefits would accrue with a change of site. All sites meet the threshold criteria for both population density and meteorology. Therefore, the balance dictates that the Clinch River site, which provides the programmatic objectives of timing and utility participation, is the preferred site, and that no substantially better alternative site is available.

VIII. Programmatic Objectives and Design Alternatives

Contentions 7(a) and 7(b) raise¹⁰⁰ three issues: first, whether CRBR is likely to meet its objectives; second, whether CRBR will provide information relevant to an

⁹⁷ Finding No. 142.

⁹⁸ Finding No. 179.

⁹⁹ Finding No. 177-78.

¹⁰⁰ Appendix B provides the full text of all admitted contentions. For convenience, Contention 7(a) and (b) provides:

7. Neither Applicants nor Staff have adequately analyzed the alternatives to the CRBR for the following reasons:

a) Neither Applicants nor Staff have adequately demonstrated that the CRBR as now planned will achieve the objectives established for it in the LMFBR Program Impact Statement and Supplement.

(1) It has not been established how the CRBR will achieve the objectives there listed in a timely fashion.

(2) In order to do this it must be shown that the specific design of the CRBR, particularly core design and engineering safety features, is sufficiently similar to a practical commercial size LMFBR that building and operating the CRBR will demonstrate anything relevant with respect to an economic, reliable and licensable LMFBR.

(3) The CRBR is not reasonably likely to demonstrate the reliability, maintainability, economic feasibility, technical performance, environmental acceptability or safety of a relevant commercial LMFBR central station electric plant.

(Continued)

economic, reliable and licensable LMFBR; and third, whether the informational requirements of the LMFBR program or a demonstration facility might be substantially better satisfied by alternative design features. These three issues correspond with Contention 7(a)(1) and (3), 7(a)(2) and 7(b) respectively. As with contentions dealing with alternative sites (Section VII, *supra*), the Board has been guided by the Commission's August, 1976 decision and the test we have applied is whether there are likely to be any substantially better alternatives for meeting program objectives.

The LMFBR program objectives and timing for CRBRP are set forth in the DOE Supplement to the LMFBR Program Final Environmental Impact Statement (FEIS), DOE/EIS-0085-D (May, 1982) on page 57 as follows:

- (a) to demonstrate the technical performance, reliability, maintainability, safety, environmental acceptability, and economic feasibility of an LMFBR central station electric power plant in a utility environment;
- (b) to confirm the value of this concept for conserving important nonrenewable natural resources.

In addition, the programmatic timing of the CRBRP has been established by the DOE FEIS and its record of decision to be "as soon as possible."¹⁰¹

The Applicants provided evidence that project objectives were made an integral part of the design process. Through a systematic management approach from the overall plant design to the level of detailed equipment specifications, the project objectives have been kept at the front, and, as the design progressed, the project objectives were made an integral part of the designers' day to day tasks.¹⁰²

The Intervenor introduced a letter from GAO which was critical of the CRBRP steam generator testing program.¹⁰³ We explored the testing program in considerable detail and the record strongly supports our conclusion that CRBRP will meet its technical objectives for steam conditions. We also concluded that the GAO letter was unduly critical and that the Intervenor's reliance on the GAO letter was largely misplaced. However, a single matter relating to the Intervenor's and GAO's concerns remains unspoken to in the record. This relates to the question of the ability of the steam generators to withstand sharp temperature transients. On balance there do not appear to be any insuperable problems, but the Board intends to explore the significance of sharp temperature transients on the steam generators at the Construction Permit phase of these hearings so that any uncertainty may be resolved.¹⁰⁴

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- b) No adequate analysis has been made by Applicants or Staff to determine whether the informational requirements of the LMFBR program or of a demonstration-scale facility might be substantially better satisfied by alternative design features such as are embodied in certain foreign breeder reactors.

¹⁰¹ See 47 Fed. Reg. 33771 (August 14, 1982); App. Ex. 58 at 4; Tr. 6410; Staff Ex. 21 at 2; Tr. 6523).

¹⁰² Finding No. 180.

¹⁰³ Finding No. 186.

¹⁰⁴ Finding No. 185-98.

The evidence indicates that CRBR will perform as designed. That is, it will generate thermal power, steam conditions and electrical power. Thus, it is likely that it will meet its technical performance objective.¹⁰⁵

The core physics has been tested as has been core flow. CRBR has the advantage of having EBR-2 and FFTF as its predecessors and these have provided vital experience and analytical tools for the design of CRBR. EBR-2 and FFTF have also provided experience and information for the heat transport system for CRBR.¹⁰⁶

The turbine generators to be used at CRBR and the related portion of CRBR have been based on proven technology derived from light water reactors and fossil fueled plants.¹⁰⁷

In considering then, the core heat generation, the performance of the heat transport system, the steam generators and the turbine, the evidence indicates that CRBR is well designed and that there is a high likelihood that it will meet its technical performance objectives.

The Applicants have used reliability analysis techniques to assure that the system, subsystems and components are engineered to meet availability goals. Used as an engineering tool, the reliability program provides a high likelihood that the desired availability and operability for CRBR will be achieved.¹⁰⁸

Maintainability, which goes hand-in-hand with reliability, has received substantial attention in the design of CRBR. Components in the sodium-filled systems have been designed so that they can be drained free of sodium for maintenance or removal. Major components are designed such that they can either be removed or repaired in place to minimize downtime and facilitate replacement or repair if needed. A full-scale mock-up of the head access area was built to assure that the accommodation of moving parts and the maintainability and operability of the equipment in the head access area had been provided for. This also applies to the secondary control rod drive mechanisms. The systematic application of maintenance requirements in the design process provides a high likelihood that the objective of maintainability will be met.¹⁰⁹

The evidence presented by both the Applicants and the Staff and the Staff's Site Suitability Report collectively indicate that CRBR can be licensed and that it will operate safely within the constraints of existing environmental regulations.¹¹⁰

The demonstration of the economic feasibility of a commercial LMFBR is a further objective of the program. The CRBR project has developed a comprehen-

¹⁰⁵ Finding No. 181-99.

¹⁰⁶ Finding No. 185.

¹⁰⁷ Finding No. 199.

¹⁰⁸ Finding No. 201.

¹⁰⁹ Finding No. 202-05.

¹¹⁰ Finding No. 205-06.

sive cost accounting system to provide the cost information for the development of larger breeder power reactors. The costs between the CRBR first of a kind and the recurring costs are separable, so that an ample basis for extrapolating to full commercial scale breeders should be available.¹¹¹

The record presents evidence that it is more than likely that a respectable breeding ratio will be achieved with the heterogeneous core designed for CRBR, and as plant size increases from CRBR to the next generation reactor, there will be a corresponding increase in breeding ratio. A conservation of nonrenewable resources will also result from the use of existing stocks of depleted uranium. Thus, these two additional objectives are quite likely to be accomplished.¹¹²

The final objective of the program, namely to operate an LMFBR in a utility environment, is assured through the arrangements made to operate CRBR on the TVA system with TVA personnel.¹¹³

Whether CRBR will provide information useful and relevant to commercial designs is answerable in the affirmative. The evidence indicates that CRBR systems design are already providing direct information to the next generation of LMFBRs and the LDP project, and we conclude that this process is likely to continue.¹¹⁴

The final question before us on Contention 7(a) and 7(b) is whether there are alternative designs, such as are embodied in certain foreign breeder reactors, which are substantially better alternatives for meeting the program objectives.

The Intervenors did not present a direct case on alternative designs, though they suggested six design alternatives that are not included in the design of CRBR. These six are a pool design, heavy sodium pump flywheels, lower system operating temperatures, a third shutdown system, a core catcher and a no-vent containment. Since the record is devoid of evidence to suggest that any of these alternatives is substantially better than the existing design, we have concluded that it is not likely that there are better design alternatives for meeting the program objectives.¹¹⁵

In closing this section of our Opinion, we must add some words about the timing objective. There is, in essence, a mandate that this project move ahead as soon as possible. The Board has attempted to treat timing as one factor which must be weighed in the balance. We have not treated timing as a meaningless criterion, nor have we summarily dismissed any possible alternative just because acceptance of that alternative would inevitably prevent CRBR from moving ahead as soon as possible. Had a substantially better alternative appeared, timing would have

¹¹¹ Finding No. 207.

¹¹² Finding No. 208 and 210.

¹¹³ Finding No. 209.

¹¹⁴ Finding No. 207 and 212-17.

¹¹⁵ Finding No. 218-29.

become a subordinate consideration and we would have accepted the substantially better alternative as the course to follow. However, we have not been presented with substantially better alternatives and hence timing has not played a major role in our decision.¹¹⁶

FINDINGS OF FACT

A. CONTESTED ISSUES (I THROUGH VIII)

I. Site Suitability and Accident Considerations

1. One or both of two basic conditions must exist in the core of the reactor in order for an accident to progress: reduced heat removal, and/or excessive heat generation. Absent the reestablishment of a balance between heat generation and heat removal, an accident can progress in severity leading to a CDA (App. Ex. 1, at 14-15; Tr. 2003-04).

2. Reduced heat removal can occur in two ways: reduced primary coolant flow through the core and/or increased primary coolant temperature at the core inlet (*Id.* at 17; Tr. 2006).

3. Applicants considered two regimes of core involvement with respect to reduced heat removal and excessive heat generation: whole core involvement and local region involvement (*e.g.*, one fuel assembly) (*Id.* at 15; Tr. 2004).

4. There are four categories of design features that are provided to prevent initiation of a CDA: (1) the reactor shutdown systems (RSSs); (2) the shutdown heat removal systems (SHRSs); (3) means to prevent primary heat transport system (PHTS) piping leaks from exceeding a design basis leak; and (4) features to prevent local imbalances within the core between heat generation and heat removal (*Id.* at 26; Tr. 2015).

5. Heat removal from the core is accomplished by an overall heat transport system (HTS) that comprises three separate subsystems designated as the primary heat transport system (PHTS), the intermediate heat transport system (IHTS), and the steam generator (SG). Two pumps in each subsystem provide forced circulation of sodium through the reactor core via these three subsystems. Failure of one or more of these subsystems can result in reduced heat removal from the core unless compensated for by automatic RSS and SHRS. Successful operations of the RSS and the SHRS are called upon to reestablish the balance between heat generation and heat removal (App. Ex. 1 at 16-18; Tr. 2005-07).

6. Loss of power to all three primary pumps in the three PHTSs constitutes the most severe (*i.e.*, most conservative) loss-of-power event that could initiate a

¹¹⁶ Finding No. 211.

DBA. This type of PHTS failure has been assumed in analyzing the consequences of DBAs. Mechanical failure of one pump, including rapid seizure, is another PHTS failure mode that is considered to be a credible DBA initiator. Simultaneous mechanical failure of more than one pump is not considered credible (App. Ex. 1 at 17-18; Tr. 2006-07).

7. An additional mechanism that can reduce PHTS sodium flow through the core is the leakage of sodium from piping, either through a pipe crack or as the result of a double-ended pipe rupture. Based upon plant design features, system state points, operating conditions, and a technologically feasible leak detection system, an upper bound (*i.e.*, conservative) sodium leak rate through a crack has been estimated (design basis leak rate) to not exceed one ten thousandth of the normal flow rate through the core. Such a design basis leak rate is orders of magnitude higher than the leak detection sensitivity of the redundant, diverse and feasible leak detection monitors proposed to be provided (Tr. 2030). Said leak rate does not result in a significant reduction of heat removal capability and represents a leak size that can be accommodated by plant protective features (App. Ex. 1 at 18-19; Tr. 2007-08. *Id.* at 40-41; Tr. 2029-30).

8. A double-ended rupture of one of the PHTS pipes near the reactor vessel inlet can produce an initiating condition leading to a CDA. This is not considered by Applicants to be a credible event because:

- (a) Quality assurance standards will minimize crack inducing flaws in piping initially installed in plant;
- (b) Fracture mechanics properties of piping material will assure that cracks do not grow to a size that threatens rupture;
- (c) Leak-before-rupture property of piping coupled with a sensitive leak detection system will ensure that cracks are detected in advance of a rupture-threatening condition;
- (d) Near-atmospheric operating pressure of sodium coolant minimizes stress on piping; and
- (e) Environmental control associated with in-place piping will minimize corrosion and embrittlement of pipe alloy material (App. Ex. 1, at 40-43; Tr. 2029-32).

9. The RSSs comprise two redundant, diverse and independent, fast-acting systems, each of which is capable of shutting down the reactor and preventing the progression of a DBA to the point of initiating a CDA. The "fast-acting" characterization refers to there being no substantive, intended difference in shut-down response times between the two proposed CRBR control rod shutdown systems and the one fast-acting control rod shutdown system used in LWRs. Thus experience with the latter provides a technology base for the former (Tr. 1698-1702). Different design concepts for sensors, logic circuits, rod drive mechanisms and rod configurations are used for each RSS. Redundancy within each RSS minimizes the chance of common-cause failures. Applicants conclude that there is

a low likelihood of a DBA progressing to a CDA because of a failure to scram (App. Ex. 1 at 27-35; Tr. 2016-24).

10. Subsequent to reactor shutdown, core protection (avoidance of a CDA) is dependent upon a functionally available SHRS to remove core decay heat, provided for by four independent paths. Three of these paths are similar and redundant and ultimately reject heat to the atmosphere through the turbine-generator (T-G) condenser and the cooling tower. In the event that the T-G condenser path is not available, the SHRSs make use of an automatically actuated steam generator auxiliary heat removal system (SGAHRs). The SGAHRs reject heat by venting steam directly to the atmosphere and through one of three protected, air-cooled condensers (PACC) that are also available to the three redundant heat transport loops. The normal feedwater supply and an automatically actuated auxiliary feedwater system (AFWS) provide makeup water to replace vented steam. Actuation of the SHRS is independent of operator action. Loss of all electrical power (offsite and onsite) does not disable the SHRS since natural circulation, a steam turbine driven AFWS pump, and battery powered instrumentation and controls are available to permit core heat removal to continue to take place. If none of these three modes of heat removal is available, a fourth direct heat removal service (DHRS) is available using electromagnetic pumping that circulates primary sodium through sodium-potassium alloy (NaK) heat exchangers from which the heated NaK is cooled by air blast heat exchangers (ABHXs) that reject the heat to the atmosphere (App. Ex. 1 at 35-40; Tr. 2024-29).

11. As noted above, the balance between heat generation and removal within individual fuel assemblies must also be maintained to prevent the formation and propagation of local hot spots from endangering the core. This is accomplished by a combination of features:

- (a) Fuel subassembly design to limit fuel pin compaction following a reactivity increase;
- (b) Fuel subassembly flow inlets designed to minimize opportunity for debris to block sodium flow;
- (c) Sodium cleanup systems to limit the availability of flow-blocking debris;
- (d) A failed fuel fission gas detection system that alerts plant operators to the existence of perforated fuel cladding; and
- (e) A sodium monitoring delayed neutron detection system that independently detects the contact of bare fuel with sodium. Conservatism associated with each of these design features is provided to inhibit the progress of local heat imbalances beyond that which would lead to a DBA (App. Ex. 1 at 23-25; Tr. 2012-14. *Id.* at 43-46; Tr. 2032-35).

12. In support of their assertion that CDAs should be included as DBAs, Intervenors reference prior experience with domestic and foreign sodium-cooled nuclear facilities and related analyses that indicate CDAs either were considered or

should have been considered in light of accidents that occurred. In no instance were design features, operational modes, or accident events shown to be of relevance to the CRBR. None of the referenced facilities had designs, operational modes and accident accommodation features that would justify CDAs being considered as DBAs for the presently proposed CRBR, nor did discussion during cross-examination lend support to the inclusion of CDAs (Int. Ex. 3, 13-19; Tr. 2626-49; 2822-28).

13. Prior to the CRBR project's transition to the current reactor, heat transport and dual containment/confinement design concepts, the Staff had required that CDAs be considered as design basis events. The Staff relaxed this requirement in 1976 (Staff Ex. 5, p. 4). Intervenors maintain that Applicants are still unable to justify excluding CDAs because, in effect, a showing of design feasibility is not adequate to demonstrate that design intent will be achieved. However, no specific design concept or design feature was identified to justify inclusion of CDAs. Intervenors' principal witness stated (Tr. 6160) that he is unfamiliar with the general design and performance characteristics of the CRBR (Int. Ex. 3, 20-27; Tr. 2829-36. Staff Ex. 5 at 4).

14. Intervenors, citing Staff Ex. 5 at 2, hold that for the likelihood of a CDA occurrence to be sufficiently low to be excluded from design basis considerations, the quantification of "sufficiently low" should be set at 10^{-6} per reactor year of operation for the probability of an accident having consequences exceeding 10 CFR 100 dose guidelines. This they interpret as requiring that the probability of initiating a CDA must be less than 10^{-6} per reactor year of operation. Absent an opportunity to critique detailed evidence regarding reliability and probabilistic risk assessments based on design specifics of CRBR components and systems (held by the Board to be beyond the scope of this LWA-1 proceeding) Intervenors are unable to accept the conclusion of Applicants and Staff regarding the exclusion of CDAs from DBAs because the validity of this conclusion has not been demonstrated (Int. Ex. 3, 30-59; Tr. 2839-68).

15. Applicants and Staff have not relied upon quantitative probabilistic analyses, but upon analyses of accident initiators and sequences, component performance criteria, technology availability, and design features. The Staff does not consider probabilistic assessment techniques to be sufficiently mature for determining whether CDAs should be included as design basis events, but rather it will review the Applicants' reliability program to assure that safety systems are given appropriate systematic appraisals with respect to their ability to perform as and when needed (App. Ex. 1 at 6-46; Tr. 1995-2035; Staff Ex. 2 at 4-28; Tr. 2449-73).

16. In connection with their Contention 3(d), Intervenors have raised the question of operator error that might bring into play previously unidentified system interdependencies leading to common cause failures, such that a combination of these events could cause a DBA to progress to a CDA (Tr. 2256-57). The potential

for, and actions to minimize, human error and common cause failures have been considered and implemented in the design to assure that the likelihood that common cause failures or human error could cause a CDA is made extremely low. The general design characteristics of CRBRP include the use of: (a) redundant, independent, and diverse and automatically actuated or passive safety systems, and (b) inherent physical characteristics which assure that rapid operator action will not be necessary in responding to accidents at CRBR, and that the potential for human error will be minimized. The Staff's review of the design will account for system interdependencies and common cause failures by reliance upon principles enunciated in IEEE Standard 279 and the applicable Standard Review Plan. The Staff will conduct a review of the adequacy of operator training during the OL licensing phase. The Applicants have undertaken an extensive series of systems interaction studies, such as key systems reviews, to assure that human error, system interdependencies and common cause failures will not compromise the reliability inherent in the redundant, diverse and independent systems of importance to the prevention of CDA's. The Applicants have proposed, and the Staff will require, implementation of a reliability program to assure that the reliability inherent in the CRBR design characteristics will be realized and will not be degraded by potential common cause failures (Staff Ex. 2, 15-25, Tr. 2460-70. Staff Ex. 8, 12-77, 78. App. Ex. 1, 13-46; Tr. 2003-35. App. Ex. 46 at 5-22; Tr. 5381-98. *Id.* at 29-33; Tr. 5405-09. Tr. 2221-25; 5247-49; 5646-47).

17. To evaluate the effectiveness of CRBR engineered safety features (ESFs) with respect to meeting the exposure guidelines of 10 CFR Part 100, and to establishing site suitability, the Staff has used a radiological source term analogous to that used in LWR site suitability analyses. Thus, the SSST for the CRBR comprises core releases of 100 percent of the noble gases, 50 percent of the halogens, one percent of the nonvolatile fission products, and one percent of the plutonium. The Staff requires that the corresponding dose guidelines be those specified in 10 CFR Part 100 (300 rem thyroid and 25 rem whole body) augmented by additional values for critical organs of 75 rem for the lungs, and 300 rem for bone surfaces. Weighting factors given in the International Committee on Radiation Protection (ICRP) Publication 26 have been used to obtain the above additional values based upon equivalent mortality risk organ doses corresponding to the 300 rem thyroid dose value. Consistent with Staff practice for LWRs, lower guideline values are used for construction permit review, namely, 150 rem thyroid, 20 rem whole body, 35 rem lungs and 150 rem bone surfaces. Consistent with 10 CFR Part 100, these dose guidelines do not constitute acceptable dose values for the public under emergency conditions but rather they are reference or target values to be used for site suitability evaluations (Staff Ex. 1 at III-8 to III-10. Staff Ex. 3 at 26; Tr. 2509. *Id.* at 7-8; Tr. 2490-91. *Id.* at 13-15; Tr. 2496-98. Staff Ex. 5).

18. The Applicants have described various design features of CRBR that will be incorporated to prevent DBAs from progressing to CDAs (Findings 5-11, above). The Staff has incorporated these into its SSST dose model, used conservative assumptions regarding their operation and effectiveness, and used onsite meteorological data to compute dispersion values using the methodology of TID-14844 (Attach. A to Staff Ex. 3). Then the Staff computed 30-day doses for the exclusion area boundary and the closest boundary of the low population zone (LPZ). Principal assumptions and dose results are summarized by the Staff in its Site Suitability Report (Staff Ex. 1, at III-11). It finds said results to be well within the dose guidelines set forth in Finding 17, above (Staff Ex. 3 at 5-21; Tr. 2488-2504. *Id.*, Attach. A. Staff Ex. 1 at III-8 to III-11).

19. Intervenor state that more conservative dose guideline values should be used for the following reasons:

- (a) one should apply the nonstochastic limit of 50 rem per year set forth in ICRP-26, as well as the mortality risk weighting factors set forth in ICRP-26;
- (b) one should derive the doses by applying weighting factors based upon the EPA environmental radiation protection requirements for normal operation of activities in the uranium fuel cycle; and
- (c) the dose guideline values should be reduced by a factor of greater than two to account for uncertainties in the dose and health effects model (Int. Ex. 4 at 28-33; Tr. 3078-83). Each of these arguments is addressed in the following Findings.

20. The nonstochastic limit corresponds to an annual occupational dose, and its use in deriving dose guidelines would produce values that are higher than those set forth in 10 CFR Part 100 and those derived by the Staff for CRBR site suitability analysis (50 rem per year over a 30-year operating lifetime of Clinch River would yield thyroid and lung values of 1500 rem). Even if the 50 rem per year nonstochastic limit were artificially limited to a one-time exposure, incorporation of the 50 rem per year dose would require reducing all dose guideline values (except whole body), including the 10 CFR Part 100 300-rem thyroid value, to 50 rem. This would challenge the validity of the existing regulation in Part 100. Further, the 50 rem per year nonstochastic limit is designed to limit the incidence of health effects resulting from occupational exposures, and this purpose is not consistent with the stated purpose of the 10 CFR §100.11(a) dose guidelines (App. Ex. 25 at 8; Tr. 2082. Staff Ex. 1 at III-9 to III-10. Findings 17, 18, above).

21. Intervenor state that the EPA environmental radiation protection requirements for normal operation of activities in the uranium fuel cycle provide a reasonable alternative analogy for derivation of dose guideline values for organs of importance to plutonium exposure. The EPA requirements contemplate a value of 25 rem for the whole body, and 25 rem for any other organ. Using this analogy, Intervenor argue for dose guideline values of 25 rem for the whole body and 25

rem for every other organ. Application of the EPA requirements to the derivation of dose guideline values would yield a value of 25 rem for thyroid and result in invalidating the existing 10 CFR Part 100 300-rem thyroid dose guideline value. Use of this analogy ignores the fact that the best available scientific evidence shows that the ICRP-26 mortality risk weighting factors describe the relative radiosensitivities of the various human organs in an appropriate fashion. The ICRP-26 weighting factors ascribe a different and lesser radiosensitivity to all other organs of the human body relative to whole body doses (Int. Ex. 4 at 29-30; Tr. 3079-80. Staff Ex. 3 at 28-29; Tr. 2511-12. App. Ex. 25 at 6-7; Tr. 2080-81).

22. The EPA requirements included consideration of the health risks attributable to environmental radiation impacts due to the operations supporting the uranium fuel cycle and the general ability to mitigate these risks (*i.e.*, cost-benefit principles). There is no evidence in the record to show how the cost-benefit balance was approached by EPA in deriving those requirements, or how that balance incorporates the best available scientific evidence. The most conservative scientific approach is reflected in ICRP-26, and is the preferred basis for derivation of the dose guideline values used in the CRBR analysis (Finding 21). In addition, the EPA requirements were intended to "encompass abnormal but anticipated releases of radioactive material to the environment associated with effluent control measures, [but] potential releases associated with the possibility of accidents involving the nuclear safety of the facilities are beyond the scope of the proposed rule making, which is limited to environmental radiation due to normal operation." Thus, the intent of the EPA requirements is not consistent with their application to the derivation of the 10 CFR §100.11(a) guideline values (39 Fed. Reg. 16906 (May 10, 1974)).

23. Intervenors state that the Staff's reduction of the dose guideline values by a factor of two to account for uncertainties at the Construction Permit stage is nonconservative. Intervenors point to the fact that in 1977 the Staff recommended a reduction factor of ten to account for uncertainties, which then included a factor of five to take into account the uncertainty in the dose and health effects models. Intervenors cite three major sources of uncertainty in support of their argument: the so-called "hot particle" hypothesis, the Morgan bone-dose hypothesis, and the so-called "warm particle" hypothesis. The "hot particle" hypothesis has been considered and rejected by an overwhelming consensus of scientific opinion (Int. Ex. 4 at 31-35; Tr. 3081-85. Staff Ex. 3 at 29-32; Tr. 2512-15. App. Ex. 25 at 9-10, Tr. 1916-20. Tr. 2083-84).

24. The Morgan bone dose hypothesis holds that the maximum permissible body burdens for plutonium 239 set forth in ICRP-2 are nonconservative by a factor of 240. The dose guideline values recommended by the Staff for organs of importance to plutonium exposure, however, were not derived based upon ICRP-2 or the 10 CFR Part 20 regulations (which were derived from ICRP-2). They were derived using only the existing 10 CFR Part 100 dose guideline values and the

ICRP-26 mortality risk weighting factors. Thus, the Morgan hypothesis does not affect the validity of the Staff's recommended dose guideline values (Int. Ex. 4 at 32; Tr. 3082. App. Ex. 25 at 10-12; Tr. 2084-86. Staff Ex. 3 at 32-33; Tr. 2515-16).

25. Intervenors state that the so-called "warm particle" hypothesis suggests that there is an additional source of uncertainty in the dose guideline values. The record presents no evidence of a logical nexus between the "warm particle" hypothesis and the validity of the 10 CFR Part 100 dose guideline values. To the contrary, the record shows that the "warm particle" hypothesis is speculative and not supported by the available scientific evidence (Int. Ex. 4 at 32-33; Tr. 3082-83. Tr. 4042-43).

26. The present CRBRP containment system concept involves a welded steel containment shell surrounded by a reinforced concrete confinement building. A five-foot air-filled annulus separates the two structures. The annulus is maintained at slightly reduced pressure relative to the containment, so that out-leakage from the containment shell will be collected in the annulus. There it is circulated, filtered, and partially released to the atmosphere to maintain reduced pressure; the balance is returned to the annulus. The steel containment shell is designed for a leak rate of 0.1 percent (of volume) per day at a design pressure of 10 psi above atmosphere. Leakage that bypasses the annulus filtration system is to be held to no more than 0.001 percent of containment volume per day at design pressure. These specifications regarding pressures and leak tightness are within the feasibility of current practice. There is experience with other sodium-cooled reactors in building containments designed to withstand sodium fires (App. Ex. 1, 50-51; Tr. 2039-40. Staff Ex. 3, 22-25; Tr. 2505-08).

27. Applicants have calculated the dose consequences for design basis accidents using the Staff's SSST, containment and confinement design parameters, site meteorology and analysis methods described in PSAR §15A. The results are summarized in Table 4-2 of Applicants Exhibit 1 (App. Ex. 1, 51; Tr. 2040). While differing somewhat from the Staff's results (Staff Ex. 1 at III-11), Applicants' results are also well below guideline values. The Applicants have used more conservative atmospheric dispersion assumptions than the Staff as well as less conservative filter efficiencies. These account for the differences in the calculated dose results (Staff Ex. 18 at 6; Tr. 5688).

28. The Staff has utilized three computer models for its analysis of the CRBR SSST and the resulting dose results. Testing and validation of each of the computational routines were performed by the Staff to substantiate their applicability to the analyses of various accident consequences (Staff Ex. 3, 35-41; Tr. 2518-24).

29. Although CDAs have been excluded by Applicants from the envelope of DBAs, accidents more severe than design basis have been postulated and the dose consequences have been analyzed. Four specific and progressively more severe cases have been described by Applicants for which atmospheric releases and dose

results were determined and reported. Comparisons of dose results with dose guidelines and comparisons of radionuclide atmospheric release values with specific LWR accident release values are reported. They lead Applicants to conclude that the CRBR can accommodate most CDAs with a resultant risk that can be made acceptably low (App. Ex. 1, 67-73; Tr. 2056-62).

30. Starting from the position that the CRBR should achieve a level of safety comparable to that of current generation LWRs, the Staff is reviewing the various facility design features proposed for incorporation by the Applicants. A sequence of four potential core disruptive accident consequences of increasing severity are being studied to determine the extent to which containment integrity is adequate. Certain ESF failures are identified that could lead to consequences that may exceed 10 CFR 100 guidelines. Although their review is not complete, the Staff concludes that feasible design concepts and remedial actions can be implemented to provide satisfactory containment system protective capability, as related to both environmental impacts and the health and safety of the public. The adequacy of the containment design will be addressed in the Staff's safety review and reported in the SER (Staff Ex. 5, Staff Ex. 1, at II-18 to II-19, Staff Ex. 8, Vol. 2 at J-3 to J-25, Staff Ex. 3 at 25; Tr. 2508).

II. Environmental Effects of Severe Accidents

31. The basic position of the Staff is that the CRBR should achieve a level of safety comparable to that of the current generation of light water reactor (LWR) plants; that the design approaches to accomplish this be similar or analogous to LWR practice; and that major attention should be placed on the prevention of accidents leading to core melt and disruption, and loss of containment integrity for all identified accident initiators (Staff Ex. 5 at 1). The Staff's evaluation within the scope of NEPA of the environmental effects of severe accidents was performed in a manner that permits an assessment of whether the CRBR conforms with this Staff position (Staff Ex. 8, Appendix J).

32. The FES analysis of design basis accidents (Staff Ex. 7) was summarized (Staff Ex. 8 at J-1 to J-2). Accidents more severe than design basis were also analyzed as to likelihood of occurrence and the consequences of core melting. Estimation of likelihood of occurrence included considerations of the initiation of core disruption, energy releases associated therewith, releases to the containment from primary system seal failure, and consequences to the containment including its potential failure. From these analyses, the Staff concluded that the environmental risks of both design basis and beyond design basis accidents are comparable to those from LWRs (Staff Ex. 8 at J-1 to J-2. *Id.* at J-3 to J-25).

33. Intervenors, in support of these contentions, hold that the FES Supplement Appendix J analyses are inadequate in the following respects:

- (a) The frequency of core degradation due to a loss-of-heat-sink (LOHS) event is underestimated (Int. Ex. 22 at 14-16; Tr. 6208-10);
- (b) The frequency of pipe rupture that can contribute to severe accidents is underestimated (*Id.* at 16-22; Tr. 6210-16);
- (c) Containment failure frequency is underestimated (*Id.* at 30-31; Tr. 6224-25); and
- (d) Common mode failures are inadequately considered (*Id.* at 22-24; Tr. 6216-18).

These matters are addressed in findings that follow.

34. The Staff assigned a frequency of 10^{-4} per year for core degradation due to LOHS. The Staff estimated this value by reference to pressurized water reactor (PWR) reliability experience which indicates that auxiliary feedwater (AFW) system failures dominate the frequency of LOHS events. PWR AFW systems, which are similar to the CRBR AFW system, show failure frequencies on demand of 10^{-4} to 10^{-5} per year (Staff Ex. 17 at 9; Tr. 5756). CRBR has a backup decay heat removal system (DHRS) that does not depend on the AFW system, so that the decay heat removal function in CRBR should be at least as reliable, if not more reliable, than that of a PWR (App. Ex. 46 at 13-21, Tr. 5389-97). By assuming that the AFW system failure frequency is on the high side of the LWR failure range, other potential contributors, such as fuel failure propagation or pipe rupture, become small fractions of this dominant contributor to the LOHS frequency (Staff Ex. 17 at 9-14; Tr. 5756-62. Tr. 5586, 5590-92).

35. Citing Calvert Cliffs, Intervenor argued that LWR auxiliary feedwater system reliability studies show higher failure frequencies than those estimated by the Staff (Int. Ex. 22 at 13; Tr. 6207). The record shows that the Calvert Cliffs AFW system failure frequency is four times higher than the value estimated by the Staff for CRBR, though in contrast to CRBR, the Calvert Cliffs AFW system is not safety grade, is not automatically actuated, and has a substantially lesser degree of redundancy, independence, and diversity (Tr. 6110-21. Tr. 5638). In addition, the Staff's estimated 10^{-4} per year failure frequency for CRBR is two times higher than that estimated in WASH-1400 for the Surry reactor (Tr. 6118-20). The record shows that the Staff's estimated failure frequency for CRBRP resides at the high end of the range one can associate with LWR experience, notwithstanding the fact the CRBR design characteristics reflect a substantially higher reliability than those associated with LWR's (App. Ex. 46 at 13-21; Tr. 5388-97; Tr. 5269; Tr. 5450, 5525; Tr. 5559).

36. Intervenor alleges that the potential for steam generator leaks and consequent sodium-water reactions could, in fact, control the frequency of LOHS events and render the Staff's estimated 10^{-4} per year failure frequency nonconservative (Int. Ex. 22 at 14-16; Tr. 6208-10). In support of this argument, Intervenor first point out that a steam generator leak could result in a sodium-water reaction, which could in turn produce hydrogen and raise the potential for an

LOHS event (*Id.* at 15; Tr. 6209). The CRBR design anticipates this event by providing design features to cope with and limit the consequences of steam generator leaks. The design features include a steam generator water side isolation system, a reaction product separator tank, a vent for venting any combustible gases from the steam generator out of the steam generator building, an automatic nitrogen fill system, and an overpressure protection system (Tr. 5262-67; 6467). Intervenor's principal witness whose prefiled testimony had raised this argument, was not familiar with those systems in CRBR that are designed to accommodate steam generator leaks (Tr. 6095-6100; 6160). There is no credible mechanism whereby a leak in one steam generator could result in failure of the steam generators in the remaining two loops, or the DHRs (Tr. 5003; 5006; 5011; 5028; 5267. Tr. 5017-18; 5020; 5026; 5030).

37. Citing a GAO letter regarding steam generator testing, Intervenor's allege that steam generator failures may control the frequency of LOHS events (Int. Ex. 22 at 15-16; Tr. 6209-10). This matter is addressed below (Finding No. 186-198).

38. CRBR design features that mitigate the frequency and severity of PHTS pipe ruptures are addressed above (Finding No. 7-8). Rupture frequency is addressed in two topical reports published by Science Applications, Inc. (Staff Ex. 20; Int. Ex. 22, Attachment 3). Taken together these two reports give a pipe rupture probability that ranges from 10^{-7} to 10^{-9} per year of CRBR operation. This is to be compared with the Staff estimate of 10^{-4} per year for an LOHS event (Finding No. 126).

39. Intervenor's contend that the loss of onsite and offsite power could cause a breach of containment because of the subsequent loss of containment failure mitigation systems (principally the annulus cooling and vent/purge systems) and that the Staff had not accounted for this failure mode in estimating the frequency of containment failure (Int. Ex. 22 at 30-31, Tr. 6224-25). The Staff's Appendix J analysis assumed that these systems would not be available for about a day after initiation of the event. Its conclusions would not be affected by consideration of this (Tr. 5445-56; Staff Ex. 8 at J-7). The Staff conservatively estimated the frequency of containment failure by overpressure from loss of the mitigating systems (App. Ex. 46 at 21-23, 29-32; Tr. 5397-99, 5405-08). Intervenor's cited an article by Weinstein in *Nuclear Safety* for the proposition that the frequency of a breach of containment should be higher by a factor of 10 or more based upon actual LWR experience (App. Ex. 54; Int. Ex. 22 at 31; Tr. 6224). It was subsequently established that while the *Nuclear Safety* article analyzed the frequency of containment failures, these were failures characterized as whenever leak testing yielded leaks that exceeded technical specification compliance in LWRs (App. Ex. 54; Tr. 6147-48). The leakage requirements embodied in LWR technical specifications are defined as substantially lower leak rate values (by about a factor of 10) than the design basis leak rate specified for reactor design basis accident analysis (0.1 volume percent per day) (*Ibid.*). By contrast, the Staff's Appendix J analysis

estimated the frequency of a total loss of containment function and thus the small leak data in the *Nuclear Safety* article are not relevant to the failure frequencies estimated by the Staff in Appendix J (Staff Ex. 8 at J-7 to J-8. *Id.* Staff Ex. at 12-73 to 12-74).

40. Common mode (or common cause) failures have been considered (Finding No. 16). Intervenors allege that the simultaneous failure of both RSSs has been inadequately considered, based upon the proposed ATWS rule for LWRs wherein a failure frequency of 10^{-3} per year was discussed (Int. Ex. 22 at 27-28; Tr. 6221-22). The Staff has considered the failure of both of the two RSSs and estimates the unavailability of both systems to be less than 10^{-5} per demand (Staff Ex. 8 at J-4 to J-5). Design features of the RSSs are discussed in Finding No. 9.

III. Accident Effects on Y-12 and Other Nearby Facilities

41. In certain nearby facilities work is being performed which is related to national security and to the national energy supply. These facilities and the work of interest being performed are:

- (a) The Oak Ridge Gaseous Diffusion Plant (K-25) — This DOE facility's primary role is to enrich uranium for commercial power reactors. Also, development work being done at K-25 on advanced isotope separation technologies is for the purpose of meeting future enriched uranium requirements for power reactors (App. Ex. 47 at 3; Tr. 5423). This plant is about 2.5-3.5 miles NNW of CRBR (App. Ex. 47 at 7; Tr. 5427. Staff Ex. 18 at 5; Tr. 5687).
- (b) Other proposed energy fuel cycle facilities — No "other" proposed fuel cycle facilities have been identified in the vicinity of the site which are significantly related to national energy supply or national security (App. Ex. 47 at 4; Tr. 5424).
- (c) Y-12 Plant — This is a major facility within DOE's nuclear weapons production complex. The plant produces components and sub-assemblies in support of nuclear weapons production and nuclear weapons development and testing programs (App. Ex. 47 at 3; Tr. 5423). The plant is about 8.5 miles ENE of CRBR (Staff Ex. 18 at 5; Tr. 5687).
- (d) ORNL — The Oak Ridge National Laboratory is an R&D facility that conducts research in many fields of modern science and technology. The laboratory is located about 4-5 miles ENE of CRBR (App. Ex. 47 at 4; Tr. 5424. Staff Ex. 18 at 5; Tr. 5687).

42. Even in the event that K-25 were to be taken out of service, operation of other gaseous diffusion plants could be adjusted to meet the nation's energy needs for utility-grade uranium (Staff Ex. 18 at 13; Tr. 5695).

43. Loss of the K-25 facility should have relatively little effect on the nation's capability to fulfill its security needs for highly enriched uranium (*Id.*; at 14; Tr. 5696).

44. Y-12 plant has no role in national energy. Long-term shutdown of ORNL would have no significant effect on national energy supply nor on national security (Tr. 5272-74).

45. Applicants' calculated post-accident doses from an SSST release are as follows for the various facilities:

K-25 Facility		
Doses in rems		
	Whole body	Thyroid
Inhalation	0.021	0.51
Immersion	0.041	0.044
Ground Contamination	0.034	_____
Totals	0.096	0.554

Y-12 Facility		
Doses in rems		
	Whole body	Thyroid
Inhalation	0.0013	0.031
Immersion	0.0025	0.0027
Ground Contamination	0.0021	_____
Totals	0.006	0.034

(App. Ex. 47, Tables 1 and 2; Tr. 5428, 5431)

46. Site meteorological data were collected and reduced in accordance with NRC Regulatory Guides. Calculations by Applicants used the SSST employed sector-specific five percent meteorology (X/Q values that are exceeded no more than five percent of the total time). X/Q is the measure of dilution of the radioactive source term between point of release and point of interest (*Id.* at 6; Tr. 5426).

47. The Staff's calculated post-accident doses from an SSST release are as follows for the various facilities:

	Whole body	Thyroid
K-25	19 mrem	320 mrem
Y-12	negligible	11 mrem

The Staff explains that these values are different than the Applicants' because Applicants used different assumptions for atmospheric dispersion and for filter efficiencies (Staff Ex. 18 at 6; Tr. 5688).

48. The SSST doses at ORNL computed by the Staff are expected to be lower than the doses calculated for K-25. Such a radioactive release would not require evacuation of ORNL (*Id.* at 14-15; Tr. 5696-97).

49. The consequences of the site suitability source term (SSST) release are more severe than the consequences of any design basis accident (App. Ex. 47 at 5; Tr. 5425).

50. Emergency doses considered acceptable to the NRC for emergency planning purposes are those given in the EPA Protective Action Guidelines (PAGs). The whole body PAG is one to five rem and the thyroid PAG is five to 25 rem (Tr. 5689).

51. Since neither the Staff nor Applicants calculate SSST doses in excess of PAG levels, long-term evacuation of either K-25 or Y-12 is not expected to be required (Staff Ex. 18 at 7; Tr. 5689. App. Ex. 47 at 16; Tr. 5436).

52. The Board will review further the adequacy of emergency planning measures including emergency responses at these facilities after hearing additional testimony at the Construction Permit hearings on Contention 9 (Tr. 5222-29).

53. There is no EPA guidance on bone surface dose for the purpose of determining if evacuation should be ordered. This dose could be controlling for the CRBRP but that has not been determined (Tr. 5664).

54. EPA does not have a protective action guide for bone dose (Tr. 5296).

IV. Genetic and Somatic Effects of CRBRP Operation

55. In estimating the genetic effects of the operation of the CRBR, the Applicants assumed an occupational exposure of 400 man-rems (App. Ex. 42 at 4, Tr. 4270) and the Staff assumed an occupational exposure of 1,000 man-rems (Staff Ex. 8, at 5-20; Staff Ex. 12 at 9; Tr. 4120).

56. Both the Applicants and the Staff used 0.1 man-rem exposure to the 50-mile population around CRBR to estimate the genetic effects on this population (App. Ex. 42 at 4; Tr. 4270; Staff Ex. 8 at 5-20).

57. Both the Applicants and Staff used genetic effect risk estimators from the National Academy of Science Committee on the Biological Effects of Ionizing Radiation as given in its BEIR-III Report (Staff Ex. 12 at 2; Tr. 4113. Staff Ex. 12 at 6; Tr. 4117. App. Ex. 42 at 5; Tr. 4271) and the linear no-threshold dose response hypothesis. The use of these estimators and this dose response hypothesis is considered to be conservative in estimating the number of genetic effects and it tends to overestimate the risks (Tr. 4022; Staff Ex. 12 at 6-7; Tr. 4117-18; Tr. 4069-71).

58. The BEIR-III estimates, though not made specifically for the purpose of evaluating the consequences of the operation of nuclear facilities, constitute the most appropriate method for estimating the genetic effects likely to result from the operation of the CRBR (Staff Ex. 12 at 6; Tr. 4117).

59. The Staff estimates the upper limits of genetic effects resulting from the above doses, risk estimators, and dose-effect model to be about 0.004 cases per one million live births in the first generation (nonoccupational exposure over 30 years) to the population within 50 miles of the CRBR and about 2.25 cases per one million live births from occupational exposure for the 30-year plant lifetime (Staff Ex. 12 at 13; Tr. 4124).

60. The Applicants estimate ranges of occurrence of all relevant classes of genetic disorders (autosomal dominants and x-linked disorders, recessive disorders, chromosome alterations and irregularly inherited disease) rather than upper limit values (App. Ex. 42 at 9-24; Tr. 4275-90).

61. Based on the above doses, risk estimators and dose effect model, the Applicants estimate 0.06×10^{-3} to 0.29×10^{-2} cases per million liveborn as the range of total genetic effects in the population within 50 miles of CRBR and 0.19 to 1.3 cases per 1,000 liveborn as the range of total genetic effect to workers at the CRBR (App. Ex. 42 at 24; Tr. 4290). In contrast the current incidence of naturally occurring genetic disorders is 106,000 cases per one million liveborn or 106 cases per 1,000 liveborn (Staff Ex. 12 at 10; Tr. 4121; App. Ex. 42; Tr. 4290).

62. A Staff witness who was a member of the BEIR-III Committee, calculated combined occupational and general population genetic effects of 1.8 to 33 genetic disorders per million liveborn over all time. Because 106,000 genetic disorders occur spontaneously in each generation, the first generation increase in risk caused by operation of CRBR amounts to at most 0.00002 percent. In subsequent generations, the risk would be even less (Staff Ex. 12 at 10; Tr. 4121). In the FES Supplement, the Staff calculated nine genetic effects from both occupational and nonoccupational exposure assuming 30 years of operation of CRBR. This falls within the range of 1.8 to 33 calculated by the Staff (Staff Ex. 12 at 13; Tr. 4124. Staff Ex. 8 at 5-21). The upper limit of genetic effects as calculated by the Staff (Staff Ex. 12 at 10-13; Tr. 4121-24) encompasses the range of effects estimated by the Applicants (App. Ex. 42 at 24; Tr. 4290).

63. Any numerical estimates of genetic hazards of radiation exposure at the very low dose rates anticipated are simply conservative estimates of the upper credible limits of risk. The actual risk will very likely be smaller, possibly much smaller than the upper limit estimates. Therefore, the genetic effects from operation of the CRBR will be so small as to constitute a negligible impact upon human health (Staff Ex. 12, at 13; Tr. 4124).

64. In considering the somatic effects to workers and the population in the vicinity of the plant from operation of CRBR, both the Staff and Applicants used the conservative, linear nonthreshold dose response model (App. Ex. 42 at 26; Tr.

4292. Staff Ex. 13 at 6-13; Tr. 4149-53) and the radiation doses given in Finding Nos. 55-56 above. The Applicants computed a range of values for somatic effects based on BEIR-III risk estimators, using the absolute risk approach for the lower estimate and the relative risk approach for the upper estimate. The absolute risk approach expresses the results in increased numbers of cancer cases per million person-rem (App. Ex. 42 at 27; Tr. 4293). The relative risk approach expresses the results as a percentage increase in normal cancer incidence per million person-rem (App. Ex. 42 at 27; Tr. 4293). The Staff, on the other hand, uses a mid-range BEIR-I risk estimator (Staff Ex. 13 at 6; Tr. 4149) which does not differ greatly from the BEIR-III values (Staff Ex. 13 at 7, 12; Tr. 4148, 4155). The BEIR-I cancer risk estimation values used by the Staff are consistent with the recommendations of other major radiation protection organizations such as the ICRP, NCRP and UNSCEAR. These organizations represent the views of the overwhelming majority of the members of the scientific community (Staff Ex. 13 at 10-11; Tr. 4153-54). The Staff also conservatively calculated the risk of potential premature cancer to the maximally exposed individual. The maximally exposed individual is a hypothetical person potentially subject to maximum exposure from annual releases of both radioactive airborne and liquid CRBR releases (Staff Ex. 13 at 3; Tr. 4146).

65. Using the above doses, dose-response model and risk estimators, the Applicants calculate a range of somatic effects from 0.000015 to 0.00005 cancers per reactor year to the public in the vicinity of the CRBR and 0.07 to 0.2 cancers per reactor year to CRBR workers (App. Ex. 42 at 28; Tr. 4294; Tr. 4003).

66. The Staff calculates the risk of potential premature death from cancer to the maximally exposed individual as 6.7×10^{-7} (less than one chance in one million), and assuming 1,000 exposed workers, there could be 0.14 additional cancer deaths per reactor year for CRBR workers (Staff Ex. 13 at 7; Tr. 4150. Staff Ex. 13 at 8-9; Tr. 4151-52). The average risk of potential premature death from cancer to an individual within 50 miles of CRBR is much less (Staff Ex. 13 at 7; Tr. 4150. Staff Ex. 8 at 5-21). The risk to the public from CRBR is much less than the risk from exposure to other sources of radiation such as medical exposure or natural background radiation (Staff Ex. 13 at 10; Tr. 4153). The lower end of the range of somatic effects from radiation exposure could, in fact, be zero (Tr. 4033). By way of contrast the current incidence of naturally occurring cancer per 1,000 individuals is 160 (Staff Ex. 13 at 8-9; Tr. 4151-52; Staff Ex. 8 at 5-15).

67. Although the Intervenor introduced little evidence regarding Contentions 11(b) and 11(c), they expressed concern about the Staff's and Applicants' analyses because said analyses: (1) did not take into account the uncertainties in the BEIR-III Report and (2) did not consider the recent studies of the neutron/gamma dose contributions at Nagasaki and Hiroshima. Intervenor cite a number of experts who believe that the Staff cancer risk estimator, 135 per one million person-rem, is low or probably low by factors ranging from 3 to 28 (Int. Ex. 22 at

35-36; Tr. 6229-30). The Board considers this testimony as reiterating Intervenors' assertion that the other parties did not consider the range of effect proposed by experts other than those used by their own witnesses.

68. As to the uncertainties in the BEIR-III Report, the uncontradicted testimony of the Staff and Applicants is that the genetic and somatic health effect calculations included upper bound limits (Tr. 4033. App. Ex. 42 at 25; Tr. 4291. App. Ex. 42 at 27-28; Tr. 4293-94. Tr. 4071-84). Both Applicants and Staff made conservative assumptions which had the effect of overestimating the expected health effects from operation of CRBR (App. Ex. 42 at 25-26; Tr. 4291-92).

69. The recent reevaluation of the neutron and gamma doses at Nagasaki and Hiroshima do not introduce any substantial uncertainty with regard to the analysis of health effects. The testimony indicates that no substantial changes in the BEIR-III Report risk estimators are expected from the reevaluation (Tr. 4029. Tr. 4075-76. Staff Ex. 12 at 7-8; Tr. 4118-19).

V. Safeguards and Security

70. The CRBRP will be licensed by the NRC and thus subject to NRC safeguards requirements of 10 CFR Parts 70 and 73. The fuel cycle facilities for CRBRP will be owned by DOE and subject to DOE safeguards requirements. DOE threat guidance requirements for like materials are as high or higher than the counterpart requirements of the NRC (Tr. 3620-21). This covers all categories of threats, including external assault coupled with an insider or insiders, theft by an insider or insiders and external force threats (Tr. 3627-35). Safeguards designed in accordance with DOE's requirements will provide a level of protection against theft and sabotage that is at least as high as that provided by safeguards designed in accordance with NRC's requirements (Staff Ex. 8 at E-3; App. Ex. 35, Vol. 2, Chapter 5.7, at 5.7-41; Staff Ex. 10 at 12; Tr. 3744).

71. DOE has ongoing, effective safeguards programs to assess threats. Threat assessment is used to provide a picture of potential adversaries, their capabilities and motivations, and their objectives (App. Ex. 39 at 7-9; Tr. 3480-82). Both NRC and DOE have systematic threat assessment programs to review possible changes in the design basis threats (Tr. 3717-18; App. Ex. 39 at 7-9; Tr. 3480-82). Although changes in the threat level of one to two persons might not be detected, such a change would not lessen the effectiveness of the safeguards system (Tr. 3423-24). To affect the safeguards system, the change would have to be on the order of five to ten persons. Such changes in the threat can be detected by the intelligence organizations (Tr. 3424-25). In the event of a change in perception of the threat, NRC can issue an immediately effective order to upgrade security requirements to meet the threat change (Tr. 3687, 3718).

72. Both NRC and DOE have developed methodologies and approaches to evaluate the effectiveness of safeguards systems. These methodologies include the

use of fault tree and decision analysis techniques and "black hatting," which have been used at CRBRP (App. Ex. 39 at 9-11, 32-34; Tr. 3482-84, 3506-08; Tr. 3430-32, 3460-61).

73. DOE's safeguards program includes the development and improvement of technology for physical protection and material control and accountability. After development and testing, these technologies will be incorporated in the safeguards system design (App. Ex. 39 at 7-16; Tr. 3480-89; Tr. 3302, 3421, 3455, 3460-65).

74. The ongoing DOE safeguards programs have established an extensive technological base for design, installation, operation, and maintenance of effective, in-depth, physical protection systems in support of the CRBRP and its fuel cycle facilities (App. Ex. 39 at 12; Tr. 3485; Tr. 3302-03). The inherent design characteristics of the CRBRP and its fuel handling system also make theft of plutonium a highly unlikely event (App. Ex. 39 at 23; Tr. 3497). The fuel assemblies containing plutonium in oxide form will be delivered in single assembly containers. The containers and the fuel assemblies weigh approximately three thousand pounds (App. Ex. 39 at 23-24; Tr. 3497-98). Each individual assembly itself is 14 feet long and weighs approximately 450 pounds. These 450-pound assemblies remain as assembled units during their entire life at the CRBRP (App. Ex. 39 at 24; Tr. 3498).

75. Accountability of fissile and fertile material is inherent in the design of the CRBRP refueling system. After inspection at receipt, the assemblies are not visually identified again until shipment of the irradiated assemblies. The assemblies are mechanically identified prior to insertion into the core and subsequent to removal from the core as part of the refueling controls. All movements of fuel within the plant are monitored and recorded on the refueling system computer for inventory purposes and to ensure proper configuration changes (App. Ex. 35, Vol. 2, Chapter 5 at 5.7-65; Staff Ex. 8 at E-10).

76. Except for initial inspection and final preparation for shipment, the fuel assemblies are stored in massive tanks at a temperature of over 400 degrees F in molten sodium and under an inert atmosphere (App. Ex. 39 at 25-26; Tr. 3499-3500; App. Ex. 35, Vol. 2, Chapter 3.8 at 3.8-4). All fuel handling operations are under continuous closed circuit television coverage and are performed remotely, or with substantial shielding around the assembly (App. Ex. 39 at 24-26; Tr. 3498-3500). Guards will be present whenever fuel is moved. The inherent security at CRBRP makes theft of fuel a highly unlikely event (App. Ex. 39 at 26; Tr. 3500).

77. The fortress-like nature of the plant, with walls up to six feet thick and location of individual components in separate reinforced concrete cells, provides substantial inherent protection against sabotage (App. Ex. 39 at 27-28; Tr. 3501-02). Sabotage of the CRBRP would require all safeguards to be stripped from the plant and two well-qualified insiders to be given unlimited and uncontrolled access

to the plant (Tr. 3255, 3258). Multiple layers of controls have been incorporated directly into the plant design to minimize substantially the likelihood of radiological sabotage (App. Ex. 39 at 28-29; Tr. 3502-03).

78. The principal events that could lead to an HCDA and thus potentially result in radiological releases are excessive power generation or reduced heat removal events without scram (App. Ex. 39 at 28; Tr. 3502). These events could only result through multiple system failure (App. Ex. 39 at 28; Tr. 3502). Access to these systems is limited to authorized personnel. Additionally, detailed knowledge of the design and operation of the plant protection system, control system, and hardware would be required (App. Ex. 39 at 28-29; Tr. 3502-03). Any deliberate attempt to initiate a transient would require manipulations of complex electronic or electrical circuitry, with small margin for error. Any mistake by an adversary in manipulating the plant protection systems could result in reactor scram (App. Ex. 39 at 31; Tr. 3505; Tr. 3262-63, 3444-45). In order to sabotage the plant, a saboteur would also have to have access to at least two vital areas concurrently by being in two places at the same time (Tr. 3283-84).

79. The plant systems are equipped with sensors which will alarm at any attempt to place the plant in an unsafe or abnormal condition (App. Ex. 39 at 28; Tr. 3502). The plant design also contains a manual control system in the control room with widely separated manual scram buttons, thus permitting manual scram upon indication of an unsafe condition (App. Ex. 39 at 30; Tr. 3504). The inherent design features of the plant, including the fuel handling system and the independent, diverse and redundant safety features, make theft and sabotage highly unlikely events, especially in view of the physical security system described *infra* (App. Ex. 39 at 23-32; Tr. 3497-3506).

80. The security system for CRBRP incorporates advanced analytical techniques and technology. The analytical efforts include vulnerability analyses, location analysis and critical path analysis. These efforts, which also include black hatting exercises and fault tree analysis, provide additional assurance that the safeguards design will be effective against sabotage or theft (App. Ex. 39 at 32-36; Tr. 3506-10; Tr. 3466-67).

81. Four security areas with increasingly stringent security will be designated: (1) Controlled Area; (2) Isolation Zone; (3) Protected Area; and (4) Vital Areas (App. Ex. 39 at 39; Tr. 3513). The Controlled Area, which includes the owner controlled area outside the security barrier, will be marked by signs and other means to make persons entering the area aware that they are on private property. Patrol roads will facilitate locating and removing persons from this area when required (App. Ex. 39 at 41; Tr. 3515). The Isolation Zone, which is an area straddling the fence line, is cleared of all obstacles which would impede vision. It is roughly 30 feet outside and 10 feet inside the fence (App. Ex. 38 at 41; Tr. 3515). The Protected Area, which is an area within the Controlled Area, will be completely enclosed by a security barrier through which controlled access is

strictly enforced. All structures and components necessary for the safe operation of the CRBRP are within the protected area security barrier. The physical security systems associated with safeguarding the protected area include grading the landscaping to facilitate maximum visual and closed circuit television monitoring; lighting; security barrier fence; multiple, sectionalized intrusion-detection systems located on and along the security barrier fence; perimeter patrol road; and a closed circuit television monitoring system. These systems will deter threats, and also will alert personnel in the Central and Secondary Alarm Stations when an external threat exists. The trained onsite and offsite guard force and local law enforcement agencies can then be contacted from either of the continuously manned Central or Secondary Alarm Stations (App. Ex. 39 at 41-42; Tr. 3515-16; Staff Ex. 8 at E-9). Vital Areas contain vital equipment and receive maximum protection and access control. All vital areas associated with the CRBRP are located within the fenced and alarmed protected area (App. Ex. 39 at 41-42; Tr. 3515-16).

82. Access through the protected area barrier will be controlled by security guards located at the Access Control Station. Physical search will include explosives and metal detectors (App. Ex. 39 at 43; Tr. 3517). Access within the plant structures will be controlled by computer based card readers to prevent unauthorized access. This will be administratively supplemented by personnel screening and monitoring, a photo-identification system, escorts when required, and control of personnel traffic flow (App. Ex. 39 at 43; Tr. 3517; Tr. 3468).

83. Access to vital areas will be more stringently controlled. Approximately two to three percent of the plant personnel will have access to all vital areas, and no personnel will have uncontrolled access. Access to vital areas will be based strictly on necessity (Tr. 3279-80; App. Ex. 39 at 44-45; Tr. 3518-19). The vital areas will be separated by function, and vital equipment and systems are located in inerted cells and spaces not accessible during normal operation. Entry to vital areas will be controlled by a dual computer based card reader system which will continuously monitor the status of all vital area doors. Alarms will sound in the event a door remains open too long, control wiring is cut or a door is forced open (App. Ex. 39 at 44-45; Tr. 3285-86; 3518-19).

84. The CRBRP will be equipped with redundant and separate communication systems to provide communications onsite, between security stations and guard force personnel, and offsite from the Central Alarm Station and Secondary Alarm Station. The Central Alarm Station and the Secondary Alarm Station utilize redundant and independent computers which are complemented by the onsite security force (App. Ex. 39 at 44-46; Tr. 3519-20; Staff Ex. 8 at E-9).

85. The CRBRP will institute a screening process of all plant employees. All employees will undergo physical examination by a licensed physician, security investigations, a National Security Agency check, and psychiatric examination when the examining physician believes it necessary, or when an employee's

performance indicates the need for such an examination (App. Ex. 39 at 36-38; Tr. 3270-74, 3375-76; 3510-12).

86. The capital cost of engineering and installing an effective security system is about \$3.8 million. CRBRP security operating costs are estimated at under \$2.5 million per year during the demonstration period. The modular design of the security system will allow improvements to be made with small or no cost impact (App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-64; App. Ex. 39 at 49-50; Tr. 3523-24; Staff Ex. 8 at E-10; Tr. 3394-3403, 3426-27, 3668-69).

87. The planned CRBRP safeguards system for CRBRP will exceed NRC licensing requirements, and the Applicants are committed to implement an effective safeguards system, irrespective of the NRC regulations (App. Ex. 39 at 23; Tr. 3497. Tr. 3451-52). The safeguards requirements, inherent plant design characteristics, the physical security system and the Material Control and Accountability (MC&A) system planned for CRBRP make the likelihood and risk of theft or radiological sabotage extremely low (App. Ex. 39 at 22, 79; Tr. 3496, 3553; Staff Ex. 10 at 12-13; Tr. 3745; Staff Ex. 8 at E-10-E-11). The economic costs of safeguarding CRBRP against theft and sabotage will be small, less than one percent of the total plant cost (App. Ex. 39 at 48-50; Tr. 3399-3403; 3522-24).

88. The CRBRP fuel cycle includes mixed oxide (MOX) fuel fabrication, blanket element fabrication, reprocessing, management of the wastes generated by the various facilities, and transportation of wastes and products among the various facilities (App. Ex. 39 at 16; Tr. 3489; App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-40). All DOE CRBRP fuel cycle facilities will implement safeguards systems, consisting of a physical security system and an MC&A system, in accordance with DOE Orders 5632 and 5630 (App. Ex. 39 at 50-77; Tr. 3524-51; App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-41-42; Tr. 3307-3309). The applicable DOE orders provide a level of protection comparable to the NRC regulations. Although not required by NRC regulations, the material control and accounting systems for the fuel fabrication and reprocessing facilities will use advanced technology for remotely controlled automated processing and near-real-time accounting techniques (App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-42). Reliable, accurate non-destructive assay (NDA) techniques for determining the content of uranium and plutonium have been installed and successfully tested on existing DOE facilities (App. Ex. 39 at 15; Tr. 3488; Tr. 3335). The NDA techniques have been coupled with near-real-time analyses methods to provide continuous monitoring of changes in the amount of SNM in the particular facility (App. Ex. 39 at 15; Tr. 3488. Tr. 3339-45; Tr. 3688-89, 3690-91). The near-real-time accounting systems components have been thoroughly tested and are available for use in DOE's fuel cycle facilities (Tr. 3335-39, 3688-91; 3690-91; App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-58).

89. CRBRP fuel pins will be fabricated in the Secure Automated Fabrication (SAF) line now under construction at the Fuels and Materials Examination Facility

(FMEF) at Hanford, Washington. These facilities will be protected by an integrated safeguards system composed of physical security and material control and accountability (App. Ex. 39 at 51; Tr. 3525). The system employs physical barriers around the protected area with armed guards and intrusion detectors. The protected area is illuminated and under constant closed circuit television (CCTV) surveillance. Access to areas and structures within the protected area is controlled and limited by the intrusion detection, entry control and internal surveillance systems. These systems employ the best available components and techniques, including hand geometry identification, TV displays, electrically locked doors, computer data processing and data analysis (App. Ex. 39 at 55; Tr. 3529). In addition, the system is modular to allow for installation and evaluation of advanced safeguards equipment and systems (Staff Ex. 8 at E-6-E-7; App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-43-44).

90. Complementing the fuel fabrication physical security system is the materials control and accountability system which is carried out on the Safeguards Computer Operating System (SACOS). This computer system operates in a near-real-time mode through direct links to the process control computer and can detect diversions of special nuclear material within hours (App. Ex. 39 at 52-56; Tr. 3340-45; 3526-30). Materials moving through the fuel fabrication facilities are continually monitored and measured using NDA, chemical analysis and laser scanning. The SACOS system is protected from unauthorized access through secure communication wireways, by limiting individual access and through the use of hand geometry identification. The integrated physical security system and MC&A system at FMEF/SAF assure that the risks of theft or sabotage are acceptably low (App. Ex. 39 at 51-56; Tr. 3525-30; App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-46-48; Staff Ex. 8 at E-7-8).

91. The CRBRP fuel cycle will utilize about 65 percent of SAF's operational schedule, and that portion of the safeguards costs is applicable to CRBRP. Safeguards costs for fabrication of CRBRP fuel assemblies will be approximately:

Initial costs:	\$1.5M
Annual cost:	
Repair & Maintenance	\$0.2M
Guard Force	<u>\$0.6M</u>
Total Annual Cost	\$0.8M

(App. Ex. 39 at 56-58; Tr. 3530-32; App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-61-5.7-63).

92. It is anticipated that CRBRP fuel will be reprocessed in the planned Developmental Reprocessing Plant (DRP). However, two alternative facilities were also considered: (a) a small facility dedicated exclusively to CRBRP and

FFTF fuels with approximately 15 tons per year capacity; and (b) a breeder fuels head-end capability add-on to an existing Light Water Reactor (LWR) fuels reprocessing plant (App. Ex. 39 at 21; Tr. 3494). The small dedicated facility can be adequately and easily safeguarded with routine application of existing safeguards technology. Effectively safeguarding higher capacity facilities, such as DRP, will require more extensive safeguards systems with higher costs. Thus, the costs of the DRP safeguards bound those for the alternatives (App. Ex. 39 at 21a; Tr. 3495).

93. The reprocessing activities planned for CRBRP fuels are essentially comparable to the activities now ongoing in existing DOE programs and facilities. Effective safeguards monitoring techniques and analytic methods for these activities and ongoing technology development programs are in place. Substantially equal throughputs of plutonium to those planned for DRP are now achieved and effectively safeguarded in the U.S. military programs (App. Ex. 39 at 71-76; Tr. 3545-50. Tr. 3405-06, 3436-37).

94. The DRP's physical protection system is designed to protect nuclear materials from theft or diversion through the use of access and egress controls and physical barriers, surveillance measures and alarm systems, and onsite security personnel and offsite law enforcement assistance. The physical protection system design includes: SNM contraband detection components, forcible entry detection components, covert entry detection components, damage control procedures, communications systems, armed response forces, and personnel surveillance. Each of these physical protection systems elements is an integral component of the entry-control and intrusion detection subsystems and the safeguards response and control system (App. Ex. 39 at 72-73, Tr. 3546-47; App. Ex. 35, Vol. 2, Chapter 5.7 at 5.6-52-5.6-55, 5.7-52-5.7-55; Staff Ex. 8 at E-11-E-12). The DRP will rely extensively on remote operations and maintenance procedures, thus limiting the access to materials and minimizing the possibility of diversion or sabotage (App. Ex. 39 at 72, Tr. 3546).

95. Advanced MC&A techniques which have been tested and demonstrated will be incorporated in the DRP. A near-real-time accounting (NRTA) demonstration at the Barnwell Nuclear Fuel Plant (BNFP) shows that NRTA can significantly increase the sensitivity and timeliness of diversion detection relative to conventional accounting to permit detection within hours (App. Ex. 39 at 73-75; Tr. 3547-49. Tr. 3339, 3383, 3404, 3446).

96. The initial cost of DRP safeguards would be about \$50 million. Operating costs are estimated at \$12.5 million. CRBRP will use about eight percent of the DRP's capacity, and the pro-rata cost of CRBR safeguards is about four million dollars (capital) and about 1.1 million dollars (annual operating). If the facility option selected for reprocessing of CRBRP fuels is a low throughput dedicated facility, effective safeguards can be applied at costs comparable to or less than the pro-rata costs described above (App. Ex. 39 at 76-77; Tr. 3550-51).

97. The DOE Transportation Safeguards System (TSS) is planned for use in transporting fresh MOX fuel assemblies and spent fuel. In transit, spent assemblies would be protected in large casks weighing many tons to minimize radiation. Irradiated assemblies would be contained in a removable canister inserted in the cask. The casks will be designed to be transported on a 100-ton capacity railroad flatcar. The cask/car combination will be designed in accordance with DOT and NRC regulations, which include provision for crash protection and passive cooling capability. Casks designed to carry LWR spent fuel have been shown through tests to provide substantial protection from credible, intentional destructive acts (App. Ex. 39 at 66; Tr. 3540; App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-50-5.7-51). The system serves approximately 125 shippers and receivers of SNM and other sensitive materials at approximately 100 locations throughout the United States and provides weapons-level protection to all such shipments (App. Ex. 39 at 58-60; Tr. 3532-34). At the present time, the DOE TSS ships quantities of plutonium equivalent to the quantities which will be generated by CRBRP (Tr. 3417). The system is an effective combination of specially designed transportation equipment, nationwide communications, and armed couriers which assures that the risks associated with safeguards transportation are extremely low (App. Ex. 39 at 60-64; Tr. 3534-38; App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-48-5.7-49).

98. The transportation cost of fresh CRBRP fuel will be a small incremental increase to the already existing transportation system. The incremental cost is expected to be less than a million dollars per year (App. Ex. 39 at 64-65; Tr. 3538-39).

99. The transportation of irradiated (spent) fuel and blanket assemblies removed from CRBRP also represents a small incremental risk in addition to other fuel cycle operations. This risk is well recognized and DOE has substantial experience in shipping spent fuel from its various programs (App. Ex. 39 at 65; Tr. 3539; App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-50-5.7-51). The spent fuel and blanket assemblies are hot, both radiologically and thermally, and therefore require special equipment for even the simplest handling operations. This material is unattractive as a target for the theft of plutonium, since chemical and mechanical operations requiring expensive complex facilities and equipment are needed to reduce it to a usable form. Moreover, without special shielding, radiation doses to individuals trying to work with unshielded or poorly shielded spent assemblies would be life threatening (App. Ex. 39 at 65; Tr. 3539; App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-50).

100. The safeguards cost of equipment and personnel for transporting CRBRP spent fuel will be about \$200,000/yr for the fourteen shipments estimated per year (App. Ex. 39 at 67; Tr. 3541).

101. Because of the low concentration of plutonium and uranium in radioactive wastes, low level wastes are not considered attractive for theft (App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-51; App. Ex. 39 at 77; Tr. 3551). High level wastes do

contain substantial radioactive material, and thus could be a target, although an unattractive one, for sabotage. High level radioactive waste (HLW) will be stored within the physical security bounds of the reprocessing plant prior to shipment. Due to the relatively high radioactivity and thermal output associated with HLW, transport to a repository will be accomplished in a fashion similar to the transportation of spent fuel. The high level waste will be shipped in a heavily shielded cask which will be resistant to penetration for sabotage. Safeguard requirements would be the same as those used for spent fuel, *supra* (App. Ex. 39 at 77-78; Tr. 3551-52). At the repository, the physical security of the site as well as the remote location of the wastes deep underground will effectively deter diversion or sabotage. The requirements for protection against sabotage will be determined by NRC since this will be a licensed facility. The costs of adequate safeguards for waste are negligible (App. Ex. 39 at 78; Tr. 3552).

102. The Department of Energy is required by DOE Orders to provide effective safeguards systems for the various fuel cycle facilities (Tr. 3307-09). Those systems will provide a level of protection against design basis threats which is at least equal to the level of protection provided by NRC requirements. In view of the safeguards requirements, current plans and designs for safeguards systems, the available technology, and economic costs for safeguards, the radiological risks associated with safeguarding CRBRP fuel cycle facilities are small, and the economic costs are a small fraction (less than two percent) of total plant cost (Tr. 3453).

103. The health and safety consequences of successful acts of sabotage or theft of plutonium, which could be used in either explosive or dispersal devices, would be unacceptable. The Staff analyzed the environmental impacts of the systems necessary to render unlikely any successful acts of sabotage or theft. The basis for the Staff's analysis was the Applicants' supplement to the CRBR Environmental Report (Amendment No. XIV to the Environmental Report for the Clinch River Breeder Reactor Plant, Docket No. 50-537, June, 1982). That supplement describes the safeguards systems that the Applicants propose to employ. The safeguards systems for the CRBRP will be required to be designed to satisfy the NRC requirements of 10 CFR 50, 70, and 73. The safeguards system for the mixed-oxide fuel fabrication facility, the reprocessing facility, and transportation activities will comply with the requirements of DOE Orders 5630, 5631, and 5632 (Staff Ex. 10 at 5-6; Tr. 3736-38).

104. The Staff considered the combined effectiveness of physical protection and MC&A for all the CRBR fuel cycle activities. The physical protection systems will include such features as security zones, facility architectural and design features, personnel and vehicle access controls, intrusion detection and assessment system, automated alarm reporting, surveillance, communications, and computer security. Material control and accounting systems will include both passive and active features. Passive material control would be accomplished by placing barriers or impediments between special nuclear material and an inside

adversary. Active material control would be accomplished by using the latest advances in remotely-controlled automated processing and rapid accounting techniques, in addition to traditional longer-term physical inventories. Plutonium dioxide and fresh fuel in transit would be protected by the DOE Safe Secure Transport System (Staff Ex. 10 at 6-7; Tr. 3738-39).

105. The Staff's assessments were performed on a systems level, and operating procedures, equipment specifications, and other details were not considered. The Applicants' proposals were judged in terms of whether the safeguards systems will cover all necessary fuel cycle activities, are appropriate for the types of activities to which they would be applied, and are likely to be able to protect against theft, diversion or sabotage (Staff Ex. 8, Appendix E; Staff Ex. 10 at 7, 12-13; Tr. 3739, 3744-45).

106. In accordance with NRC's safeguards mandate, the Staff conducted analyses of potential theft and sabotage threats to licensed nuclear activities. Because the incidence of nuclear sabotage or theft is very low, such analyses relied primarily on the study of evidence in non-nuclear, high value, or high risk environments. Some nuclear events were also included in the analyses. These studies analyzed the characteristics of potential adversaries to nuclear programs, including their degree of motivation, equipment, tactics and organization. The design basis threats contained in 10 CFR Part 73.1(a) represent the Staff's best judgment of the characteristics of potential adversaries toward nuclear activities (Staff Ex. 10 at 11; Tr. 3743).

107. In conducting the systems level review deemed appropriate for analyzing the environmental effects attributable to the CRBRP fuel cycle, the Staff compared the DOE and NRC safeguards regulations and determined that there were no differences at the systems level between the two agencies' requirements (Tr. 3605, 3744-45). As part of the review to determine whether DOE regulations and Orders would protect against acts of sabotage or theft directed against fuel cycle facilities, to the same or greater extent as the NRC regulations do, the Staff did a side-by-side comparison. It concluded that the DOE regulations and Orders do provide safeguards adequate to repel acts of sabotage or theft equal to or greater than the NRC design basis threats. No evidence was presented disputing this conclusion (Tr. 3627-32). The Applicants have committed to meet DOE safeguards orders (Tr. 3683-84). The Staff determined that DOE Orders (which would apply to other DOE facilities if chosen over those proposed) can, from a technical standpoint, reasonably be complied with for fuel cycle facilities (Tr. 3680, 3706).

108. The material control and accounting (MC&A) system must be considered in conjunction with physical security measures in determining whether the ability to detect divergence of formula quantities of plutonium is adequate (Tr. 3725-26, 3827). With respect to MC&A technology, there is only one area in research and development (R&D) needed to establish technological capability to meet performance goals (Tr. 3689-90, 3697, 3721).

109. Although prompt accountability systems have been proposed and are technically within a reasonable time frame for achievability, NRC regulations do not, at present, require such a system (Tr. 3646, 3688, 3694). A system with capabilities of the MC&A system proposed by Applicants for the Demonstration Reprocessing Plant (DRP) can detect the theft of as little as 0.6 kilograms of plutonium with a 90 percent probability of detection (Tr. 3681).

110. That CRBR and the supporting fuel cycle facilities do not present unusual risks is evidenced by the fact that CRBR is not unique in its use of plutonium as a fuel source. There are approximately 10 other U.S. reactors using mixed oxide fuels, including plutonium. Mr. Gaskin, the safeguards reviewer for the Fort St. Vrain reactor which uses formula quantities of mixed oxide fuel, testified that there have been no problems involving either theft or sabotage at that reactor (Tr. 3728, 3729).

111. Supporting the conclusion that the FESS adequately addresses the environmental effects from the CRBR fuel cycle facilities is the fact that all such facilities proposed will be built or modified by DOE and will also be subject to NEPA requirements as a result of DOE's responsibilities under NEPA (Tr. 3720).

112. The design and evaluation of safeguards systems under DOE guidance was approached by the Staff with the assumption that the range of potential threats should be considered credible (Tr. 3481, 3581). As a licensed operating facility, the CRBRP would have to satisfy the safeguards requirements of 10 CFR Parts 70 and 73, and would thus have to protect against the NRC design basis threats. As part of the environmental review, the Staff has assessed the general reactor safeguards systems proposed by the Applicants and has concluded that it is likely that the Applicants will be able to satisfy the safeguards regulations (Staff Ex. 8, Appendix E; Tr. 3741).

113. For nonlicensed fuel cycle facilities that support the CRBRP, the safeguards systems will be designed in accordance with the DOE's 1976 threat guidance, which is similar to the NRC's design basis threat. Safeguards programs designed in accordance with the DOE's guidance will provide a level of protection at least as high as that provided by programs designed in accordance with the NRC's design basis threat (Tr. 3741).

114. The operating history of licensed nuclear facilities handling plutonium and NRC expertise with respect to safeguards provides a sufficient basis by which the safeguards for the CRBRP fuel cycle facilities can be judged to determine their adequacy (Tr. 3643, 3645).

115. The environmental impact of the safeguards measures necessary to minimize the risk of successful acts of theft or sabotage will be negligible compared to the overall environmental impact of the CRBR fuel cycle. The safeguards systems that DOE proposes to employ for the CRBRP fuel cycle will involve minimal construction beyond that required for the operation of the fuel cycle facilities themselves. No new construction will be required for transportation safeguards

(Tr. 3140). The number of operating personnel required for safeguards and the amount of equipment required for their support will be small compared to the overall personnel and equipment requirements of the CRBRP fuel cycle. The operation of the safeguards system will not impact the environment beyond the immediate vicinity of the fuel cycle activities (Tr. 3140).

116. The dollar cost of safeguards for the CRBRP fuel cycle will be insignificant compared to the overall fuel cycle costs. These costs are generally comparable to safeguards costs at NRC-licensed facilities (Staff Ex. 8, Appendix E; Tr. 3140, 3644, 3668-69, 3705).

117. Dr. Thomas B. Cochran, testifying on behalf of the Intervenors, provided a list of events which he considered to constitute empirical evidence supporting the conclusion that successful theft or sabotage of CRBRP is credible. These events included possible thefts at the NUMEC plant and at Wilmington, Delaware, possible sabotage of the VEPCO Surry reactors and the Iraqi reactor while being fabricated in France, and Basque terrorist actions (Tr. 3899-3900). Upon cross-examination, however, it appeared that none of these events involved facilities or materials subject to a level of safeguards comparable to those which will be provided at CRBRP and its supporting facilities (Tr. 3800-17).

118. The Intervenors have asserted that there are significant uncertainties regarding the effectiveness of safeguards at fuel reprocessing facilities (Tr. 3909, 3922). However, the extensive safeguards which will protect the planned Developmental Reprocessing Plant (DRP) and two smaller alternative facilities, have previously been analyzed and found to be reasonable and adequate (Finding No. 92-95, *supra*).

119. The Intervenors contend that safeguards may involve civil liberties restrictions such as warrantless searches or arrests, or the imposition of martial law (Tr. 3849, 3905-06). These speculative risks are not shown to be any greater than those encountered in military programs or in the use of commercial nuclear reactors. Inasmuch as theft or sabotage at CRBRP or its fuel cycle facilities is highly unlikely, the possibility of civil liberties violations is even less likely.

120. The Intervenors also assert that there are uncertainties about compliance by DOE with its safeguards commitments (Tr. 3920-21). Both CRBRP and its fuel cycle facilities are subject to regulatory requirements which require the implementation of an effective safeguards system. The CRBRP must meet the applicable safeguards requirements of 10 CFR Parts 70 and 73. The fuel cycle facilities must meet the requirements of DOE Orders 5630 and 5632 (Tr. 3307-09, 3451-53, 3627-32, 3683-84, 3706, 3721-22; Staff Ex. 8 at E-9). There is no evidence to support the surmise of the Intervenors that these regulatory requirements will not be enforced. In addition, the evidence shows that both DOE and the other Applicants are strongly committed to the establishment and operation of effective safeguards and security systems (Tr. 3450-55, 3470, 3497).

121. The Intervenor asserts that the material control and accounting systems and the physical security systems are not independently effective (Int. Ex. 12 at 36; Tr. 3923). However, the evidence shows that these two systems are intended to be complementary, and in combination they will provide effective protection against theft or sabotage. It is their combined and integrated effectiveness which makes theft or diversion of formula quantities of special nuclear material (SNM) a highly unlikely event (Tr. 3363, 3432, 3694-95, 3698-99; Staff Ex. 18 at 6; Tr. 3738).

122. The Intervenor also contend that a clandestine fission explosive (CFE) could be fabricated directly from fresh CRBRP fuel without the need for chemical separation, requiring only 6 to 12 kilograms of plutonium to construct such a device (Int. Ex. 12 at 7; Tr. 3894). A similar argument is made concerning the fabrication of a plutonium dispersal device from a small amount of fuel. The Staff's witnesses have clearly testified that the health and safety as well as the environmental consequences of successful acts of sabotage or theft of plutonium, are unacceptable (Tr. 3586, 3591; Staff Ex. 10 at 5-6; Tr. 3737-38). Accordingly, the Staff in its analysis focused on the likely effectiveness of the proposed safeguards systems, and concluded that successful acts of theft or sabotage were thereby rendered highly unlikely (Staff Ex. 10 at 6; Tr. 3738).

VI. Fuel Cycle Issues

123. The CRBR fuel cycle support activities comprise the following basic functions that have been described in the cited exhibits:

- (a) Fuel fabrication of core and blanket assemblies;
- (b) Spent fuel reprocessing (including plutonium recovery);
- (c) Associated waste management; and
- (d) Transportation

(Staff Ex. 8 (FES), Appendix D. App. Ex. 35 (ER), Vol. 2, Chapter 5.7. App. Ex. 43 at 4-8; Tr. 4327-31).

124. Applicants analyzed the environmental impacts of each stage of the CRBR fuel cycle and described the analyses and results in the Environmental Report (ER) (App. Ex. 35, Vol. 2, Chapter 5.7). The Staff reviewed the Applicants' submittals and performed an independent assessment as to: (a) the reasonableness of the analytical approach, (b) the credibility and conservatism of the assessment methods used by the Applicants, and (c) the use of the best available information and analytical techniques (Staff Ex. 14 at 9-13; Tr. 4452-56).

125. The radiological impacts of the CRBR at each step of the fuel cycle were calculated by ascribing to the CRBR a pro-rata share of the environmental impacts of a facility based on the percentage of that facility's capacity needed to support the CRBR (Staff Ex. 8, Appendix D; App. Ex. 35, Vol. 2, Chapter 5.7). The nonradiological impacts were also analyzed but were not disputed (Staff Ex. 8 at

D-8, D-9. App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-74, 5.7-75). The average annual population whole body exposures for the CRBR fuel cycle are as follows:

Step	Annual Exposure (Person-Rem)
Core Fuel Fabrication	0.1
Blanket Fuel Fabrication	0.1
Spent Fuel Reprocessing (including Pu recovery)	140
Transportation	30
Waste Management	<u>small</u>
Total	170

These exposures are small compared to the expected year 2010 U.S. population exposure due to natural background radiation of 28,000,000 person-rem (Staff Ex. 8 at D-34. App. Ex. 35, Vol. 2, Chapter 5.7. App. Ex. 43 at 9; Tr. 4332. Staff Ex. 14 at 14; Tr. 4457).

126. Intervenors contended that "by Staff's failure to consider plutonium from recycled LWR or FFTF spent fuel in the CRBR, Staff has underestimated the hazard of plutonium releases by a factor from 2 up to about 4.3." According to Intervenors, the use of spent LWR fuels with higher fuel burnup in the CRBR fuel cycle would result in higher concentrations of the plutonium isotopes Pu-238 and Pu-241 than were assumed in the analysis, and therefore result in a higher dose attributable to plutonium releases than calculated by the Staff and Applicants (Int. Ex. 13 at 19-25; Tr. 4585-91).

127. The fuel composition used by the Applicants in their fuel cycle analysis is equivalent to LWR fuel with a burnup on the order of 20,000 megawatt days per metric ton (Tr. 4260). Since there exist ample quantities of available LWR spent fuel with burnup less than or equal to that value, there would be no need to introduce higher burnup fuel into the CRBR fuel cycle during the five-year demonstration period (Tr. 4313). Intervenors acknowledged that little of the existing LWR spent fuel has a higher burnup (Tr. 4553). Furthermore, the CRBR license application is based on only the lower burnup fuel and if the limits of the analysis were exceeded, the matter must be reviewed by the Staff (Tr. 1751). Even if the fuel cycle started with spent LWR fuel with a higher burnup, as the fuel was recycled over time in the CRBR, the concentrations of Pu-238 and Pu-241 would be reduced from burnup (Tr. 4265. App. Ex. 36, Vol. 3, Chapter 14 at 14.4A-1 to 14.4A-9. Tr. 4539).

128. The Applicants intend to use fuel with a 12 percent Pu-240 content in the CRBR (Tr. 4380). The fuel cycle analysis done by Applicants, however, was based on higher burnup fuel (20 percent Pu-240). This is a conservative basis for assessing the reprocessing impacts since the facility would, in all likelihood, be

processing lower burnup fuel (12 percent Pu-240) (Tr. 4380; Staff Ex. 8 at D-10 to D-12). The Staff calculated the radionuclide content of CRBR spent fuel based on the use of 12 percent Pu-240 fuel. For assessing environmental effects from reprocessing, the Staff used the higher of the two values of the source term for each individual isotope derived from Staff evaluations (NRC ORIGEN2 basis) and Applicants' analysis (Section 5.7 of the ER). This approach thus uses the more conservative value for each isotope, resulting in an overestimate of environmental effects (App. Ex. 43 at 13; Tr. 4336. Staff Ex. 8 at D-13, D-14).

129. The major radiological environmental effects associated with the fuel cycle come from reprocessing (Finding No. 125, above). Furthermore, in reprocessing, the bulk of radiological impacts results from release of tritium and carbon-14. Over 99 percent of the dose to the total body of the U.S. population is due to those two isotopes (Staff Ex. 14 at 22; Tr. 4411, 4434, 4465). Thus, even if it were assumed that the CRBR were fueled with higher burnup plutonium fuel and that the plutonium source term in the two isotopes of concern, Pu-238 and Pu-241, were increased by a factor of 2 to 4.3, the result would be to increase plutonium doses due to plutonium releases by a factor of 2 to 4.3. Since these doses account for only one-tenth of one percent of the total dose, this is insignificant and would have little effect on the analysis (Tr. 4265-66, 4434). Intervenor's testimony demonstrates that if bone-dose rather than whole-body dose were considered, the resultant effect due to plutonium would again be less than one percent of the total (Int. Ex. 13 at 28; Tr. 4594). But the Staff considers that the use of bone-dose for this purpose is not necessarily appropriate (Staff Ex. 8 at 12-63, 12-64).

130. Intervenor's contend that Applicants and Staff should have analyzed the environmental impacts of reprocessing at alternative facilities to the proposed and yet-to-be-built developmental reprocessing plant (DRP), including facilities such as already exist at Hanford and Savannah River (Int. Ex. at 6; Tr. 4572). The Applicants' analysis was based on their present plan for carrying out reprocessing of fuel at the DRP. The Staff independently evaluated the likely environmental impact of the DRP, drawing upon previous analyses of licensed reprocessing facilities, and other extant information on government facilities, NRC projections of radionuclide inventories, and plant separation factors (Staff Ex. 14 at 15; Tr. 4458. Staff Ex. 8 at D-12 to D-17).

131. The two heavily contributing isotopes of interest, tritium and carbon-14 (Finding No. 129) are now considered. The Staff's source term conservatively assumed that all of the tritium produced at the reactor is transferred to and is released from the reprocessing plant. In reality, however, about 90 percent of the tritium generated at the reactor will diffuse through the cladding into the sodium coolant, where it will be removed by sodium cold traps. Thus, the tritium source term and resulting doses are expected to be a factor of 10 less than the values calculated by the Staff in the FES (App. Ex. 43 at 13; Tr. 4336). The carbon-14 (C-14) source term in the FES conservatively assumed that all of the C-14

produced in both the fuel and the cladding is released during reprocessing. In fact, the C-14 in the cladding remains with the cladding and would be disposed of at a permanent repository. As a result, the C-14 source term quoted in the NRC ORIGEN2 analysis is the more likely value and is a factor of 1.7 lower than the source term value used in the FES. In addition, C-14 that reaches the dissolver off-gas system will be removed along with the Kr-85 by the krypton removal system. This is expected to reduce the C-14 release by a factor of 2 to 10. The combined effects of the corrected source term and C-14 retention are expected to reduce the C-14 release and resulting environmental effects by at least a factor of 3 below that given in the FES (App. Ex. 43 at 13-14; Tr. 4336-37). The net effect of the Staff's assumptions is that the FES estimate of the U.S. total body population dose due to reprocessing is a factor of about 5 higher than the expected doses and represents a bounding case (App. Ex. 43 at 15; Tr. 4338; Staff Ex. 8 at D-12 to D-17). Therefore, the analysis of the DRP with an assumed total release of tritium and C-14 bounds all potential and alternative reprocessing facilities (Tr. 4405-06; App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-14; Staff Ex. 8 at D-15 to D-17).

132. The initial five years of CRBR operational demonstration does not depend on completion of the DRP prior to or during that time (Tr. 4317). Furthermore, if reprocessing facilities were not available during the demonstration period, the spent fuel would have to be stored rather than reprocessed. The major portion of the overall fuel cycle environmental effect results from effluents from the reprocessing plant. The environmental impacts of storing spent fuel are orders of magnitude less. Therefore, if the reprocessing facility were unavailable during the demonstration period, the environmental effects of the fuel cycle would be markedly reduced from those contained in the FES (Tr. 4439).

133. Intervenors contend that the Applicants and Staff have failed to use adequate containment factors for releases of plutonium from the CRBR fuel fabrication and fuel reprocessing facilities. Two bases were given for this allegation: (1) that the containment factor for the CRBR fuel reprocessing facility will likely be a factor of ten greater than claimed by Staff and Applicants, based on operational experience at Hanford and Savannah River; and (2) that the containment factors for the fuel reprocessing and fuel fabrication facilities failed to take into account operational experience at the DOE Rocky Flats facility (Int. Ex. 13 at 29-34; Tr. 4595-4600).

134. The plutonium containment factors used by the Staff and Applicants are 1.25×10^{-11} for fuel fabrication and 5×10^{-10} for reprocessing (Staff Ex. 8 at D-10 to D-15. App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-22 to 5.7-25, 5.7-79. Int. Ex. 13 at 29-30, Tr. 4595-96). The factors were based on the assumption that exhaust gases would pass through a series of high-efficiency particulate air (HEPA) filters, with each filter having an efficiency of at least 99.95 percent (Staff Ex. 8 at D-11). Such filter applications and performance values are consistent with a substantial base of experience in plutonium handling facilities (Tr. 4435-37,

6084-86). Intervenors' calculations based on data from the Savannah River Plant and the PUREX Plant at Hanford derived containment factors for those facilities of 4×10^{-9} and 3×10^{-9} respectively. These values are a factor of ten worse than that used by Staff and Applicants (Int. Ex. 13 at 31-33, Tr. 4597-99). Upon examination, it was established that Intervenors' analysis is of questionable reliability, incomplete and neither confirms nor refutes the assumed plutonium containment factor values (Tr. 4562-66).

135. Even if Applicants and Staff have overestimated containment capability by a factor of 10, an improvement of this magnitude can be achieved simply by the application of standard, proven engineering techniques. Effluents can be reduced significantly by adding additional banks of HEPA filters. Addition of only one bank of filters would improve containment by a factor of 1000. Alternatively, an improvement in containment by a factor of 10 could be achieved simply by increasing pipe or duct size, thus allowing material to more readily settle out of air streams (Tr. 4430-32. Staff Ex. 8 at 12-61 to 12-62).

136. Intervenors alleged that, based on experience at the Rocky Flats facility, Applicants and Staff had underestimated the radiological releases from CRBR fuel cycle facilities. The argument was premised upon the assumption that the Rocky Flats facility is functionally similar to the CRBR fuel cycle facilities (Int. Ex. 21 at 2-4, Tr. 6019-21). Such a comparison is not valid. The CRBR fuel cycle facilities are dissimilar from Rocky Flats in terms of functions, products, and releases. Rocky Flats is not a reprocessing or fabrication plant for reactor fuel, but rather is used for the fabrication and recovery of plutonium metal parts for weapons. The incoming product in a nuclear fuel reprocessing plant, such as DRP, is spent fuel and the major radioactivity comes from the fission product content of the fuel. On the other hand, the main incoming products at the Rocky Flats plant are plutonium metal shapes, which contain an insignificant fission product inventory (Tr. 6076-77). The releases from Rocky Flats and those from a fuel fabrication or fuel reprocessing facility likewise are also markedly different. For instance, there are little or no gaseous effluents that contain fission products coming from the Rocky Flats plant. In the DRP, the main releases of concern are the fission products and activation products such as C-14 (Tr. 6077-78). The discussion by Staff's witness of the important differences between Rocky Flats and CRBR fuel cycle facilities was based upon direct knowledge and expertise (Staff Ex. 15, Tr. 4903-4. Tr. 6075). Intervenors' witness had no specific training or experience that enabled him to make such comparisons (Tr. 5813-20, 5840-43). Finally, Applicants have committed to meeting applicable environmental release standards for the CRBR fuel cycle facilities, including, for the DRP, dose guidelines equivalent to those of 10 CFR Part 100 for nuclear power plant accidental releases (Tr. 4390-91. App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-8).

137. Intervenors hold that the Staff incorrectly calculated the potential health effects associated with high level waste disposal. This position is based on the

Draft EPA Proposed Environmental Standards and Federal Radiation Protection Guidance for Management and Disposal of High-Level and Transuranic Radioactive Wastes, which document contains limits based on an upper bound value of 1000 health effects over the first 10,000 years after closure of a full-size high-level waste repository (Int. Ex. 13 at 35-36; Tr. 4601-02).

138. The CRBR fuel cycle facilities producing radioactive wastes are: (1) the blanket fuel fabrication plant, (2) the core fuel fabrication plant, (3) the reactor plant, and (4) the fuel reprocessing plant (App. Ex. 35, Vol. 2, Chapter 5.7 at 5.7-15 to 5.7-21). For each of these facilities, the Staff independently assessed the quantity and types of radioactive waste that are likely to be generated over the life of the CRBR (Staff Ex. 14 at 16; Tr. 4459). The CRBR wastes are similar to other wastes that might result from the commercial nuclear power industry and the portion of waste management facilities that might be required for CRBR would be a small fraction of the total waste handling capability (*i.e.*, less than one percent) (Staff Ex. 14 at 17, Tr. 4460).

139. The Staff estimated that about one percent of a high level waste (HLW) repository would be needed for CRBR wastes. Its estimate of HLW impacts was based on that percentage (Staff Ex. 8 at D-25). These wastes would actually occupy about 0.36 percent of the capacity of a 2000 acre repository. Thus the HLW environmental impacts reported in the FES Supplement (Staff Ex. 8 at D-8 to D-9) are conservatively overestimated by a factor of about three (App. Ex. 43 at 15-16; Tr. 4338-39).

140. The health effects attributable to the CRBR can be derived by taking 0.36 percent to one percent of the 1000 estimated health effects from the draft EPA standards (Tr. 4422-4423). Intervenors attributed an estimated 10 health effects to CRBR, but projected all 10 to occur within an assumed 30 years of CRBR operation, thereby yielding 0.3 health effects per year (Int. Ex. 13 at 36; Tr. 4602). The EPA proposed standards contain pessimistic assumptions that make the values contained therein upper bound risks over a period of 10,000 years. Thus, a correct application of the EPA standard would show that from 0.00036 to 0.001 health effects per year could be expected. This is quite small relative to the background incidence of health effects (Tr. 4422-23. App. Ex. 43 at 15-16; Tr. 4338-39. App. Ex. 42 at 23-2 4; Tr. 4289-90).

VII. Alternative Sites

141. In its August, 1976 decision in this case, the Commission established certain principles for the conduct of the proceeding and the review and consideration of alternatives. These include: (a) "[t]he need for a liquid metal fast breeder reactor program, including its objectives, structure, and timing" shall be taken as established; (b) "[t]he need for a demonstration-scale facility to test the feasibility of liquid metal fast breeder reactors when operated as part of the power generation

facilities of an electric utility system, including its timing and objectives" shall be taken as established; (c) [a]lternatives for meeting the objectives are to be evaluated in terms of the objectives defined in the [programmatic] impact statement," and consideration of alternatives will be limited to determining whether substantially better alternatives are likely to be available (*United States Energy Research and Development Administration* (Clinch River Breeder Reactor Plant), CLI-76-13, 4 NRC 67, 92 (1976)).

142. The Commission has issued for comment a proposed rule for evaluation of alternative sites (45 Fed. Reg. 24168 (April 9, 1980)) (Staff Ex. 8, Appendix K). Although it is not controlling here, the methodology of the proposed rule was incorporated into both Applicants' and Staff's analyses as an additional confirmation of results. The proposed rule contemplates a two-part analysis: (1) comparison of environmental factors at the proposed site with those at alternative sites to determine whether any alternative sites are "environmentally preferred" to the proposed site; (2) if such a preferable alternative site exists, a determination whether that site is "obviously superior" to the proposed site based on a balancing of environmental and safety considerations, project economics, technology, and institutional factors (45 Fed. Reg. 24177). "Obviously superior" and "substantially better" were regarded as essentially equivalent tests in Applicants' analyses (Tr. 4693-94).

143. The programmatic objectives of the CRBRP are (1) to demonstrate the technical performance, reliability, maintainability, safety, environmental acceptability, and economic feasibility of an LMFBR central station electric power plant in a utility environment, and (2) to confirm the value of this concept for conserving important nonrenewable natural resources (Staff Ex. 7 at 1-1). The timing objective of the CRBRP is completion "as expeditiously as possible" (Staff Ex. 8 at 8-4).

144. The evidence of record supports the Applicants' and Staff's conclusions rejecting the alternative siting concepts of a hook-on plant, co-location, and underground siting. The hook-on concept would utilize turbine generators at existing conventionally-fired electric generation plants to receive steam from the LMFBR demonstration plant nuclear steam supply system (App. Ex. 36, Vol. 3, Chapter 9.2 at 9.2-3-9.2-8). A stand-alone design is preferable, since potential dollar savings for the hook-on option cannot be realized, substantial schedular and economic penalties would result if the hook-on option were pursued, and the technological benefits of a stand-alone plant design are significantly greater than a hook-on plant design (Staff Ex. 16 at 3, 6-7; Tr. 4909, 4912-13; Staff Ex. 8 at 9-9; App. Ex. 36, Vol. 3, Chapter 9.2 at 9.2-30-9.2-33; App. Ex. 38, Vol. 5 Amendment XV at Q320.1R-1). Upon comparison of the safety, environmental acceptability, safeguards, and economic considerations, the concept of co-locating the LMFBR demonstration plant with an LMFBR reprocessing or fuel fabrication plant is not a substantially better alternative (App. Ex. 37, Vol. 4, Appendix D at D-94-D-96 and Appendix F at F-26; Staff Ex. 7 at 11-37; Staff Ex. 8 at 11-23; App.

Ex. 45 at 11; Tr. 4743; Staff Ex. 15 at 31; Tr. 4895). Any expected safety benefits of underground siting do not offset the penalties (greater operational problems, major unresolved technical problems, potential for groundwater contamination, significant increases in construction and operation costs, and a longer construction schedule) associated with such siting. Hence, underground siting is not a substantially better alternative siting concept (Staff Ex. 7 at 11-37, 11-38; Staff Ex. 8 at 11-23-11-24; App. Ex. 37, Vol. 4, Appendix D at D-96-D-98 and Appendix F at F-26; App. Ex. 45 at 11; Tr. 4743; Staff Ex. 15 at 28-29; Tr. 4892-93).

145. After 109 possible alternative sites for the LMFBR demonstration plant within the TVA power service area were screened, eleven sites were identified by Applicants as possible alternative sites. From these, the Clinch River site was selected as the preferred site (App. Ex. 36, Vol. 3, Chapter 9.2; App. Ex. 37, Vol. 4, Appendix A; Staff Ex. 16 at 2; Tr. 4908).

146. The Applicants performed a separate additional analysis of eleven candidate sites which are representative of the best sites within the TVA power service area (App. Ex. 37, Vol. 4, Appendix G, Attachment 1). These eleven sites were the proposed Clinch River site and ten alternative sites (Spring Creek, Blythe Ferry, Caney Creek, Taylor Bend, Buck Hollow, Phipps Bend, Lee Valley, Murphy Hill, Hartsville, and Yellow Creek). Comparison of the Clinch River site to the ten alternative candidate sites on the basis of hydrology, water quality, aquatic biological resources, terrestrial resources, water and land use, socio-economics, meteorology, and population showed that none of the ten alternative candidate sites is preferable to the Clinch River site from an environmental standpoint, and therefore none is substantially better than the Clinch River site (App. Ex. 45 at 7; Tr. 4739).

147. The Staff independently reviewed the alternative sites, and selected the Hartsville, Murphy Hill, Phipps Bend and Yellow Creek sites along with the Clinch River site as an appropriate slate of alternative (candidate) TVA sites for analysis (Staff Ex. 16 at 6, Tr. 4912). The Staff concluded that no alternative TVA site would be environmentally preferable (Staff Ex. 16 at 13, Tr. 4919) and therefore none is substantially better than the CRBRP site (Staff Ex. 8 at 9-9).

148. The uncontested evidence supports Staff's and Applicants' analyses rejecting alternative TVA sites outside the TVA power service area. Only two TVA sites outside the TVA service area, Page and Artemis, might reasonably be considered as alternative sites. Both, however, are unsuitable by reason of the inadequate size of the Page site, and limited water supplies, absence of barge access, and high transmission line costs at both sites (Staff Ex. 7 at 9-11; Staff Ex. 8 at 9-11; App. Ex. 37, Vol. 4, Appendix D at D-88-D-93 and Appendix F at F-26).

149. In 1976, the Applicants surveyed all properties in the custody of ERDA throughout the United States in order to identify potential alternative sites for a LMFBR demonstration plant. Consideration was given to such factors as cooling

water, seismic ground motion, potential interference with other programs, population density, space for plant location, and proximity to existing ERDA facilities. The Hanford Reservation, Idaho National Engineering Laboratory (INEL), and the Savannah River Plant (SRP) were identified as potential alternative (candidate) sites for the LMFBR demonstration plant (Staff Ex. 7 at 9-11; App. Ex. 37, Vol. 4, Appendix D). The most recent updated information showed that Hanford, INEL, and Savannah River remained potential DOE alternative (candidate) sites for siting of a LMFBR demonstration plant (App. Ex. 37, Vol. 4, Appendix F at F-4; Staff Ex. 8 at 9-11; Staff Ex. 16 at 8-9; Tr. 4914-15).

150. Contention 7(c)(1) alleges that the Nevada Test Site (NTS), among others, had been inadequately analyzed as an alternative site. However, the Staff independently reviewed the desirability of including NTS as a candidate site and concluded there was good cause to reject NTS from further consideration (Staff Ex. 16 at 10, Tr. 4916). The NTS was not considered suitable because of the estimated 0.75g design requirement for seismic ground motion, lack of surface water and limited groundwater (use for the demonstration plant would conflict with other uses of Nevada's limited supply), and relatively high transmission line costs. Potential interference with activities associated with research, development, and testing of nuclear weapons was also indicated (Staff Ex. 8 at 9-11; Ex. 16 at 10, Tr. 4916; App. Ex. 37, Vol. 4, Appendix D at D-21-D-24).

151. Examination of environmental and engineering characteristics of the Hanford, Savannah River, and INEL sites demonstrated that none of those sites is environmentally preferable to the Clinch River site (Staff Ex. 8 at 9-11; App. Ex. 37, Vol. 4, Appendix F at F-8). Those sites have more favorable atmospheric dispersion (meteorology) and site isolation (*i.e.*, minimum exclusion boundary distance, surrounding population density) characteristics than the Clinch River site. However, the comparison of all relevant siting parameters showed that the Hanford, Savannah River, and INEL sites are essentially equivalent to the Clinch River site in terms of environmental considerations, and none is substantially better from an environmental standpoint (App. Ex. 45 at 9-10, 15; Tr. 4741-42, 4747).

152. Although certain alternative TVA sites have somewhat better atmospheric diffusion characteristics (App. Ex. 37, Vol. 4, Appendix G, Attachment I), the atmospheric diffusion characteristics for the Clinch River site and for the alternative TVA sites can be considered similar or comparable (Staff Ex. 15 at 14; Tr. 4805, 4811, 4878). The diffusion characteristics of the three DOE alternative sites were found to be more favorable than those at the Clinch River site (Staff Ex. 8 at L-34, L-40, L-44; Staff Ex. 15 at 15; Tr. 4879; App. Ex. 37, Vol. 4, Appendix F at F-5; App. Ex. 45 at 9; Tr. 4741). The Clinch River site, however, is an acceptable site for a nuclear facility from the standpoint of meteorology (Staff Ex. 1 at IV-1-IV-2; App. Ex. 37, Vol. 4, Appendix D at D-2, D-9 and Appendix F at F-5; App. Ex. 45 at 14; Tr. 4746).

153. Two permanent instrumented towers were installed in February, 1977 by the Applicants at the CRBRP site. The instrumentation consisted of wind speed and wind direction sensors on a ten meter tower, and wind speed and direction, temperature, dew point, solar radiation, and precipitation sensors on the 110 meter tower. Meteorological measurements were recorded on the permanent towers during the period of February 16, 1977 to March 2, 1978. The two permanent towers were put back into service during April of 1982 and will operate during construction of CRBRP (Staff Ex. 15 at 7-8, Tr. 4871-72).

154. The Staff and the Applicants performed independent X/Q (atmospheric dispersion) analyses utilizing onsite data collected by the permanent towers for the period February 17, 1977 to February 16, 1978. The joint data recovery rate for that period was 97 percent, and the data meet the standards recommended in Regulatory Guide 1.23 (Tr. 4792; Staff Ex. 15 at 7; Tr. 4872). The CRBRP site is characterized by a high frequency of stable atmospheric diffusion conditions, westerly winds, and low wind speeds which are typical of the northern Appalachian area of the Southeastern United States (Staff Ex. 15 at 8-9; Tr. 4872-73).

155. Stable atmospheric diffusion conditions (Classes E, F and G) at the CRBRP site occurred 56 percent of the time. Neutral stability (Class D) and unstable (Classes A, B and C) conditions occurred 36 percent and 8 percent of the year, respectively. Prevailing winds are from the west, with W, WNW and WSW winds, $\pm 22\frac{1}{2}$ degrees, occurring 29%, 25% and 26% of the year, respectively. The annual 10 meter wind speed had an occurrence of winds less than 1.5 m/sec 60 percent of the time, winds less than 2.5 m/sec 80 percent of the time, and winds less than 0.4 m/sec three percent of the time (*Id.*).

156. The Staff's and Applicants' X/Q values for routine and accidental releases of radiation were performed in accordance with Regulatory Guides 1.111 and 1.145 (Staff Ex. 15 at 9-11; Tr. 4873-75). The Applicants' calculated most limiting offsite annual average X/Q value for evaluating the routine releases of radioactivity from CRBRP was 1.02×10^{-4} sec/m³. The Staff's calculated value was 1.2×10^{-4} sec/m³ (Staff Ex. 15 at 11-12; Tr. 4875-76).

157. There is a factor of two difference between the Staff's calculated X/Q values for CRBRP at the exclusion area boundary, as presented in the 1977 versus the 1982 version of the Site Suitability Report (Tr. 2394, 4791, 4846). The changes in X/Q values are due to (1) different data sets that were used to calculate the X/Q values in 1977 and 1982, and (2) different X/Q models utilized by the Staff. The use of a different X/Q model in 1982 is the primary contributor to the differences in calculated X/Q values (Tr. 4791).

158. The 1982 data base employed by the Staff in its X/Q calculations for CRBRP is better than the 1977 data base, since the earlier data may not meet Regulatory Guide 1.23 standards. The Staff stated there are no reservations that the 1982 data base meets the standards set forth in Regulatory Guide 1.23 (Tr. 4792). Any uncertainties in the X/Q models employed by the Staff are in the conservative

direction. The resolution of these uncertainties would be in the more realistic direction, thereby reducing the potential doses (Tr. 4792-93).

159. The new X/Q models are preferable to the older models, in the opinion of the Staff. The new X/Q models, as set forth in Regulatory Guide 1.145, were based on a thorough examination of all experimental data on atmospheric diffusion available at that time, and included data obtained from the Clinch River site (Tr. 4851-52).

160. The X/Q values and diffusion conditions at CRBRP are better than at some LWR sites that are currently permitted or licensed, and are comparable to LWR sites in the general region. The X/Q values for LWRs are calculated using the same methodology as that used by the Staff in the Clinch River proceeding (Staff Ex. 15 at 12; Tr. 4876).

161. As part of its alternative site review, the Staff reviewed the joint occurrences of stable atmospheric diffusion conditions and average wind speeds for the CRBRP site and seven alternative sites. This combination of conditions largely determines the relative diffusivity of an area under the poorest diffusion conditions (Staff Ex. 15 at 13; Tr. 4877).

162. The Staff also reviewed and compared the accident X/Q values for the CRBR site and the seven alternative sites (Staff Ex. 15 at 14, Tr. 4878). The CRBR site has accident X/Q values which are comparable to the four other TVA sites. The TVA sites have comparable stable atmospheric diffusion occurrence frequencies and comparable average stable wind speeds, except for Clinch River. The Savannah River site has significantly less frequent stable conditions, higher wind speeds, and significantly better diffusion conditions than the CRBR site. The Hanford and INEL sites have high stable atmospheric diffusion frequency and higher average wind speed, compared with the CRBR site. Accident X/Q values are better at Hanford and INEL, compared with the CRBR and five TVA sites (Tr. 4811, 4814-15; Staff Ex. 15 at 14-15, Tr. 4878-79; App. Ex. 45 at 14; Tr. 4746).

163. The differences in meteorology between the CRBR site and the alternative sites do not significantly change the potential risks of health effects as calculated and described by the Staff in Appendix J of the 1982 FES Supplement. The Applicants acknowledged that the lower population densities and more favorable atmospheric dispersion characteristics of the three DOE alternative sites would result in lower offsite doses associated with releases of radioactive material from the LMFBR Demonstration Plant, if it were placed at any of those three sites. However, the Applicants' evidence shows that the health effects to the public from normal operation of CRBRP would be small in relation to the background incidence of health effects in the population. In addition, the doses at the Clinch River site would be well below the 10 CFR Part 100 dose guidelines, and the CRBRP can be designed so that greater accident consequences are highly unlikely. Consequently, the real reduction in expected environmental impacts for an alternative site relative to the Clinch River site because of lower population density and/or

more favorable atmospheric dispersion characteristics, is shown to be insignificant (Tr. 4646-52, 4695-4701, 4800-01; App. Ex. 45 at 13-15; Tr. 4745-47; Staff Ex. 8 at 5-22).

164. Exclusion area for CRBRP is defined by Applicants as a 1364 acre tract of land in Roane County, Tennessee, as described in §2.1 of the ER and PSAR, and §II.A of the Staff's SSR. That exclusion area satisfies the requirements of 10 CFR Part 100 (Staff Ex. 15 at 17-18; Tr. 4880-81).

165. The low population zone (LPZ) is defined by Applicants as a circular area centered on the CRBRP with a radius of 2.5 miles. The LPZ satisfies the requirements of 10 CFR Part 100 (*Id.*).

166. The population center for CRBRP is the City of Oak Ridge, Tennessee. The population center distance is seven miles north-northeast (NNE) of the CRBRP. The population center distance of seven miles is at least one and one-third times the LPZ outer radius of 2.5 miles, and meets the requirement of 10 CFR Part 100. Even if future population growth results in a population center distance of five miles, the 10 CFR Part 100 requirement for the population center distance will be met (Staff Ex. 15 at 17; Tr. 4881).

167. The Staff compared the 2,200 feet minimum distance from the CRBRP to the exclusion area boundary with exclusion area distance for LWRs. The Staff concluded that the size of the exclusion area for CRBRP is about average when compared to other LWR sites (Staff Ex. 15 at 17-18, Tr. 4881-82).

168. The Staff compared the 2.5 mile LPZ for CRBRP with the LPZ distances for LWRs, and concluded that the LPZ for CRBRP is about average when compared to other LWR sites (Staff Ex. 15 at 18; Tr. 4882).

169. The seven mile population center distance for CRBRP is slightly less than average when compared to LWR sites (Staff Ex. 15 at 18-19, Tr. 4882-83).

170. In the absence of Commission regulations regarding population density, the Staff has published criteria on population density in Regulatory Guide 4.7, Revision 1, "General Site Suitability Criteria for Nuclear Power Station" (November, 1975). Section C.3 of Reg. Guide 4.7 provides that if the population density, including weighted transient population, projected at the time of initial operation of a nuclear power station, exceeds 500 persons per square mile averaged over any radial distance out to 30 miles (cumulative population at a distance divided by the area at that distance), or if the projected population density over the lifetime of the facility exceeds 1,000 persons per square mile averaged over any radial distance out to 30 miles, applicants must give special attention and consideration to alternative sites with lower population densities. The population density levels set forth in the Regulatory Guide do not represent upper bound limits of acceptability, but are "trip" levels. If the population density "trip" levels are exceeded at the site, the site must be determined to have significant offsetting advantages as compared with available alternative sites of lower density (Staff Ex. 15 at 19; Tr. 4883).

171. The resident populations out to 30 miles from the CRBR site in 1980, 1990 and 2030, are shown in Table III of the SSR. The Staff verified the Applicants' population estimates and projections by several means, including reviewing an independent estimate of the 1980 population within 50 miles, and examining population data for 1970 at several distances together with known growth rates for the period 1970-80 (*Id.*). Based on these population figures, the Staff projected the 0 to 30 mile population density figure for the year 1990 as being 197 persons per square mile (Appendix L, 1982 FES Supplement; Staff Ex. 15 at 20; Tr. 4884).

172. The population density, including weighted transients, for the CRBR site at projected time of plant startup (year 1990) is well below the Regulatory Guide 4.7 trip level of 500 persons per square mile out to 30 miles. The population density at end-of-plant life (year 2030) is well below the Regulatory Guide 4.7 trip level of 1,000 person per square mile out to 30 miles (Tr. 4885).

173. The Staff performed an analysis which lists a first-order priority of all LWRs with regard to power level and density (SECY 81-25). This analysis divided all LWR sites into five groups on the basis of reactor power level and weighted population density. Using the same methodology utilized in SECY 81-25, the Staff analyzed the CRBR site with regard to reactor power level and weighted population density. The Staff found that CRBR falls into Group II-Average, and its weighted population density is average when compared to other LWR sites (Tr. 4829-32; Staff Ex. 15 at 21-22; Tr. 4885-86).

174. The Staff calculated the year 1990, 0- to 30-mile population densities for the seven alternative sites (Staff Ex. 15 at 22; Tr. 4886). It also evaluated the differences in population density between CRBRP and the seven alternative sites. The Staff concluded that the numerical differences in population between the Clinch River site and each of the alternative sites are not significant for two reasons. First, the CRBRP 0- to 30-mile population density projected at the time of plant startup is well below the 500 persons per square mile "trip" level of Regulatory Guide 4.7. While the Regulatory Guide states that areas with low population densities are to be preferred for the siting of nuclear power reactors, it does not make any distinction with regard to sites with population densities below the "trip" levels, and defines "low population densities" to be those which are below the "trip" levels. Secondly, the Staff considers population density to be a relatively crude surrogate for the residual risk associated with accidental releases of radioactivity. The Staff's assessment of the residual risk of severe accidents at the Clinch River site showed that the residual risk was very low (Appendix J, 1982 FES Supplement). Therefore, any reduction in the already very low residual risk associated with accidental radiation releases which are attributable to reductions in population density, are not significant (Tr. 4799-4802, 4818-19, 4821-28, 4833-37, 4849; Staff Ex. 15 at 22-23; Tr. 4886-87).

175. The Staff did not consider meteorology and population density jointly, but did consider each factor independently in its alternative siting analysis. Wind

direction and population density have recently been jointly considered to determine if this changed the Staff's conclusions. The Staff's experience has been that joint consideration of meteorology and population density does not materially alter conclusions on siting, as compared to their conclusions when those factors are considered independently of each other (Tr. 4795-99).

176. The Intervenor's argue that the Hartsville and Yellow Creek TVA sites, and the Hanford, Savannah River and INEL DOE sites, exhibit more favorable meteorological and population density characteristics and hence lower radiological risk, and therefore are substantially better alternatives. These conclusions are reached from both singly or jointly considering meteorological and population density factors. However, given the small and environmentally acceptable impacts of the proposed LMFBR at Clinch River, the insignificant reductions in doses which are calculated for the alternative sites do not show that they are either substantially better or obviously superior.

177. Relocation to another TVA site would result in increased costs to the project of \$39-303 million on a 1982 present-worth basis and considerably more on an appropriations basis. Relocation costs to a DOE site, on a present-worth basis, are \$94 million for relocation to Hanford, \$259 million for relocation to INEL, and \$61 million for relocation to Savannah River (Staff Ex. 8 at 9-12-9-14; Staff Ex. 16 at 16; Tr. 4922; App. Ex. 37, Vol. 4, Appendix F at F-31 and Appendix G at G-28).

178. If any alternative site were selected for relocation, a minimum delay of 33 months and a more probable delay of 43 months could be expected, starting from the time a decision was made to change sites (App. Ex. 37, Vol. 4, Appendix E at E-11-E-19, Appendix F at F-28, Appendix G at G-25-G-26; Staff Ex. 8 at 9-12; Staff Ex. 16 at 14; Tr. 4920). Unless offsetting benefits were present, delays ranging from 33 to 43 months would not be consistent with DOE's timing objective under the LMFBR program — *i.e.*, completion of the project as expeditiously as possible (App. Ex. 37, Vol. 4, Appendix F at F-28, Appendix G at G-26; App. Ex. 45 at 8, 10, Tr. 4740, 4742; Staff Ex. 16 at 15; Tr. 4921).

179. The project objective of utility participation and demonstration in a utility environment is not likely to be met at the alternative DOE sites (App. Ex. 37, Vol. 4, Appendix F at F-8, F-30; Staff Ex. 16 at 15, Tr. 4921).

VIII. Programmatic Objectives and Design Alternatives

180. The CRBR is an experimental or demonstration reactor in the LMFBR program that is midway between the Fast Flux Test Facility (FFTF) and a full-sized commercial LMFBR. The objectives of the project were made an integral part of the design and management process for the CRBRP and were incorporated in all levels of the design, through five descending tiers of increasingly more detailed

and specific design guidelines. These successive steps moved from project objectives, to design guidelines, to overall plant design descriptions, to system design descriptions, to equipment specifications (App. Ex. 58 at 4-6; Tr. 6410-12).

181. The Applicants have adopted a series of formal management systems, including design reviews, configuration management, and quality assurance, to assure that the ability of the design to meet its objectives was controlled and measured on a continuous basis (App. Ex. 58 at 6-14; Tr. 6412-20).

182. The major technical performance objectives of the CRBRP concern thermal power production, steam conditions and electrical power production (App. Ex. 58 at 14-17; Tr. 6420-23; Staff Ex. 7 at 8-5; Staff Ex. 8 at 8-2-8-4).

183. Thermal power production is a function of core heat generation, core flow, and heat transport from the core in the heat transport system (HTS). Planned core heat generation is likely to be achieved, based upon analysis of CRBRP core physics and comparison of these analyses with experiments conducted at the Zero Power Plutonium Reactor (ZPPR) using a CRBRP core configuration mock-up. Core flow characteristics have been determined by scale-model hydraulic tests, and the analytical tools for calculating basic heat transfer from the core are well established through experience with the Experimental Breeder Reactor-II (EBR II), the Fast Flux Test Facility (FFTF), and light water reactors (LWRs). The major HTS components are sodium pumps and Intermediate Heat Exchanger (IHX). A prototype of the main sodium pump is currently being tested and has been found to perform satisfactorily. The IHX is similar to the one successfully used in FFTF and can reasonably be expected to perform acceptably in CRBRP. The HTS is likely to meet the design parameters for plant thermal power production based upon experience from EBR II and FFTF (App. Ex. 58 at 14-15; Tr. 6420-21).

184. The CRBRP steam conditions of importance are pressure, temperature, and flow. The steam, feedwater and condensate systems for CRBRP are similar to those currently in use in LWRs and fossil power plants, and the CRBRP conditions of pressure, temperature and flow fall within the range of parameters experienced for LWRs and fossil-fueled plants (App. Ex. 58 at 15-16; Tr. 6421-22).

185. Intervenors have argued that high technical risks and long project delays could occur if a steam generator of untested design were installed in the CRBRP. However, the steam generator design and verification test program are well founded and based upon more than 20 years of relevant experience (Tr. 6325-26). The CRBRP steam generator design incorporates lessons learned from operating LMFBR steam generators as well as from LWR steam generator experience (Staff Ex. 21 at 8; Tr. 6529). Model steam generators have been tested to obtain data on full-power steam generator performance and endurance (Int. Ex. 22, Attachment 2; Tr. 6253). A prototype steam generator has been developed to perform component and system integration testing (Staff Ex. 21 at 9; Tr. 6530). Hydraulic testing of a 0.42-size scale model is planned to confirm analytical predictions that there

will be no flow-induced vibration problems with steam generator design improvements (Staff Ex. 21 at 9-10; Tr. 6530-31). Finally, as a confirmation test of the scale model tests, the plant spare steam generator will be hydraulically tested (Staff Ex. 21 at 10; Tr. 6531).

186. A GAO letter entitled "Revising the Clinch River Breeder Reactor Steam Generating Testing Program Can Reduce Risk," GAO/EMD-82-75, May 25, 1982 was introduced by the Intervenors (Attachment 2 to Int. Ex. 22; Tr. 6250-60). The highly critical GAO letter concluded that the CRBRP steam generator design did not minimize technical risk and that a more exhaustive test program was indicated (Tr. 6259). However, the GAO's technical consultant agreed with DOE that any steam generator tests that result in a delay in the construction of CRBRP are not appropriate (Tr. 6257). The Staff also agreed with this position and is confident that the steam generators, as currently designed, will operate as predicted (Staff Ex. 21 at 10, Tr. 6531).

187. LMFBR steam generator experience, in terms of leaks (or absence of leaks) between the high pressure water and the liquid sodium coolant, has been mixed. Some LMFBR steam generators have operated without water-to-sodium leaks, while other LMFBR plants have had steam generator water-to-sodium leaks. EBR-II has operated a steam generator for 19 years without having a water-to-sodium leak. The French demonstration reactor Phenix operated 10 years before experiencing its first water-to-sodium leak. The British PFR and the Soviet BN-350 experienced extensive and persistent water-to-sodium leaks in their steam generators. The FERMI reactor experienced water-to-sodium leaks during its operating history (Staff Ex. 21 at 7; Tr. 6528).

188. Careful engineering design, materials selection and control, quality fabrication and full inspection are more important than steam generator configuration for avoiding steam generator leaks. The configuration selected should be capable of incorporating proper design features and the lessons learned from available steam generator experience (Staff Ex. 21 at 8; Tr. 6529; Tr. 6297-98, 6300-01, 6474-75).

189. The Staff's ongoing review of the development program and design of CRBR steam generators indicates that experience with PWR and LMFBR steam generators, including failure experiences with foreign LMFBR steam generators, have been understood and assimilated by Applicants in the CRBR steam generator design (Staff Ex. 21 at 8; Tr. 6296-6301, 6529).

190. The basic configuration, design approach to welds, inspection, quality assurance, materials, phenomena and stability for the CRBR steam generators have all been confirmed in individual effects tests and model tests. From these tests, mechanical corrections for tolerances and materials compatibility were incorporated by Applicants in the CRBR prototype steam generator component or system integration test, which is currently in progress (Staff Ex. 21 at 9; Tr. 6530).

191. Several design improvements adopted by Applicants were not included in the prototype steam generator, since their inclusion would have adversely affected the schedule for steam generator design and testing. These design improvements are minor in nature and are not involved with any of the fundamental aspects of the steam generator concept or structure (*Id.*; Tr. 6303-04).

192. The design improvements which were not incorporated into the prototype steam generator will be tested in a hydraulic test of a 0.42 size scale model. The test is designed to confirm the analytical prediction that there will be no flow-induced vibration problems with these design improvements. As a confirmation of the 0.42-scale model tests, the plant's spare steam generator will be hydraulically tested. The plant's spare steam generator will incorporate the design improvements not incorporated on the prototype steam generator (Staff Ex. 21 at 9-10; Tr. 6530-31; Tr. 6304-05).

193. Any unanticipated CRBR steam generator problems will be corrected in place, probably by plant operations personnel and designers working together. Such repairs or modifications would be consistent with the programmatic objective of demonstrating component maintainability in a utility environment (Staff Ex. 21 at 11; Tr. 6532).

194. A thorough and well-conceived component development program which includes proper phenomena, special features and total system testing can minimize, but cannot eliminate, residual technical risk. GAO acknowledged in its Report that: (1) all steam generator problems are not related to design deficiencies; (2) testing cannot eliminate all elements of risk; and (3) the ultimate test must come when the steam generators are operated in CRBRP (Int. Ex. 22, Attachment 2; Tr. 6258; Staff Ex. 21 at 6 and 10; Tr. 6527 and 6531).

195. The alternative course advocated by GAO would require a precise steam generator prototype to be fabricated and tested before contracting for production of the plant units. The Staff estimates that this GAO alternative would cause a delay of at least two years, and prevent the timely achievement of the informational objectives for the CRBR program. The Applicants estimate that additional testing of an exact prototype would result in a 3-5 year delay in CRBRP construction (Staff Ex. 21 at 11; Tr. 6532; Tr. 6306-07).

196. Based on the Staff's and the Applicants' review of the CRBRP steam generator design to date, it appears that the technical risk of a major design defect going undetected by testing and requiring redesign and lengthy delay after installation is very small (Staff Ex. 21 at 10-11; Tr. 6328; 6531-32).

197. There are no steam generator testing alternatives which may lead to more timely achievement of the programmatic objectives for the CRBRP than the approach presently being pursued by Applicants (Staff Ex. 21 at 3-4 and 10-11; Tr. 6524-25 and 6531-32).

198. There appears to be some question as to the ability of the steam generators to withstand sharp temperature transients (Int. Ex. 22, Attachment 2; Tr. 6258).

On balance there do not appear to be insuperable problems. However, the Board intends to explore the significance of sharp temperature transients on the steam generators at the Construction Permit phase of these hearings so that any uncertainty will be resolved.

199. Electrical power production for CRBRP will be achieved through the use of a turbine generator which will operate at conditions of temperature, pressure, and flow which fall within the range of parameters experienced for LWRs and fossil-fueled plants. CRBRP therefore is likely to meet its technical performance objectives (App. Ex. 58 at 16; Tr. 6422) (*See also* Finding No. 183-197, *supra*).

200. Other major programmatic objectives for CRBRP are to demonstrate reliability, maintainability, safety, environmental acceptability and economic feasibility of an LMFBR central station steam electric power plant in a utility environment. A final objective is to confirm the value of this concept for conserving important nonrenewable natural resources (App. Ex. 58 at 4; Tr. 6410; Staff Ex. 21 at 2; Tr. 6523).

201. The CRBRP has been designed to reach a baseload reliability of about 75 percent within the five-year demonstration period. The Applicants have made formal reliability analyses an integral part of the design process from the outset. The availability of each CRBRP component and subsystem has been assessed using an existing data base containing the availability performance data of similar components and systems to assure a high likelihood that the plant would meet its reliability goal (Staff Ex. 8 at 8-4; App. Ex. 34, Vol. 1, Chapter 1 at 1.3-2; App. Ex. 58 at 17-18; Tr. 6423-24; Staff Ex. 21 at 15-17; Tr. 6536-38).

202. The CRBRP design includes specific features and requirements to enhance maintainability. Maintainability reviews are required parts of the design and design review process (App. Ex. 58 at 18; Tr. 6424). Sound maintainability requirements have been implemented in the design including: (a) all in-sodium components must be designed to drain freely of sodium so that, upon removal, liquid sodium does not freeze inside the components and thus complicate maintenance operations; (b) major components must be either removable or repairable in place; and (c) ample space must be provided around all major equipment to assure ease of access for maintenance (App. Ex. 58 at 19; Tr. 6425).

203. The Applicants have developed a detailed scale-model of the CRBRP (one-half inch to one foot). This scale-model has been applied as an engineering tool in review of all equipment arrangements to assure that no unforeseen interference would occur which could impact on maintainability (App. Ex. 58 at 19; Tr. 6425). In specific areas of the design where maintenance operations are expected to be critical to meeting the availability objectives, detailed models were built to verify that maintenance operations could be performed satisfactorily. Because the reactor head access area has both a relatively high density of equipment and the requirement for equipment movements during refueling operations, a full-scale mock-up of the reactor head access area was constructed and used by the

reactor component and systems designers to ensure that necessary operations and maintenance activities could be accomplished in the reactor head access area. The high density of equipment in the area surrounding the reactor head made it necessary to construct a full-scale mock-up of the secondary control rod drive mechanism so that the designers could simulate and fully characterize the actual maintenance operations anticipated for those components (App. Ex. 58 at 21 and 23; Tr. 6427 and 6429).

204. The evidence of record shows that it is likely that CRBRP will meet its maintainability objectives (Staff Ex. 7 at 8-6; Staff Ex. 8 at 8-2; App. Ex. 34, Vol. 1, Chapter 1.0 at 1.3-3; App. Ex. 58 at 18-23; Tr. 6424-29; Staff Ex. 21 at 17; Tr. 6538).

205. In regard to the safety objective, the Staff's June, 1982 Site Suitability Report concluded that ". . . the proposed CRBRP site is suitable for a facility of the general size and type proposed from the standpoint of radiological health and safety considerations" (Staff Ex. 1 at I-4). In addition, the Staff's February, 1977 Final Environmental Statement concluded that ". . . it is within the state-of-the-art to design, construct and operate the CRBRP in such a manner that the consequences of accidents will not be significantly different from those already assessed for LWRs" (Staff Ex. 7 at 7-11). The Staff's Supplement to the Final Environmental Statement confirms this conclusion (Staff Ex. 8 at 7-3). The evidence supports these findings that CRBRP is likely to meet its safety objectives (Staff Ex. 7 at 8-6; Staff Ex. 8 at 8-4; App. Ex. 34, Vol. 1, Chapter 1.0 at 1.3-3; App. Ex. 58 at 23-24; Tr. 6429-30; Staff Ex. 21 at 22-23; Tr. 6543-44).

206. The CRBRP will satisfy all applicable Federal and State environmental regulations (App. Ex. 36, Vol. 3, Chapter 12.0). The Staff's Supplement to the Final Environmental Statement concluded that the environmental impacts of construction and operation were acceptable (Staff. Ex. 8 at v). The evidence shows that it is likely that the CRBRP will meet the objective of environmental acceptability (App. Ex. 58 at 24; Tr. 6430; Staff Ex. 7 at 8-7; Staff Ex. 8 at 8-2; App. Ex. 34, Vol. 1, Chapter 1.0 at 1.3-4).

207. The economic feasibility objective will be achieved by developing comprehensive cost, material quantities, and performance information for the CRBRP for use in developing commercial-size central station power plants. The project has established a system for compiling this comprehensive cost information in a form which permits cost analysis and evaluation for all the plant elements at a detailed level and accounts for corrections which apply only to CRBRP as a first-of-a-kind plant. These CRBRP data have already been used in development of the LDP cost estimate, and in the future, the cost and performance data established for the CRBRP will be used to extrapolate the cost and economics of future commercial LMFBR plants. The CRBRP is reasonably likely to meet the objective of demonstrating economic feasibility (App. Ex. 58 at 24-25; Tr. 6430-31; Staff Ex. 21 at 18; Tr. 6539; Staff Ex. 7 at 8-7; Staff Ex. 8 at 8-2; App. Ex. 34, Vol. 1, Chapter 1.0 at 1.3-5).

208. While demonstration of a breeding gain is part of the plant's design guidelines, the attainment of a specific threshold value of breeding ratio is not, in the overall context of the LMFBR program, a priority for the CRBRP (Tr. 6382-83). A respectable breeding ratio of at least 1.2 can be achieved with the current heterogeneous core design, and as plant scaleup increases in future designs, this core concept will make even higher breeding ratios achievable (Tr. 6383-85).

209. The CRBRP will achieve its objective of operating in a utility environment by operation on the Tennessee Valley Authority (TVA) system, supplying power to that grid while being operated by TVA personnel (App. Ex. 58 at 25; Tr. 6431; Staff Ex. 7 at 8-7; Staff Ex. 8 at 8-2; App. Ex. 34, Vol. 1, Chapter 1.0 at 1.3-5).

210. In regard to the objective of confirming the value of the LMFBR in conserving important nonrenewable natural resources, the CRBRP will generate electricity utilizing an otherwise unuseable natural resource — uranium-238. The CRBRP is likely to meet the objective of confirming the value of the LMFBR concept for conserving important nonrenewable resources (App. Ex. 58 at 25-26; Tr. 6431-32; Staff Ex. 7 at 8-8; Staff Ex. 8 at 8-2; App. Ex. 34, Vol. 1, Chapter 1.0 at 1.3-6).

211. The programmatic timing of CRBRP contemplates completion of CRBRP as soon as possible. Project research and development and the design are almost complete. Most of the hardware is on order or delivered and site preparation activities have commenced. The Staff has issued a favorable Site Suitability Report (Staff Ex. 1) and Final Environmental Statement and Supplement (Staff Ex. 7 and 8) for the project. It is likely that CRBRP will meet its objectives in a timely manner (App. Ex. 58 at 26-27; Tr. 6432-33; Staff Ex. 21 at 2-3; Tr. 6523-24).

212. The size, or the gross power rating (975 MWT, 325 MWT per loop), of the CRBRP was selected as a reasonable midpoint between FFTF (400 MWT, 133 MWT per loop) and commercial size reactors (2400-3800 MWT, 600-1270 MWT per loop) (Staff Ex. 7 at 8-13; Staff Ex. 8 at 8-4). Extrapolations of size by a factor of 2.5 to 3.5 are considered to be a prudent compromise between the need for advancement in technology and keeping the scale-up risks acceptably low. Development of LWR technology followed approximately the same path and foreign LMFBR programs have utilized similar extrapolation factors (App. Ex. 58 at 27; Tr. 6433).

213. The next plant under development by DOE and electric utilities and private industry in the LMFBR program is the Large Developmental Plant (LDP), a 1000 MWe or 2550 MWT "loop-type" plant. The CRBRP systems designs have already provided direct information relevant to the design of the LDP, inasmuch as the bulk of the LDP systems are based on the CRBRP systems designs (App. Ex. 58 at 27-32; Tr. 6433-38).

214. In addition to similarities at the system level, there are strong similarities between CRBRP and LDP at the subsystem and component levels. The transfer of this information from the CRBRP to the LDP indicates that the CRBRP can reasonably be expected to provide significant information of relevance to commercial LMFBRs of the future (App. Ex. 58 at 33; Tr. 6439).

215. A significant contribution of relevant information from the CRBRP to future LMFBRs is independent of similarities in plant characteristics. CRBRP has already provided and will continue to provide a strong base of technological information concerning such matters as materials properties, analytical methods (e.g., thermal hydraulic analysis codes) and associated data bases (App. Ex. 58 at 33-34; Tr. 6439-40; Staff Ex. 21 at 14-17; Tr. 6535-38).

216. The heterogeneous core configuration as used in CRBRP, including the design of the core assemblies, blanket assemblies, shield assemblies, and control assemblies and core restraint, is expected to be adopted in future LMFBRs. The methodology developed for heterogeneous core analysis will be directly applicable to design of larger LMFBRs (App. Ex. 58 at 34-35; Tr. 6440-41; Staff Ex. 21 at 14-15; Tr. 6535-36).

217. The major engineered safety features (ESFs) in CRBRP, such as reactor containment, the liners in the cells containing sodium piping, and features to mitigate the effects of sodium spills and fires are all relevant to larger or commercial LMFBRs. The types of events against which these ESFs must be designed are characteristic of the LMFBR, regardless of size. Design, construction, testing, and operation of these engineering safety features will demonstrate the acceptability of these features and provide relevant information for future LMFBRs (App. Ex. 58 at 35; Tr. 6441; Staff Ex. 21 at 13-16; Tr. 6534-37).

218. The Intervenors have identified certain alternative design features which they regard as substantially better than those in CRBRP. These alternative design features are: (1) the pool-type primary system configuration, (2) use of flywheels on sodium pumps, (3) lower system operating temperatures, (4) third shutdown system, (5) core catcher, and (6) no-vent containment (App. Ex. 58 at 37; Tr. 6443).

219. In a "loop-type" configuration, such as CRBRP, the major primary heat transport system components are interconnected with the reactor vessel by means of coolant-carrying piping. In a "pool-type" configuration, the primary system components are in a "pool" of sodium contained within a vessel which also houses the reactor core. Many features (e.g., intermediate heat transport system (IHTS), steam generator system (SGS), the turbine generator, and auxiliary systems), are common to both concepts. Therefore, much of the information obtained from a loop plant such as CRBRP, including contributions to the overall technology base, is relevant to either concept (App. Ex. 58 at 37-38; Tr. 6443-44). Pool-type systems have been considered since the early period of LMFBR development. The current generation of LMFBR plants includes both loop (SNR-300, BN-350, Joyo

and Monju) and pool (Phenix, PFR, Superphenix, BN-600). Recent evaluations performed in the United States have indicated no clear superiority of one system over the other in terms of safety, maintainability, cost and duration of fabrication and construction, and economy of operation. On a purely functional basis, both pool and loop-type LMFBRs are feasible and neither has a significant overall advantage over the other. There is a lack of large pool-type reactor construction experience in this country, and there is a schedule risk associated with the greater estimated field labor requirements for a pool-type reactor (Tr. 6363). There is no discernible advantage of the pool concept over the loop concept, and CRBRP in a loop plant configuration has a higher likelihood of meeting its objectives and timing (App. Ex. 58 at 37-39; Tr. 6443-45; Staff Ex. 7 at 8-11; Staff Ex. 8 at 8-4).

220. Sodium pump flywheels are not part of the CRBRP. The primary flow coastdown characteristics (the flow vs. time after power is removed from pumps) have been selected by balancing two competing requirements:

- (a) The need to provide adequate coolant flow to the core and radial blanket for all design basis events including postulated loss of power to all three primary pumps; and
- (b) The need to minimize the thermal transients associated with reactor and plant trips.

Too little flow might result in inadequate core cooling, while too much flow might result in overcooling and thermally stressing plant components during transients. The required flow coastdown characteristics for the CRBRP sodium pumps are provided by building directly into the pump drive motor (as opposed to the addition of a separate flywheel) sufficient inertia so that the required momentum of the pump-drive motor assembly will be available. This inertia satisfies both of the above requirements (App. Ex. 58 at 39-40; Tr. 6445-46; Tr. 6364-68).

221. The addition of a heavy flywheel would be ineffective in significantly reducing the likelihood or consequences of beyond design basis events. For the postulated transient overpower (TOP) events that assume failure of both reactor shutdown systems, there would be no advantage to a heavy flywheel because the pumps continue to run in that event. For the postulated loss of flow (LOF) events that assume failure of both reactor shutdown systems, the time for initiation of boiling would increase slightly, but once boiling is initiated, the sequence of events is controlled by the phenomena related to boiling, which are not affected by a flywheel. Increased pump inertia produced by the flywheel would not change the likelihood of sodium boiling and the resultant consequence of a nonenergetic core melt-down. On the other hand, increasing the pump inertia by means of a flywheel beyond that required to provide adequate coolant flow increases the rate of temperature change associated with system thermal transients, thereby adding to the fatigue damage associated with transients. Thus, adding a pump flywheel would not be a substantially better design alternative than the CRBRP design (App. Ex. 58 at 39-41; Tr. 6445-47).

222. The system operating temperatures of the CRBRP were selected based upon plant performance analyses that considered equipment constraints, steam conditions, desired fuel performance, thermal transient and creep effects and cycle efficiency. For normal operations and accidents within the design basis, lowering the operating temperatures without lowering the design temperatures would have the effect of increasing equipment sizes and costs and decreasing efficiency, while providing more margin to system limiting conditions and slightly improved fuel performance. However, at any given design temperature, the prudent designer would provide the same structural design margins between operation and design temperatures. Thus, there is no net benefit to be derived from lower operating temperatures (App. Ex. 58 at 41; Tr. 6447). In regard to events beyond the design basis, the effect of choosing a lower plant operating temperature would not significantly change the transient overpower hypothetical core disruptive accident (HCDA) consequences because the currently assumed transient overpower scenario results in molten fuel release from the pin before coolant boiling occurs. The effect of lower operating temperatures on the likelihood and consequence of a loss-of-flow HCDA is similar to that described for pump inertia selection. The time to initiate boiling would be slightly increased, but the likelihood or consequences of sodium boiling would not change (Tr. 6313). Lower CRBRP operating temperatures would not be a substantially better alternative for meeting project objectives (App. Ex. 58 at 41-42; Tr. 6447-48).

223. In regard to a third shutdown system, the CRBRP has two redundant, diverse, and independent control rod systems (Staff Ex. 1 at II-7). A third shutdown system is unnecessary because all credible failure modes are addressed by the primary and secondary shutdown systems (App. Ex. 1 at 11-35; Tr. 2000-24). A third shutdown system would not address any other known failure modes, and there would be no significant reduction in risk. Therefore, the addition of a third shutdown system would not be a substantially better alternative (App. Ex. 58 at 42-43; Tr. 6448-49).

224. The Intervenor has questioned whether self-actuated shutdown systems could be available for use in the CRBRP. While such systems have been used in the French Phenix reactor (Tr. 6469), no need for them in the CRBRP has been shown in order for it to meet its programmatic objectives (Tr. 6491-92).

225. Core catcher is the name of features in a plant design that would provide for the ability to retain some or all of the core subsequent to an overpower or undercooling accident that results in melting of the core and subsequent melt-through of the reactor vessel and guard vessel. A core catcher is generally assumed to include means for keeping this core debris from penetrating further into the bottom of the reactor cavity. The core catcher does not in any way reduce the likelihood of an HCDA, and any active features provided in the core catcher have to perform in an extremely hostile environment subsequent to an HCDA and are

inaccessible at a time when they are required to function (App. Ex. 58 at 43-44; Tr. 6449-50).

226. The overall approach to CRBRP design has been to include features that make the likelihood of a core melt so unlikely that one need not include a core melt in the spectrum of DBAs. The Applicants have included margins and design features in CRBRP to mitigate the consequences of HCDAs and to assure that the residual risks of HCDAs are acceptably low. There is no substantial advantage to inclusion of a core catcher in the design (*Id.*).

227. In regard to a no-vent containment, three situations have been considered — normal operations, design basis accidents, and beyond design basis accidents. During normal operation, the containment is continuously vented. This provides for access to the containment during operation, thus improving operability and maintainability of the plant (Tr. 6315). If any significant radioactivity levels are detected in the containment effluent, the containment atmosphere is isolated through the use of containment isolation valves. Under such circumstances, the containment is essentially unvented and for all design basis events may be kept unvented for as long as desired (App. Ex. 58 at 44-45; Tr. 6450-51; Staff Ex. 1 at II-13 to II-18). In the event of a beyond-the-design-base HCDA, the containment can be vented through a cleanup system in order to maintain the containment pressure within the containment vessel capability. Through the use of a cleanup system, the radiological releases for such accidents can be controlled and the consequences made acceptably low. Although design measures could be taken to increase the probability that no venting would be required, one cannot in practice foresee all contingencies nor design a perfect containment. Therefore, as an additional margin of safety, a filtered controlled vent capability was designed into the CRBRP containment to assure that containment integrity cannot be challenged (App. Ex. 58 at 46; Tr. 6452; Staff Ex. 1 at II-18 to II-19).

228. The use of a fully-isolated containment system, rather than a filtered-vent containment system for CRBR, will not significantly augment the informational value of the CRBR project to the LMFBR program. There are many fully contained systems in existence and relatively few filtered-vent systems. If the CRBR filtered-vent system is designed to satisfy safety and environmental requirements, the design, construction, testing and operating of a filtered-vent system will provide new information with greater potential for value in the LMFBR program than would the construction of another conventional containment (Tr. 6450-52). A no-vent containment is not shown to be a substantially better alternative than the present design.

229. No design features have been identified in either the U.S. LMFBR Program or in the designs utilized in foreign programs which are substantially better alternatives for satisfying CRBRP project objectives than those features incorporated in the CRBRP design (App. Ex. 58 at 35; Tr. 6441; Staff Ex. 21 at 29; Tr. 6550; Staff Ex. 7 at 8-16; Staff Ex. 8 at 8-6).

B. UNCONTESTED MATTERS

Site Suitability

1. The site consists of 1,364 acres on a peninsula formed by a meander in the Clinch River. The exclusion area is the site property and the river adjacent to the site, less 112 acres along the northern boundary which has been set aside for an industrial park. The minimum exclusion area boundary distance is approximately 670 meters (2,200 feet) measured from the center of the containment building southwest to the nearest point on the exclusion area boundary. The site property is owned by the United States of America and is presently in the custody of the TVA. TVA will transfer to DOE the custody of those portions of the site which are required for the purpose of designing, constructing and operating the CRBRP (Staff Ex. 1, III-1). Based on the Applicants' custody of the site property and the commitment to make arrangements to control traffic on the Clinch River in the event of an emergency, the Applicants have the proper authority to determine all activities in the exclusion area and there is reasonable assurance that the Applicants can comply with the requirements of 10 CFR Part 100 with respect to Applicants' control over the exclusion area.

2. The 1980 residential population within five miles of the site was 4,440 people (Staff Ex. 1, p. III-1). For the year 1990, which is the projected time of plant startup, the projected resident cumulative population within five miles of the site is 4,680. In the year 2030, which is the projected end-of-plant-life, the projected resident cumulative population within five miles of the site is 5,380. For a 30 mile radius of the site, the 1980 resident cumulative population was 516,540. By 1990 and 2030, the projected resident cumulative population for a 30 mile radius is 550,180 and 608,280 respectively (*Id.*, III-2, 3). Both the Applicants' 2.5 percent per decade growth rate and the Bureau of Economic Analysis 5.6 percent per decade growth rate are below the acceptance levels of Regulatory Guide 4.7, "General Site Suitability Criteria for Nuclear Power Stations," and they are reasonable projections.

3. The Applicants have selected a low population zone at a distance of 2.5 miles. The total 1980 resident population within the low population zone is less than 1,500 persons. There are no significant transient populations within the low population zone other than highway travelers through the area (Staff Ex. 1, III-2, 3). As a result of the evaluation of the low population zone proposed by the Applicants and Staff for the Clinch River Breeder Reactor site, there is reasonable assurance that the 10 CFR Part 100 definition of the low population zone can be satisfied.

4. The nearest population center, as defined in 10 CFR Part 100, is Oak Ridge, which contained a 1980 population of 27,522 persons. The Staff projects that future residential development of Oak Ridge will not result in population

growth closer than five miles within the operating lifetime of the proposed CRBRP. The Oak Ridge population center distance begins at a point seven miles in the north-northwest direction of the site. This distance satisfactorily meets the 10 CFR Part 100 requirement that the population center distance be more than one-and-one-third times the low population zone distance (Staff Ex. 1, III-3). The specified minimum exclusion distance (2,200 feet) and the low population zone radius (2.5 miles) are of sufficient size because they compare favorably with the minimum exclusion and low population zone distances of previously licensed plants of similar size and design. Accordingly, there is reasonable assurance that adequate engineered safety features can be provided to satisfy the exposure guidelines of 10 CFR Part 100 for reactors of the general size and type proposed for the Clinch River Breeder Reactor site (Staff Ex. 1, III-3).

5. On the basis of review of the nature and extent of potential hazards resulting from man-related activities which are conducted at nearby industrial, military, and transportation facilities, the activities in the vicinity of the Clinch River site are not likely to preclude site acceptability. The Clinch River site is suitable for a reactor of the general size and type proposed (Staff Ex. 1, III-8).

6. The Applicants have provided a description of the preliminary plans for coping with emergencies. The Staff has completed its initial review of the plans against the requirements of 10 CFR Part 50, Appendix E, Part II. The Federal Emergency Management Agency (FEMA), in its review of state and local plans for the nearby Sequoyah Nuclear Plant, found that the State of Tennessee Radiological Emergency Plans are adequate and capable of being fully implemented. FEMA will review the state and local plans for the emergency planning zones for the Clinch River site during the CRBRP operating license review for compliance to the criteria specified in NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (Staff Ex. 1, III-10). An effectively coordinated site, state and local radiological emergency response plan can be achieved for the Clinch River site.

7. A description of the meteorological conditions of the site, including the climatology of the region, local meteorological conditions, and expected severe weather is presented in §2.6 of the Final Environmental Statement for the CRBR (Staff Ex. 7). Section 6.3.1 describes the onsite meteorological program. The onsite meteorological measurement system originally was not comparable to the recommendations of Regulatory Guide 1.23, "Onsite Meteorological Programs," with respect to the location of wind and vertical temperature gradient measuring instrumentation. The system has been modified and it conforms to Regulatory Guide 1.23 recommendations (Staff Ex. 1, IV-1). All structures and equipment exposed to tornado forces and needed for safe shutdown of the plant will be designed to be consistent with the design basis tornado characteristics for Region I as recommended by Regulatory Guide 1.76, "Design Basis Tornado for Nuclear

Power Plants" (Staff Ex. 1, IV-2). The Applicants have provided joint frequency distributions of wind speed and direction by atmospheric stability class (based on vertical temperature difference) collected from the Clinch River onsite meteorological tower during the one-year period February 17, 1977 through February 16, 1978. From these data, the Staff calculated estimates of the relative concentration (X/Q) values for short-term releases from plant buildings and vents using the wind speed and direction measured at the 33-foot level and the vertical temperature difference measured between the 33- and 200-foot levels on the tower. In accordance with the methodology described in Regulatory Guide 1.145, short-term (up to 30 days) X/Q values were calculated. A direction-dependent atmospheric dispersion model with enhanced lateral dispersion during neutral and stable atmospheric conditions accompanied by low wind speeds was used. These enhanced lateral dispersion factors were based upon diffusion studies performed at several locations including the Clinch River site (Staff Ex. 1, IV-1). The Applicants have provided data which are reasonably representative of conditions at the proposed CRBRP site and are sufficient to conservatively estimate dispersion characteristics. Additionally, the meteorology at the proposed site is sufficiently characterized and there are no meteorological characteristics that would preclude the determination of site suitability in accordance with 10 CFR §100.11.

8. The proposed site for the CRBR is located on the north shore of the Clinch River. The proposed plant grade will be about 815 feet above mean sea level (MSL), which is about 74 feet above the normal river level of 741 feet MSL. The Clinch River drainage area is about 16,200 square miles, and the average flow is about 4,800 cubic feet per second (cfs) at the site; the river is regulated by a series of dams, both upstream and downstream from the site. The site is most directly under the influence of the Melton Hill dam which is about five miles upstream (Staff Ex. 1, IV-2). Cooling tower makeup will be withdrawn from the Clinch River. An adequate normal cooling water supply can be provided. Emergency cooling for safe shutdown and residual heat removal will be supplied by a mechanical draft cooling tower, which will have a sufficient supply of water available in its self-contained storage basin, consistent with the criteria suggested in Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Power Plants" (Staff Ex. 1, IV-2). There are no unique hydrological phenomena related to site flooding. An adequate water supply can be provided for normal and emergency cooling, and the hydrosphere offers no greater potential for surface water and groundwater contamination from unplanned releases of liquid radwaste than at other nuclear power reactor sites that have been approved. Hydrological conditions at the proposed Clinch River site are acceptable for the general size and type of proposed reactor.

9. The proposed Clinch River site is located in the southeast section of the valley and the Oak Ridge Physiographic Province of eastern Tennessee. Surface rocks at the site consist of two major geologic units, the Knox Group and

Chickamauga Group. The former is predominantly a dolomite of Cambro-Ordovician age. The Chickamauga is the foundation rock for the site and consists of alternating layers and laminations of siltstone, limestone, and shale with some chert. The bedrock is included in the zone of extensive thrust faulting in east Tennessee. The bedrock contains minor structures such as small faults (a few feet in length) and small folds. The strike is approximately N45°E and dips on the average about 40° southeast. The bedrock is overlain in some areas by terrace deposits of up to 40 feet thick, weathered rock, and extensive zones of clayey residual soil. The overburden thickness ranges from 8 to 56 feet deep over the site area. Most of the plant island is founded on the Chickamauga Unit A limestone and Unit A upper siltstone which do not have significant weathering except near the ground surface. Weathering and solutioning of the Unit B limestone in the site area appears to extend to a maximum depth of about 100 feet primarily along jointing (Staff Ex. 1, IV 3-4). The closest major fault is the Copper Creek fault and its trace is located 3,000 feet from the site. At this location, the fault strikes N52°E and dips away from the site to the southeast at an approximate dip of 25 degrees. Displacement of this fault is about 7,200 feet with the Rome Formation thrust over Chickamauga Group rocks. This fault has a mapped length of 100 miles, but becomes complex and merges to the north with other faults. The Copper Creek fault is one of many Late Paleozoic thrusts that developed during the Allegheny Orogeny (Pennsylvanian-Permian, 330-240 million years before present (MYBP)). These structures are not considered active and are not used in determination of the Safe Shutdown Earthquake. Radiometric dates of 290 ± 10 MYBP and 280 ± 10 MYBP were obtained for mylonite fault gauge material taken from the fault zone of the Copper Creek thrust. This finding, coupled with lack of evidence of recent offset and an understanding of the tectonic development of the Paleozoic thrust faulting in east Tennessee, indicates that this major fault and other small faults in the site area associated with it are tectonically old. Therefore, these faults are not considered hazardous to the safe operation of a nuclear plant at this location. These faults are not capable faults as defined in "Seismic and Geologic Siting Criteria for Nuclear Power Plants," Appendix A, 10 CFR Part 100 (Staff Ex. 1, IV-4). Considerable new regional geologic and seismic information has been obtained since publication of the SSR, including new data regarding the Giles County and Charleston earthquakes and theories about their source mechanisms. The Applicants are assessing this new information relative to the proposed CRBR site. The Staff has been following the development of new information and to date finds no reason to change its conclusions regarding the suitability of the site (Staff Ex. 1, IV-4). There are no geologic problems which are not amenable to established engineering solutions (Staff Ex. 1, IV-5). The Clinch River site is suitable from a geologic standpoint for a reactor of the general size and type proposed.

10. In arriving at the Safe Shutdown Earthquake (SSE), the proposed CRBR site has been considered to be located in the Southern Valley and Ridge Tectonic Province. The epicentral intensity of the maximum historical earthquake which has occurred in the province in which the proposed CRBR site is located has been the subject of a reevaluation by the U.S. Geological Survey (Letter to Edson G. Case, USNRC from W. A. Radlinski, Acting Director, U.S. Geological Survey, February 12, 1976). The conclusion of the reassessment of the maximum intensity of the Giles County, Virginia earthquake of May 31, 1897 was that, "Following past practice, there is no basis for revising the assigned maximum intensity of MM VIII." Following the tectonic province approach described in "Seismic and Geologic Siting Criteria for Nuclear Power Plants," Appendix A, 10 CFR Part 100, it is assumed that the intensity at the proposed CRBR site due to any other Safe Shutdown Earthquake could equal intensity MMI VIII. Plots of measured peak ground acceleration values versus observed intensity show a large variation (Staff Ex. 1, IV-5). In accordance with 10 CFR Part 100, Appendix A, the SSE is defined as the design response spectra. In the zero period limit, these spectra are normalized to the acceleration for seismic design corresponding to the design earthquake. The Staff, based on its analysis and evaluation of available seismological data, including the results of investigations performed by the Applicants, concludes that there are no corresponding considerations that would preclude the acceptability of the site for a nuclear power plant (Staff Ex. 1, IV-6). Therefore, the Clinch River site is acceptable from a seismological standpoint for a reactor of the general size and type proposed.

11. The Applicants' site investigation efforts provide adequate coverage of the site area in sufficient detail to provide a high level of confidence that specific subsurface conditions have been adequately defined. The Staff's review of the data presented reveals no evidence of significant zones of solutioning, caverns, or highly weathered areas in the foundation bedrock which could produce significant subsidence under the anticipated loads to be imposed by the proposed structural mats. There are no subsurface conditions expected which could preclude the suitability of the site for the proposed plant (Staff Ex. 1, VI-6, 7).

Environmental Matters

12. As required by 10 CFR Part 51, the Applicants submitted an Environmental Report (ER), which as amended was received into evidence as Applicants Exhibit Nos. 34-38 (Tr. 3241). The Staff prepared a Draft Environmental Statement (DES) which was issued in February of 1976. By a Notice of Availability published on February 12, 1976, the public was invited to comment on the DES (41 Fed. Reg. 6341 (1976)). Copies of the DES were also provided to appropriate Federal, State and local agencies for their comment. In February of 1977, the Staff published its Final Environmental Statement (FES) which included the full text of

all comments received with respect to the DES (Appendix A) as well as the Staff's responses to those comments (Chapter 11). By a Notice of Availability, published on February 14, 1977, the Final Environmental Statement was also made available to various agencies and to the public (42 Fed. Reg. 9071 (1977)). The Final Environmental Statement was received into evidence as Staff Ex. 7 (Tr. 3244). In July, 1982, the Staff published a Draft Supplement to the Final Environmental Statement. By a Notice of Availability published on July 30, 1982, the public was invited to comment on the Draft FES Supplement (47 Fed. Reg. 33028 (1982)). Copies of the Draft FES Supplement were also provided to appropriate Federal, State and local agencies for their comment. In October, 1982, the Staff published a two volume Supplement to the Final Environmental Statement which includes the full text of all comments received with respect to the FES Supplement (Appendix N) as well as the Staff's responses to those comments (Chapter 12). By a Notice of Availability, published on November 3, 1982, the two volume Supplement to the Final Environmental Statement was also made available to various agencies and to the public (47 Fed. Reg. 49909 (1982)). The Supplement to the Final Environmental Statement was received into evidence as Staff Ex. 8 (Tr. 3244).

13. The primary impact of the CRBR on land use will be the utilization of about 292 acres of the 1364 acre proposed site for construction activities (Staff Ex. 8, 4-1). Construction of the plant will require the clearing, grubbing and grading of approximately 292 acres of mostly forested land, whereby 113.5 acres of the total area to be cleared will be permanently disturbed (Staff Ex. 8, 4-1). The 113.5 acres will be used for access roads and railroads, the meteorological tower area, a barge unloading area, river intake area, parking area, settling ponds, laydown areas, principal plant buildings and the security barrier (Staff Ex. 8, 4-2). Land to be disturbed would avoid the "natural areas" discussed in Staff Ex. 7, §2.7.1. The rare wildflowers (Staff Ex. 7, §2.7.1.1) would not be affected since they are sufficiently distant from the area that would be disturbed by plant construction (Applicants Ex. 35, §4.1.1.6). The loss of 113.5 acres of biota would not constitute a significant impact. Prime or unique land uses or special resources on the site will not be affected because the resources affected are of comparable quality to those in the vicinity (Staff Ex. 7, 4-3; Staff Ex. 8, 4-1). Timber of commercial value would be harvested and removed in accordance with the DOE Forest Management Program. The remaining plants and brush would be burned in accordance with state and Federal air pollution regulations (App. Ex. 35, §4.1.1); this will have a slightly adverse effect on air quality in the immediate vicinity. Conventional garbage will be disposed of offsite (Staff Ex. 8, 4-1, 4-3). Topsoil on the areas to be excavated would be removed and stockpiled for use in later landscaping. Building material (sand, stone, slate, limestone) would now be quarried on site. Surface soils of the quarry area would be stockpiled for revegetation on the quarry area at the end of construction (Staff Ex. 8, 4-5). After completing construction, surfaces not a part of the permanently committed land

would be graded and revegetated (Staff Ex. 7, 4-4). Moving construction equipment and disturbing the land would result in temporary adverse effects such as erosion, siltation and interferences with some community life patterns. The extent of such effects would be at a practicable minimum during the brief periods of their occurrences, and the long-term effects would not be significant (Staff Ex. 7, 4-4). The Applicants propose to construct transmission lines. Erosion and air pollution control practices would be adequate to prevent adverse impacts on terrestrial biota in the area and historical and archaeological resources would be adequately protected (Staff Ex. 7, §3.8). The shift in land use of nearly 61 acres from woodland to open area would have no significant impact on wildlife because of the large area of land with similar woodland vegetation nearby, 1289 acres of forest on the site and 29,443 acres of forest on the Oak Ridge Reservation (Staff Ex. 7, 4-4; Staff Ex. 8, 4-5). These aspects of land use conversion will result in acceptable impacts, provided that appropriate preventative measures are implemented (Staff Ex. 8 at §4.2).

14. The impacts on water use will include water for fire protection, sanitary facilities, making concrete and other construction activities. The small withdrawal of water is expected to have no significant effect on navigational and recreational uses of the Clinch River or any downstream uses. Water for other than quarry use could be as much as 150,000 gpd and would be piped along existing roadways from the nearby Bear Creek Water Filtration Plant. This small increase in water use is not environmentally significant. For erosion control in dewatering and related activity, the Applicants plan to use drainage ditches at the base of stockpiles and excavation slopes, a storm water drainage system, and a system of diversion channels leading to settling basins before discharging water to the river. Dewatering is expected to have no significant aesthetic or other effect on the river (Staff Ex. 7, 4-5).

15. Terrestrial impacts during construction will result in the harvesting of timber and the destruction of some other plant and animal life on 292 acres concerned with the plant and 58 acres in connection with the transmission lines, both on and off the site. The impact on terrestrial biota would be minimal in view of the fact that the amount of land affected would be less than one percent of similar available land onsite and in the Oak Ridge Reservation (Staff Ex. 7, 4-5; Staff Ex. 8, 4-5). Additionally, the Applicants have made commitments to restrict erosion and chemical releases that would be adequate to protect the terrestrial ecosystem from significantly adverse effects from those sources (Staff Ex. 7, §4.4.1). The precautions to be used in constructing plant buildings, the river pumphouse with intake pipes, a cofferdam, a discharge pipe, the barge-unloading facility, a railroad and railroad spur, and transmission lines would assure minimum effects upon aquatic resources. No significant effects are anticipated in the river channel. The aquatic ecosystem, including the Federally protected species, *Lampsilis orbiculata orbiculata*, is expected to sustain no significant impact from construction of the

plant and transmission lines provided that: (1) activities are timed to minimize effects during critical periods of biological activity in the Clinch River, (2) construction practices to minimize impact as recommended by the Staff are followed, and (3) requirements in the Erosion and Sediment Control Plan and the NPDES Permit are met (Staff Ex. 7, 4-5 to 4-6; Staff Ex. 8, 4-6 to 4-7). These aspects of aquatic use are acceptable impacts provided that appropriate preventive measures are implemented.

16. The impacts on the community would be the in-mover construction labor force, distribution of in-mover construction labor force, social effects, economic effects, aesthetic effect and dust and noise. To limit the adverse effects during construction, the Applicants have committed to various measures and controls (Staff Ex. 8, 4-26 to 4-28). Based on the Staff's review of the anticipated construction activities and the expected environmental effects therefrom, the measures and controls committed to by the Applicants are adequate to ensure that adverse environmental effects would be at the minimum practicable level with the following additional precautions:

- (a) The Applicants should set aside an appropriate buffer zone upslope of cover type vegetation on the north edge of the site (App. Ex. 34, §2.7.1.3.4) to ensure their preservation and protection during the construction period.
- (b) Dredging, cofferdam construction, and fill deposition in the Clinch River should not coincide with striped bass use of the Clinch River as a thermal refuge or when sauger are spawning, unless there is evidence showing that these activities would not adversely affect the two species.
- (c) Local costs for additional public services needed by construction workers and other project personnel and their families would probably not exceed the local benefits from the project. The Staff's opinion is that the only reliable way to establish the balance between local costs and benefits caused by CRBR construction is for a monitoring program to be established. The results of this program should be made available to the State of Tennessee and affected local government entities, and negotiations should be conducted with them so that an agreement can be reached on financial assistance and/or other suitable measures to mitigate adverse impacts of the project.

17. Use of the site for the CRBRP would be consistent with the present industrial zoning for the site and adjacent land on the Oak Ridge reservation. The plant would have an insignificant adverse visual impact upon the area. Cooling tower fogging and icing are expected to have insignificant effects upon local transportation routes (Staff Ex. 7 and 8, §5.3.3). Cooling tower noise at the 2,200 foot minimum exclusion distance would be about 55 dBA threshold, as a day-long average, for outdoor annoyance (EPA, 1974). There would be no noise problem and insignificant effects upon local transportation routes from the cooling towers in the surrounding areas during operation of the plant.

18. Plant operation would result in the consumptive use of 8.3 cfs of river water, about 0.2 percent of the annual average river flow rate. During the infrequent periods of no flow (the most severe was 29 days, 10 years ago) the consumptive use would represent well under 0.1 percent of the capacity of the Watts Bar Reservoir, for a 29-day no-flow period. River water consumption by the plant would represent a small, justifiable diversion with negligible effect on downstream uses including the ORGDP intake at Clinch River Mile (CRM) 14.4 (Staff Ex. 7, 5-1; Staff Ex. 8, 5-1). Plant operation would have no effect on fishing or navigational use of the river. Only one percent of the commercial catch from Watts Bar Reservoir was taken within 10 miles of the site in 1972. About one sport fishing party per day was observed during the base line monitoring (Staff Ex. 7, §2.7.2).

19. The factors analyzed for the heat dissipation system were the water intake, impingement, entrainment, water discharge which includes thermal plume characteristics, thermal plume effects, cold shock, and scouring; atmospheric heat transfer; threatened and endangered aquatic species. The EPA has tentatively determined that the location, design, construction, and capacity of the proposed intake reflect the best technology available for minimizing adverse environmental impacts in accordance with §316(b) of the Clean Water Act (NPDES Permit Rationale, Part II.H) (Staff Ex. 8, 5-1). Because most entrained organisms would be killed, the Staff assumed 100 percent mortality for all entrained organisms (Staff Ex. 8, 5-2 to 5-3). Based on the fraction of total river flow withdrawn by the plant using the lowest average monthly flow of 3,716 cfs for May and the maximum water makeup of 22.3 cfs, the average loss of entrainable organisms would be 0.6 percent, assuming a uniform distribution of organisms throughout the water column. Under low flow conditions of 1,000 cfs, the loss would be only 2.2 percent. Even if the entrainable organisms are found to be in higher concentrations in the vicinity of the intake, a doubling or tripling of the number of organisms entrained would probably not have a significant effect on the aquatic ecosystem in the vicinity of the plant. As a result of the studies conducted by the Applicants (Loar *et al.*, 1981; Cada and Loar, 1981; and Scott, 1980), the intake structure would not be located in a stretch of river that is uniquely important for the spawning or early life history of any species of fish. It is concluded that the anticipated impact to Clinch River and Watts Bar Lake fisheries due to impingement or entrainment would be minor and undetectable (Staff Ex. 8, 5-3). Regarding thermal plume effects, the plant's thermal discharge would not have a detrimental effect on phytoplankton, zooplankton, ichthyoplankton, juvenile fishes, or macrobenthic drift. Temperature increases in the plume will be small and within the thermal tolerance limits of most of the dominant species present in the river. Under normal operation, the plume size would be small in relation to the river so only a small portion of the planktonic organisms drifting past the site would experience temperatures elevated more than a few degrees. Furthermore, the small

size of the plume minimizes the time the organisms are exposed to the elevated temperature. The rapid regeneration rates of phytoplankton and zooplankton could compensate for decreases due to plant operation (Staff Ex. 8, 5-4). Therefore, the impacts from the thermal discharge upon aquatic biota for all species, during normal operation and with flow in the Clinch River are expected to be insignificant. Water discharge also included an analysis of cold shock and scouring. Cold shock is the thermal stress resulting from a rapid decrease in temperature that can occur immediately after plant shutdown. Because the small area within the 2.5°C isotherm would not be able to support large numbers of fish, fish loss is unlikely to result from interruption of heated effluent (Staff Ex. 7, 5-11). A localized scour hole would produce a permanent loss of habitat to the benthic macroinvertebrates. However, the impact would not be significant due to the small area affected (Staff Ex. 7, 5-11). Regarding atmospheric heat transfer, the plume from the cooling tower interacting with other plume sources was analyzed. The only interaction of plumes from other sources and the CRBR cooling tower plume would be from the K-25 towers. Other sources are either very small (X-10 and Y-12) or at such great distance and height (Kingston and Bull Run) above the plant plume as to have negligible interaction (Staff Ex. 7, 5-12). Fogging from the plant tower possibly could have some small effect on local transportation routes. Monitoring fog and ice impact of tower operation would be a part of the technical specifications at the operating license stage (Staff Ex. 7, 5-12). Drift deposition for the cooling tower was also analyzed (Staff Ex. 7, 5-12). Drift deposition from the CRBRP tower would have no important effect on vegetation or fauna. Lastly, the impacts from operation of the mechanical draft towers would be regarded primarily as minor aesthetic and nuisance factors rather than health or safety problems (Staff Ex. 7, 5-12 to 5-13). In compliance with the Endangered Species Act, the NRC requested the U.S. Fish and Wildlife Service (FWS) to provide a current list of those federally recognized threatened and endangered species (including species listed, proposed to be listed, and under status review) as well as designated critical habitats, which might be affected by the licensing of the CRBR (Check, 1981). It is expected that construction and operation of the CRBR will not have an adverse effect on any federally protected endangered or threatened species (Staff Ex. 8, 5-7). The only species declared endangered or threatened by the State of Tennessee that is not federally recognized and that may occur in the vicinity of the site is the blue sucker, *Cyprinus elongatus*. Staff Ex. 7, §2.7.2 summarizes the known captures of this species in Watts Bar Lake. No significant losses to this species as a result of thermal impact, impingement, or entrainment are anticipated (Staff Ex. 8, 5-7).

20. Other nonradiological discharges from the plant are the impacts of chemical effluents, sanitary waste and other waste. These nonradiological discharges are expected to comply with the NPDES permit and the State of Tennessee Water Quality Standards requirements (Staff Ex. 8, 5-7 to 5-8).

21. Insignificantly adverse visual impacts would result from three miles of new lines and expansion of existing rights-of-way (Staff Ex. 7, 5-3). With regard to corona effects and ozone production, the Staff anticipates no significant impact from operation of the 161 kV transmission lines (Staff Ex. 7, 5-14). Transmission line operation creates potential for adverse effects from audible-noise, corona, radio and television interference, and electrostatic induction. However, experience with 161 kV lines on the TVA system shows that the effects are minimal (App. Ex. 35, §5.6). There are no adverse impacts having any significant consequence.

22. For the radiological impact from routine releases on biota other than man, depending on the pathway and radiation source, terrestrial and aquatic biota will receive doses that are approximately the same or somewhat higher than humans receive (Staff Ex. 7, Figure 5.5). The limits established for humans are regarded as sufficiently protective for other species (Staff Ex. 8, 5-11). In analyzing the radiological impact from routine releases on humans, the factors of exposure pathways, liquid effluents, gaseous effluents, direct radiation from the facility, occupational radiation exposure, fuel cycle impacts and transportation of radioactive materials were considered (Staff Ex. 8, 5-11 to 5-20). The evidence shows that the doses associated with nuclear plant operation are not significant compared with the dose to the population from exposure to natural background radiation. With regard to evaluating the radiological impact to the general public, the risks to the general public from exposure to radioactivity attributable to the annual operation of CRBR are very small fractions (less than 10 parts in a billion) of the estimated normal incidence of cancer fatalities and genetic abnormalities in the year 2010 population (Staff Ex. 8, 5-20 to 5-22). On this basis, the potential risk to the public health and safety from exposure to radioactivity attributable to normal operation of CRBR and its related fuel cycle will be very small.

23. In balancing the costs and benefits of the CRBR, the Staff reviewed the following benefits: (1) the LMFBR concept demonstration, (2) power produced, (3) research, (4) environmental enhancement, (5) employment and payroll, and (6) taxes. Pertaining to the costs of the CRBRP, the Staff reviewed the environmental costs and the monetary costs. The principal benefit of the proposed facility would be to demonstrate the liquid metal fast breeder nuclear reactor concept for commercial use in generating electrical power. If the applicability can be demonstrated, the useable energy in our uranium resources would be extended and the country would become more self-sufficient in energy production. The electricity generated by the plant would be a secondary benefit. Regarding research, the Applicants have proposed an extensive preoperational monitoring program to characterize the environment prior to construction, and a similar operational phase monitoring program to determine any adverse effects due to plant construction or operation. Surface and groundwaters, local meteorology, terrestrial and aquatic ecology, and radiological surveys would be conducted (Staff Ex. 7, 6-1 to 6-13;

Staff Ex. 8, 6-1 to 6-20). The Applicants have also proposed that expenditures for research and development (R&D) by DOE in support of the CRBR would total \$435 million between 1975 and 2020, with about \$900 million more for safety-related R&D applicable to the total LMFBR program (Staff Ex. 8, 10-10). In the area of environmental enhancement, the results of onsite archaeological investigations by the University of Tennessee will be made available to the public (Staff Ex. 7, 10-7). Employment and payroll is a secondary benefit from the CRBR. The direct payroll during the construction period is now expected to be \$446 million; it is expected to induce a secondary payroll of \$2.5 million through creation of local demand for goods and services. During the demonstration period, the \$50 million direct payroll is expected to induce a secondary payroll of \$4.4 million (Staff Ex. 8, 10-10 to 10-11). Another secondary benefit from the CRBR are tax revenues. State and local taxes generated from payroll spending would be the principal source of public funds generated by the project for use in the project area. These revenues would be generated principally in Anderson, Knox, Loudon, and Roane Counties. It is estimated that \$29.5 million in general fund revenues and \$66.4 million in school fund revenues would be generated in the peak year of construction (Staff Ex. 8, 10-10). Regarding monetary costs, the Applicants' current estimated cost of CRBR is \$3.196 billion for plant investment, development, and operation through 1995. The Staff has revised the Applicants' estimate to recognize the time value of money using an 11 percent interest rate. The Staff also believes that Applicants' estimate of revenues from the sale of power is overly optimistic and, based on recent coal cost statistics, has reduced that amount. Accordingly, between the years of 1974 and 1995 the total costs by year of expenditure are estimated to be \$3.525 billion and on the basis of 1982 present worth are estimated to be \$3.423 billion (Staff Ex. 8, 10-11). The costs of safeguards are estimated to total \$57.7 million in capital costs for measures necessary to protect the CRBR, the related fuel cycle facilities, and transport of radioactive materials. Annual operating costs for these safeguards would be approximately \$15 million. These figures include the full safeguards costs of \$50 million capital investment and \$10 million annual operating costs for the Development Reprocessing Plant (DRP) because no LMFBR near-term applications have been identified other than CRBR that would utilize its capacity (Staff Ex. 8, Appendix E, §E.6.3). Estimated costs for decommissioning would vary, depending on the decommissioning mode chosen, from about \$21 million to about \$43 million in 1978 dollars (Staff Ex. 8, §10.2.4.5) (Staff Ex. 8, 10-11 to 10-17). It can be concluded that (1) constructing and operating the CRBR at the proposed location would be possible without causing any significant impact on the physical environment of the area, and (2) locating the project at an alternative TVA site using the hook-on arrangement would now be more expensive and the attendant technological risks could jeopardize the ability of the project to meet its intended objectives. Furthermore, on the basis that accident risks at the CRBRP site will be

made acceptably low (comparable to LWR risks), the reduction in potential consequences associated with accidents at alternative sites does not warrant relocating the proposed plant when balanced against the detrimental effects of relocation on achieving the demonstration plant's objectives (Staff Ex. 8, Chapter 8).

CONCLUSIONS OF LAW

1. The Intervenors' original Contention 1 alleged that the LWA procedure is not applicable to first-of-a-kind reactors. This contention has been held to present an ultimate question of law, to be determined in light of all the evidence of record.¹¹⁷ Based upon the record as a whole, the Board concludes that 10 CFR §50.10(e) is applicable to CRBRP, and that the LWA procedure may be applied to it.¹¹⁸

The NRC regulatory requirements, including the provisions of Section 50.10(e), are applicable to CRBRP. Section 202 (1) of the Energy Reorganization Act provides that NRC shall have licensing and regulatory authority as to:

"Demonstration Liquid Metal Fast Breeder Reactors when operated as part of the power generation facilities of an electric utility system, or when operated in any other manner for the purpose of demonstrating the suitability for commercial application of such a reactor."

As defined in the authorizing legislation (Pub. L. No. 91-273, as amended), the CRBRP project is subject to NRC licensing and regulatory jurisdiction. The statutory criteria and program justification data, which were approved by the authorizing legislation, contemplate operation of the facility as part of the power generation facilities of a utility system.¹¹⁹ Consequently, the project falls within the ambit of Section 202(1) of the Energy Reorganization Act. Further, since the project is authorized as the fourth round of the Cooperative Power Reactor Demonstration Program,¹²⁰ any license applied for would be issued under Section 104(b) of the Atomic Energy Act.¹²¹

The rulemaking history of Section 50.10(e) also shows that it is applicable to CRBRP. That Section allows essentially the same scope of site preparation work that was permissible prior to the enactment of NEPA, but after completion of the NEPA review required for a construction permit. Although the promulgation of 10 CFR §50.10(e) postponed commencement of site preparation work until after

¹¹⁷ Order Following Conference with Parties, 15 NRC 855, 856 (1982).

¹¹⁸ See the Atomic Energy Act, 42 U.S.C. 2011 *et seq.*; the Energy Reorganization Act, 42 U.S.C. 5801 *et seq.*; and the CRBRP Authorization Acts, Pub. L. No. 91-273, *as amended*.

¹¹⁹ See Pub. L. No. 94-187; ERDA Authorizing Legislation for Fiscal Year 1976: Hearings on Fission Power Reactor Development Before Subcomm. on Legislation of the Joint Comm. on Atomic Energy, 94th Cong., 1st Sess., Part 4 at 2280-87 (1975).

¹²⁰ See Section 106 of Pub. L. No. 91-273, as amended; 1975 JCAE Hearings at 2280.

¹²¹ 42 U.S.C. 2134b; 42 U.S.C. 2132c.

completion of NEPA reviews for nuclear reactors, it retained past Commission practice as to the scope of allowable preconstruction activities, and effected no change in regard to whether first-of-a-kind reactors could commence such activities.

The history of 10 CFR §50.10(e) also indicates that in promulgating the regulation, NRC purposely avoided prohibiting its application to first-of-a-kind plants. Upon issuance of the proposed version of 10 CFR §50.10(e), the Commission received comments specifically urging it not to apply the proposed LWA rules to new or novel designs, including the fast breeder reactor.¹²² In spite of this comment, the final version of the regulation did not limit the applicability of the LWA procedures in the case of new or novel designs in general, or the fast breeder reactor in particular. The Commission has therefore rejected the thrust of Intervenors' assertion in the rulemaking proceedings leading to promulgation of 10 CFR §50.10(e).

2. A socio-economic monitoring program as part of licensing conditions has been requested by the State of Tennessee and the City of Oak Ridge, in their capacities as an "interested state" and an "interested municipality," respectively. The Staff has proposed license conditions that require the Applicants to implement such a comprehensive socio-economic monitoring program.¹²³ These proposed license conditions are entirely adequate, and they are hereby approved as constituting an appropriate monitoring process.

The State has also requested that socio-economic monitoring be extended to cover the possibility of termination of CRBR construction prior to completion of the plant. The Staff has adequately covered this possibility by two proposed license conditions to assure monitoring of adverse impacts due to unevaluated activities at the construction stage, including those related to the premature CRBR construction termination.¹²⁴ These two proposed license conditions are approved.

The State and City argue that the mitigation of adverse socio-economic impacts should be made mandatory license conditions. However, the evidence does not show that there are likely to be adverse impacts due to CRBR construction which will not be offset by benefits flowing from CRBR.¹²⁵ There is no evidence to contradict the Staff's conclusion that the tax revenues generated by the CRBR project would be more than sufficient to cover the local costs of increased educational and other expenditures.¹²⁶

3. The City's issue of in-lieu-of-tax payments as a license condition has previously been decided adversely by this Board in LBP-76-31, 4 NRC 153

¹²² Letter from State of New Jersey, Department of Environmental Protection to AEC, March 26, 1974. (On file in the NRC Public Document Room, Washington, D.C., in file entitled "10 CFR Parts 2, 50 (39 F.R. 4582) (pre-construction activity)").

¹²³ Staff Ex. 8, Section 6.1.6, at 6-17 and 6-18.

¹²⁴ Staff Ex. 8, p. vi, paragraphs 7(e) and (f), NUREG-0139.

¹²⁵ Staff Ex. 8, Section 4.5.

¹²⁶ *Id.*, at 4.5.5.

(1976). There have been no changes in the applicable case law or statutory scheme for assistance payments since that decision was rendered in this proceeding.

4. Based upon the Findings of Fact and Opinion set forth above, which are supported by reliable, probative and substantial evidence of record, the Board concludes that the Clinch River site is suitable for a reactor of the general size and type proposed in the application from the standpoint of radiological health and safety considerations.

5. The contents of the Final Environmental Statement and Final Supplement to the Final Environmental Statement (Staff Ex. 7 and 8), are hereby affirmed.

6. The requirements of NEPA, 42 U.S.C. §4321 *et seq.*, and 10 CFR Part 51 have been complied with in this proceeding.

7. Upon balancing all conflicting factors contained in the record of the proceeding, and weighing the environmental, economic, technical and other benefits against the environmental and other costs, and considering available alternatives, the Board concludes that a limited work authorization should be issued for the CRBRP pursuant to 10 CFR §50.10(e).

ORDER

WHEREFORE, IT IS ORDERED that the Director of Nuclear Reactor Regulation is authorized, upon making requisite findings with respect to matters not embraced in this Partial Initial Decision, in accordance with the Commission's regulations, to issue to Applicants authorization to conduct site preparation activities for the Clinch River Breeder Reactor Plant pursuant to 10 CFR §50.10(e)(1). Such authorization may be in such form and content as is appropriate in light of such findings, provided that such authorization is consistent with the conclusions of the Board herein.

IT IS FURTHER ORDERED that this Partial Initial Decision shall constitute the final action of the Commission forty-five (45) days after the issuance thereof, subject to any review pursuant to 10 CFR §§2.760, 2.762, 2.764, 2.785 and 2.786.

Exceptions to this Partial Initial Decision may be filed within ten (10) days after its service. A brief in support of the exceptions shall be filed within thirty (30) days thereafter and forty (40) days in the case of the Staff. Within thirty (30) days of the filing and service of the brief of the Appellant, and forty (40) days in the case of the

Staff, any other party may file a brief in support of, or in opposition to, the exceptions.

It is so ORDERED.

ATOMIC SAFETY AND
LICENSING BOARD

Dr. Cadet H. Hand, Jr.
ADMINISTRATIVE JUDGE

Gustave A. Linenberger, Jr.
ADMINISTRATIVE JUDGE

Marshall E. Miller, Chairman
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 28th day of February, 1983.

APPENDIX A — LIST OF EXHIBITS

I. Applicants' Exhibits

Exhibit No.	Description	Marked for I.D.	Offered	Admitted
1	Applicants' Testimony Concerning NRDC Contentions 1, 2 and 3	1282	1986	1988
2	PSAR Section 2.3, Meteorology	1282	2097	2116
3	PSAR Section 4.2.3, Reactivity Control Systems	1282	2097	2116
4	PSAR Section 5, Heat Transport and Connected Systems	1282	2097	2116

Exhibit No.	Description	Marked for I.D.	Offered	Admitted
5	PSAR Section 6.2, Containment Systems	1282	2097	2116
6	PSAR Section 7.1.2, Identification of Safety Criteria	1282	2097	2116
7	PSAR Section 7.5.4, Fuel Failure Monitoring System	1282	2097	2116
8	PSAR Section 15.1.1, Design Approach to Safety	1282	2097	2116
9	PSAR Section 15.1.4, Effect of Design Changes on Analyses of Accident Events	1282	2097	2116
10	PSAR Section 15.2, Reactivity Insertion Design Events	1282	2097	2116
11	PSAR Section 15.3, Undercooling Design Events	1282	2097	2116
12	PSAR Section 15.4, Local Failure Events	1282	2097	2116
13	PSAR Section 15.6, Sodium Spills	1282	2097	2116
14	PSAR Section 15A, Radiological Source Term for Assessment of Site Suitability	1282	2097	2116
15	CRBRP-3, Vol. 1, Section 4.0-4.4 and App. 4A, Assessment of HCDA Energetics	1282	2097	2116

Exhibit No.	Description	Marked for I.D.	Offered	Admitted
16	CRBRP-3, Vol. 1, Sections 5.0-5.5, Assessment of Structural Margin Beyond the Design Base	1282	2097	2116
17	CRBRP-3, Vol. 2, Sections 2.0-2.4, Design Features Providing Thermal Margin Beyond the Design Base	1282	2097	2116
18	CRBRP-3, Vol. 2, Sections 3.0-3.4, Assessment of Thermal Margin	1282	2097	2116
19	CRBRP-3, App. A, Development Programs Supporting Thermal Margin Assessments	1283	2097	2116
24	WARD-D-0185, Primary Piping Integrity Report	1283	2097	2116
25	Applicants' Testimony Concerning NRDC Contention 2(e)	1284	2072	2073
28	Errata Sheet to Exhibit 25	1892	2072	2073
29	The Consequences of Safety Prescriptions for Fast Breeder Reactor Design in France	2646	2794	2798
30	Incidents and Accidents Considered in the Safety Analysis of CDFR	2694	2794	2801
31	Design Criteria, Concepts and Features Important to Safety in Licensing	2696	2794	2801

Exhibit No.	Description	Marked for I.D.	Offered	Admitted
33	Letter from Leslie Silverman to John A. McCone, dated Dec. 10, 1960	2985	3049	3148
34-38	Environmental Report (5 Volumes)	3240	3240	3241
39	Applicants' Testimony Concerning Safeguards (NRDC Contentions 4 and 6.b.4)	3246	3472	3473
40	GAO Report "Obstacles to U.S. Ability to Control and Track Weapons-Grade Uranium Supplied Abroad," GAO-ID-82-21, Aug. 2, 1982	3810	3864	3864
42	Applicants' Testimony Concerning NRDC Contentions 11(b) and 11(c)	3995	4266	4266
43	Applicants' Testimony Concerning NRDC Contentions 6.b.1 and 6.b.3	4142	4323	4323
45	Applicants' Direct Testimony Concerning Intervenors' Contentions 5a) and 7c)	4625	4731	4732
46	App. Testimony Concerning Contentions 2d), 2f), 2g), 2h), 3d) (Environmental Effects) and 5b) (with glossary)	4965	5345	5374

Exhibit No.	Description	Marked for I.D.	Offered	Admitted
47	App. Testimony Concerning Contention 5b) (with glossary)	4965	5345	5374
48	Excerpts from Rocky Flats FES (April 1980)	5838	6013	6016
49	"Chromosome Changes in Somatic Cells of Workers with Internal Dispositions of Plutonium;" Bandom, <i>et al.</i> , IAEA-SM-237/38	5855	6013	6016
50	"Dose-Rate Conversion Factors for External Exposure to Photon and Electron Radiation from Radionuclides Occurring in Routine Releases from Nuclear Cycle Facilities;" Kocher, Vol. 38 <i>Health Physics</i> , 1980	5863	6013	6016
51	Copy of Transparency, "Histograms of the Prevalence of Structural Chromosome Aberration in Rocky Flats Controls and Plutonium Workers"	5871	6013	6016
52	Letter from William A. Mills, Acting Dep. Asst., Administrator for Radiation Programs, EPA to Carl J. Johnson (2/27/79)	5886	6013	6016
53	NUREG/CR-1659, "Reactor Safety Study Methodology Applications Program; Calvert Cliffs No. 2, PWR Power Plant," (May 1982)	6118	6289	6289

Exhibit No.	Description	Marked for I.D.	Offered	Admitted
54	"Primary Containment Leakage Integrity Availability and Review of Failure Experience," Weinstein, <i>Nuclear Safety</i> , Vol. 21, No. 5 (Sept./Oct. 1980)	6140	6289	6289
55	Extract from Appendix VI of WASH-1400	6150	6289	6289
56	Letter from B. Johnson, P. Davis and H. Lee to Morris Udall (2/21/79)	6162	6289	6289
57	Excerpts from "Final Report on Comparative Calculations for the AEC and CRAC Risk Assessment Codes," SAI (Dec. 1978)	6166	6289	6289
58	Applicants' Testimony Concerning Contentions 7a) and 7b)	6293	6405	6406

II. Staff's Exhibits

1	CRBRP Site Suitability Report	1740	2444	2444
2	Staff Testimony on Intervenors' Contentions 1(a), 2(b), 3(b), 3(c) and 3(d)	2122	2444	2444
3	Staff Testimony on Intervenors' Contentions 2(a), 2(c), 2(d), 2(e), 2(f), 2(g) and 2(h)	2123	2444	2444
4	ACRS Report on CRBRP Site Suitability dated July 13, 1982	2123	2444	2444

Exhibit No.	Description	Marked for I.D.	Offered	Admitted
5	Letter from Richard Denise to Lochlin Caffey dated May 6, 1976	2277	2444	2444
6	Staff's Standard Review Plan, Section 2.2.3	3192	3191	3192
7	1977 CRBRP FES (NUREG-0139)	3243	3243	3244
8	Supplement to CRBRP FES (October 1982)	3243	3243	3244
9	Errata Sheet to FES Supplement (Nov. 15, 1982)	3243	3243	3244
10	Staff Testimony Regarding Contentions 4 and 6(b)(4)	3565	3731	3732
11	Staff Testimony Regarding Contentions 4 and 6(b)(4)	3701	3704	3704
12	Testimony of Michael A. Bender Regarding Contention 11(b)	4063	4111	4111
13	Testimony of Edward F. Branagan, Jr. Regarding Contention 11(c)	4063	4142	4142
14	Staff Testimony Regarding Contention 6	4349	4443	4443
15	Staff Testimony on Contentions 5(a) and 7(c)	4756	4864	4864
16	Testimony of Paul Leech on Contention 7(c)	4761	4864	4864
17	Staff Testimony on Contentions 2c, 2d, 2f, 2g, 2h, 3c and 3d	5442	5650	5747
18	Staff Testimony on Contention 5b	5653	5682	5682

Exhibit No.	Description	Marked for I.D.	Offered	Admitted
19	Errata Corrections to NUREG-0139	5324	5324	5324
20	"A Note on the Pipe Rupture Probability Calculations for the Primary Heat Transport System of CRBRP," Harris, SAI (10/7/77)	6172	6289	6289
21	Staff Testimony Relative to Contentions 7(a) and 7(b)	6463	6521	6521

III. Intervenors' Exhibits

1	Clinch River Breeder Reactor Project Reliability Program, January, 1976, pp. 1, 6-8	1466	—	3144
2	Letter to Roger S. Boyd (NRC) from Peter S. Van Nort, dated April 30, 1976	1468	—	3144
3	Testimony of Dr. Thomas B. Cochran, Part I	—	2809	2809
4	Testimony of Thomas B. Cochran, Part II	—	3050	3050
5	Safety Measures at the Creys-Malville Power Station	2733	2801	2802
6	Super Phenix News, July 1978, No. 1	2733	2801	2802
7	Super Phenix News, March 1982, No. 7	2733	2801	2802
8	Testimony of Dr. John C. Cobb	2875	3050	3050
9	Testimony of Dr. Karl Z. Morgan	2879	3050	3050

Exhibit No.	Description	Marked for I.D.	Offered	Admitted
10A	Extracts from Proposed Guidelines on Dose Limits for Persons Exposed to Transuranium Elements in the General Environment	3189	3189	3189
11	GAO Report-Nuclear Fuel Reprocessing and the Problems of Safeguarding Against the Spread of Nuclear Weapons	3316	3473	3562
12	Testimony of Dr. Thomas B. Cochran, Part V (Intervenors' Contentions 4 and 6(b)(4))	3756	3886	3886
12A	Supplement to Testimony of Dr. Thomas B. Cochran, Part V	3760	3886	3886
13	Testimony of Dr. Thomas B. Cochran, Part III (NRDC Contentions 6(b)(1) and (3))	4476	4566	4566
14	NUREG 0002, Vol. 3, GESMO Report pp. 4c-24	4617	4617	4617
21	Testimony of Carl J. Johnson	5810	6003	6017
22	Testimony of Dr. Cochran, Part IV (Accidents)	6093	6193	6194

APPENDIX B — TEXT OF CONTENTIONS

1. The envelope of DBAs should include the CDA.
 - a) Neither Applicants nor Staff have demonstrated through reliable data that the probability of anticipated transients without scram or other CDA initiators is sufficiently low to enable CDAs to be excluded from the envelope of DBAs.
 - b)* Neither Applicants nor Staff have established that Applicants' "reliability program" even if implemented is capable of eliminating CDAs as DBAs.
 - (1) The methodology described in the PSAR places reliance upon fault tree and event tree analysis. Applicants have not established that it is possible to obtain sufficient failure mode data pertinent to CRBR systems to validly employ these techniques in predicting the probability of CDAs.
 - (2) Applicants' projected data base to be used in the reliability program is inadequate. Applicants have not established that the projected data base encompasses all credible failure modes and human elements.
 - (3) Even if all of the data described in Applicants' projected data base is obtained, Applicants have not established that CDAs have a sufficiently low probability that they may be excluded from the CRBR design bases.
 - (4) Applicants have not established that the test program used for their reliability program will be completed prior to Applicants' projected date for completion of construction of the CRBR.
2. The analyses of CDAs and their consequences by Applicants and Staff are inadequate for purposes of licensing the CRBR, performing the NEPA cost/benefit analysis, or demonstrating that the radiological source term for CRBRP would result in potential hazards not exceeded by those from any accident considered credible, as required by 10 CFR §100.1(a), fn. 1.
 - a) The radiological source term analysis used in CRBRP site suitability should be derived through a mechanistic analysis. Neither Applicants nor Staff have based the radiological source term on such an analysis.
 - b). The radiological source term analysis should be based on the assumption that CDAs (failure to scram with substantial core disruption) are credible accidents within the DBA envelope, should place an upper bound on the explosive potential of a CDA, and should then derive a conservative estimate of the fission product release from such an accident. Neither Applicants nor Staff have performed such an analysis.
 - c) The radiological source term analysis has not adequately considered either the release of fission products and core materials, *e.g.* halogens,

iodine and plutonium, or the environmental conditions in the reactor containment building created by the release of substantial quantities of sodium. Neither Applicants nor Staff have established the maximum credible sodium release following a CDA or included the environmental conditions caused by such a sodium release as part of the radiological source term pathway analysis.

- d) Neither Applicants nor Staff have demonstrated that the design of the containment is adequate to reduce calculated offsite doses to an acceptable level.
 - e) As set forth in Contention 11(d), neither Applicants nor Staff have adequately calculated the guideline values for radiation doses from postulated CRBR releases. [Note: context of contentions makes it clear that the original reference to Contention 8(d) was in error.]
 - f) Applicants have not established that the computer models (including computer codes) referenced in Applicants' CDA safety analysis reports, including the PSAR, and referenced in the Staff CDA safety analyses are valid. The models and computer codes used in the PSAR and the Staff safety analyses of CDAs and their consequences have not been adequately documented, verified or validated by comparison with applicable experimental data. Applicants' and Staff's safety analyses do not establish that the models accurately represent the physical phenomena and principles which control the response of CRBR to CDAs.
 - g) Neither Applicants nor Staff have established that the input data and assumptions for the computer models and codes are adequately documented or verified.
 - h) Since neither Applicants nor Staff have established that the models, computer codes, input data and assumptions are adequately documented, verified and validated, they have also been unable to establish the energetics of a CDA and thus have also not established the adequacy of the containment of the source term for post accident radiological analysis.
3. Neither Applicants nor Staff have given sufficient attention to CRBR accidents other than the DBAs for the following reasons:
- a)* Neither Applicants nor Staff have done an adequate, comprehensive analysis comparable to the Reactor Safety Study ("Rasmussen Report") that could identify other CRBR accident possibilities of greater frequency or consequence than the accident scenarios analyzed by Applicants and Staff.
 - b) Neither Applicants' nor Staff's analyses of potential accident initiators, sequences, and events are sufficiently comprehensive to assure that analysis of the DBAs will envelope the entire spectrum of credible accident initiators, sequences, and events.

- c) Accidents associated with core meltthrough following loss of core geometry and sodium-concrete interactions have not been adequately analyzed.
 - d) Neither Applicants nor Staff have adequately identified and analyzed the ways in which human error can initiate, exacerbate, or interfere with the mitigation of CRBR accident.
4. Neither Applicants nor Staff adequately analyze the health and safety consequences of acts of sabotage, terrorism or theft directed against the CRBR or supporting facilities nor do they adequately analyze the programs to prevent such acts or disadvantages of any measures to be used to prevent such acts.
- a) Small quantities of plutonium can be converted into a nuclear bomb or plutonium dispersion device which if used could cause widespread death and destruction.
 - b) Plutonium in an easily usable form will be available in substantial quantities at the CRBR and at supporting fuel cycle facilities.
 - c) Analyses conducted by the Federal Government of the potential threat from terrorists, saboteurs and thieves demonstrate several credible scenarios which could result in plutonium diversion or releases of radiation (both purposeful and accidental) and against which no adequate safeguards have been proposed by Applicants or Staff.
 - d) Acts of sabotage or terrorism could be the initiating cause for CDAs or other severe CRBR accidents and the probability of such acts occurring has not been analyzed in predicting the probability of a CDA.
5. Neither Applicants nor Staff have established that the site selected for the CRBR provides adequate protection for public health and safety, the environment, national security, and national energy supplies; and an alternative site would be preferable for the following reasons:
- a) The site meteorology and population density are less favorable than most sites used for LWRs.
 - (1) The wind speed and inversion conditions at the Clinch River site are less favorable than most sites used for light-water reactors.
 - (2) The population density of the CRBR site is less favorable than that of several alternative sites.
 - (3) Alternative sites with more favorable meteorology and population characteristics have not been adequately identified and analyzed by Applicants and Staff. The analysis of alternative sites in the ER and the Staff Site Suitability Report gave insufficient weight to the meteorological and population disadvantages of the Clinch River site and did not attempt to identify a site or sites with more favorable characteristics.
 - b) Since the gaseous diffusion plant, other proposed energy fuel cycle facilities, the Y-12 plant and the Oak Ridge National Laboratory are in

close proximity to the site an accident at the CRBR could result in the long term evacuation of those facilities. Long term evacuation of those facilities would result in unacceptable risks to the national security and the national energy supply.

6. The ER and FES do not include an adequate analysis the environmental impact of the fuel cycle associated with the CRBR for the following reasons:
 - a) Deleted by summary disposition (Order of October 26, 1982, at 3-4).
 - b) The impacts of the actual fuel cycle associated with CRBR will differ from the model LMFBR and fuel cycle analyzed in the LMFBR Program Environmental Statement and Supplement. The analysis of fuel cycle impacts must be done for the particular circumstances applicable to the CRBR. The analyses of fuel cycle impacts in the ER and FES are inadequate since:
 - (1)** The impact of reprocessing of spent fuel and plutonium separation required for the CRBR (is not included or) is inadequately assessed;
 - (2) Deleted by summary disposition (Order of October 26, 1982 at 4-6).
 - (3)** The impact of disposal of wastes from the CRBR spent fuel (is not included, or) is inadequately assessed;
 - (4)** The impact of an act of sabotage, terrorism or theft directed against the plutonium in the CRBR fuel cycle, including the plant, (is not included or) is inadequately assessed, nor is the impact of various measures intended to be used to prevent sabotage, theft or diversion.
7. Neither Applicants nor Staff have adequately analyzed the alternatives to the CRBR for the following reasons:
 - a) Neither Applicants nor Staff have adequately demonstrated that the CRBR as now planned will achieve the objectives established for it in the LMFBR Program Impact Statement and Supplement.
 - (1) It has not been established how the CRBR will achieve the objectives there listed in a timely fashion.
 - (2) In order to do this it must be shown that the specific design of the CRBR, particularly core design and engineering safety features, is sufficiently similar to a practical commercial size LMFBR that building and operating the CRBR will demonstrate anything relevant with respect to an economic, reliable and licensable LMFBR.
 - (3) The CRBR is not reasonably likely to demonstrate the reliability, maintainability, economic feasibility, technical performance, environmental acceptability or safety of a relevant commercial LMFBR central station electric plant.

- b) No adequate analysis has been made by Applicants or Staff to determine whether the informational requirements of the LMFBR program or of a demonstration-scale facility might be substantially better satisfied by alternative design features such as are embodied in certain foreign breeder reactors.
 - c) Alternative sites with more favorable environmental and safety features were not analyzed adequately and insufficient weight was given to environmental and safety values in site selection.
 - (1) Alternatives which were inadequately analyzed include Hanford Reservation, Idaho Reservation (INEL), Nevada Test Site, the TVA Hartsville and Yellow Creek sites, co-location with an LMFBR fuel reprocessing plant (e.g., the Development Reprocessing Plant), an LMFBR fuel fabricating plant, and underground sites.
- 8.*** The unavoidable adverse environmental effects associated with the decommissioning of the CRBR have not been adequately analyzed, and the costs (both internalized economic costs and external social costs) associated with the decommissioned CRBR are not adequately assessed in the NEPA benefit-cost balancing of the CRBR.
- a) There is no analysis of decommissioning in the Applicants' Environmental Report;
 - b) Environmental Impact Statements (EIS) related to LWRs prepared by NRC have been inadequate due in part to recently discovered omissions (see below), and the FES for the CRBR is no different;
 - c) A recent report "Decommissioning Nuclear Reactors" by S. Harwood; May, K.; Resnikoff, M.; Schlenger, B.; and Tames, P. (New York Public Interest Research Group (N.Y. PIRG), unpublished, January, 1976) indicates that (with the exception of the Elk River reactor) the isolation period following decommissioning of power reactors has been based on the time required for Co-60 to decay to safe levels. Harwood, *et al.* (p. 2) believe the previous analyses are in error because they have underestimated the significance of radionuclide, Ni-59. The time period for Ni-59 to decay to safe levels is estimated by Harwood, *et al.* (p. 2) for LWR to be at least 1.5 million years. The economic and societal implications of this 1.5 million year decay period are at present unknown.
 - d) Petitioner believes the NRC must systematically analyze all neutron activation products that may be produced in the proposed CRBR to determine the potential isolation period, following decommissioning, and then provide a comprehensive analysis of the costs (both economic and societal) of decommissioning.

9.* Neither Applicants nor Staff have demonstrated that Applicants' plans for coping with emergencies are adequate to meet NRC requirements.

- a) The PSAR contains insufficient information regarding Applicants' ability to identify the seriousness and potential scope of radiological consequences of emergency situations within and outside the site boundary, including capabilities for dose projection using real-time meteorological information and for dispatch of radiological monitoring teams within the Emergency Planning Zones.
- b) Applicants and Staff have failed to account properly for local emergency response needs and capabilities in establishing boundaries for the plume exposure pathway and ingestion pathway EPZs for the CRBR.
- c) The PSAR contains insufficient analysis of the time required to evacuate various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations, nor does it note major impediments to the evacuation or taking of protective actions.
- d) The PSAR contains insufficient information to ensure the compatibility of proposed emergency plans for both onsite areas and the EPZs, with facility design features, site layout, and site location.
- e) The PSAR contains insufficient information concerning the procedures by which protective actions will be carried out, including authorization, notification, and instruction procedures for evacuations.
- f) Applicants' proposed emergency plans fail to take into account the special measures necessary to cope with a CDA, including the need for increased protective, evacuation and monitoring measures, reduced response time and special protective action levels.
- g) Applicants and Staff have failed to provide adequate assurance that the proposed emergency plans will meet the requirements and standards of 10 CFR §50.47(b).

10.* Neither Applicants nor Staff have demonstrated that the facility will be provided with systems necessary to establish and maintain safe cold shut-down and maintain containment integrity that are capable of performing their functions during and after being exposed to the environmental conditions.

- a) associated with postulated accidents, as required by General Design Criterion 4, 10 CFR Part 50, Appendix A; or
- b) created by sodium fires or the burning (or local detonation) of hydrogen.

11. The health and safety consequences to the public and plant employees which may occur if the CRBR merely complies with current NRC standards for radiation protection of the public health and safety have not been adequately analyzed by Applicants or Staff.

- a)* Neither Applicants nor Staff have shown that exposures to the public and plant employees will be as low as practicable (reasonably achievable).

- b) Neither Applicants nor Staff have adequately assessed the genetic effects from radiation exposure including genetic effects to the general population from plant employee exposure.
 - c) Neither Applicants nor Staff have adequately assessed the induction of cancer from the exposure of plant employees and the public.
 - d) Guideline values for permissible organ doses used by Applicants and Staff have not been shown to have a valid basis.
 - (1) The approach utilized by Applicants and Staff in establishing 10 CFR §100.11 organ dose equivalent limits corresponding to a whole body dose of 25 rems is inappropriate because it fails to consider important organs, *e.g.*, the liver, and because it fails to consider new knowledge, *e.g.*, recommendations of the ICRP in Reports 26 and 30.
 - (2) Neither Applicants nor Staff have given adequate consideration to the plutonium "hot particle" hypothesis advanced by Arthur R. Tamplin and Thomas B. Cochran, or to the Karl Z. Morgan hypothesis described in "Suggested Reduction of Permissible Exposure to Plutonium and Other Transuranium Elements," *Journal of American Industrial Hygiene* (August 1975).
12. Intervenors' original Contention 18 (adequacy of Applicants' quality program) was denied admission without prejudice to filing at the construction permit phase of the proceeding (Board Order of April 14, 1982 at 8).

* Deferred until construction permit phase of proceeding (See Board Orders of April 14 (LBP-82-31, 15 NRC 855) and April 18, 1982 (unpublished)).

** Parenthetical portions deleted by Summary Disposition Order of October 26, 1982.

*** Intervenors' request to withdraw Contention 8 was granted in conference call of December 7, 1982 (Tr. 4956-57).

APPENDIX C — GLOSSARY OF TERMS

ABHX	Air Blast Heat Exchanger
ACRS	Advisory Committee on Reactor Safeguards
AEA	Atomic Energy Act
AEC	United States Atomic Energy Commission
AFW	Auxiliary Feedwater
AFWS	Auxiliary Feedwater System
ALO	Albuquerque Operations Office
ANL	Argonne National Laboratory
Applicants	Tennessee Valley Authority (TVA), U.S. Department of Energy (DOE), and the Project Management Corporation (PMC)
ATWS	Anticipated Transients Without Scram
BEIR	Biological Effects of Ionizing Radiation
BNFP	Barnwell Nuclear Fuel Plant
BOC	Beginning of Cycle
BOP	Balance of Plant
BWR	Boiling Water Reactor
CCTV	Closed Circuit Television
CDA	Core Disruptive Accident
CE	Commonwealth Edison Company
CFE	Clandestine Fission Explosive
cfs	cubic feet per second
CP	Construction Permit
CRBR	Clinch River Breeder Reactor
CRBRP	Clinch River Breeder Reactor Plant
CRDM	Control Rod Drive Mechanism
Cs	Cesium
DBA	Design Basis Accident
DHRS	Direct Heat Removal Service
DOE	United States Department of Energy
DOT	United States Department of Transportation
DRP	Developmental Reprocessing Plant
EBR	Experimental Breeder Reactor
EBR-II	Experimental Breeder Reactor — II
ECADS	Experimental Computerized Alarm Display System

ECCS	Emergency Core Cooling System
EOC	End of Cycle
EPA	United States Environmental Protection Agency
ER	Environmental Report
ERDA	United States Energy Research and Development Administration
E Specs	Equipment Specifications
ESF	Engineered Safety Feature
EVST	Ex-vessel Storage Tank
FEIS	Final Environmental Impact Statement
FES	Final Environmental Statement
FFTF	Fast Flux Test Facility
FMEF	Fuels and Materials Examination Facility
FSFES	Final Supplement to Final Environmental Statement
FWS	United States Fish and Wildlife Service
GAO	United States General Accounting Office
GCEP	Gas Centrifuge Enrichment Plant
HCDA	Hypothetical Core Disruptive Accident
HEPA	High Efficiency Particulate Air
HLW	High Level Waste
HTS	Heat Transport System
ICA	Item Control Area
ICD	Interface Control Drawing
ICRP	International Commission on Radiological Protection
IHTS	Intermediate Heat Transport System
IHX	Intermediate Heat Exchanger
INEL	Idaho National Engineering Laboratory
JCAE	Joint Committee on Atomic Energy
LDP	Large Development Plant
LEID	Limit of Error on Inventory Differences
LLW	Low Level Waste
LMEC	Liquid Metal Engineering Center
LMFBR	Liquid Metal Fast Breeder Reactor
LOF	Loss of Flow
LOHS	Loss of Heat Sink
LPZ	Low Population Zone
LWA	Limited Work Authorization

LWR	Light Water Reactor
MBA	Material Balance Area
MC&A	Material Control and Accountability
MOX	Mixed Oxide
MPR	Management Policies and Requirements
MUF	Material Unaccounted For
MW hr	Megawatt hour
MWe	Megawatts Electrical
MWT	Megawatts Thermal
MSL	Mean sea level
MYBP	Million years before present
Na	Sodium
NaK	Sodium Potassium Alloy
NCRP	National Council on Radiation Protection and Measurement
NDA	Non-Destructive Assay
NEPA	National Environmental Policy Act
NRC	United States Nuclear Regulatory Commission
NRTA	Near Real Time Accounting
NSSS	Nuclear Steam Supply System
OHX	Overflow Heat Exchanger
OPDD	Overall Plant Design Description
ORGDP	Oak Ridge Gaseous Diffusion Plant
ORNL	Oak Ridge National Laboratory
PACC	Protected Air Cooled Condenser
PAG	Protective Action Guideline
PCD	Population Center Distance
PDP	Project Definition Phase
PHTS	Primary Heat Transport System
PMC	Project Management Corporation
PO Cogg. Engineer	Project Office Cognizant Engineer, CRBRP (DOE)
PPS	Plant Protection System
PSAR	Preliminary Safety Analysis Report
psig	pounds per square inch gauge
Pu	Plutonium
PWR	Pressurized Water Reactor

RAPS	Radioactive Argonne Processing System
Rb	Rubidium
R&D	Research and Development
RDT	Reactor Development and Technology
RM/A-E	Reactor Manufacturer/Architect-Engineer
RSB	Reactor Service Building
RSS	Reactor Shutdown Systems
SACOS	Safeguards Computer Operating System
SAF	Secure Automated Fabrication
SAI	Science Applications, Inc.
SCRDM	Secondary Control Rod Drive Mechanism
SDD	System Design Description
SEFOR	Southwest Experimental Fast Oxide Reactor
SG	Steam Generator
SGS	Steam Generator System
SGAHRs	Steam Generator Auxiliary Heat Removal System
SHRS	Shutdown Heat Removal Systems
SMBDB	Structural Margin Beyond the Design Base
SNM	Special Nuclear Material
SQSNM	Significant Quantities of Special Nuclear Material
SRP	Savannah River Plant
SSE	Safe Shutdown Earthquake
SSR	Site Suitability Report
SST	Safe Secure Truck
SSST	Site Suitability Source Term
TDAFWP	Turbine-Drive Auxiliary Feedwater Pump
T-G	Turbine-Generator
TMBDB	Thermal Margin Beyond the Design Base
TOP	Transient Overpower
Tr.	Transcript Page
TRU	Transuranic
TSD	Transportation Safeguards Division
TSS	Transportation Safeguards System
TVA	Tennessee Valley Authority
UNSCEAR	United Nations Scientific Committee on the Effects of Atomic Radiation

VEPCO
ZPPR

Virginia Electric and Power Company
Zero Power Plutonium Reactor

APPENDIX D — WITNESS LIST

I. Applicants' Witnesses

Name	Position	Transcript Pages
Neil W. Brown	Licensing Specialist, Westinghouse Corp.	1293-1295, 1352- 1393, 1461-1881, 1989-2071
George H. Clare	Manager of Licensing for the CRBRP Project, Westinghouse Advanced Research Division	1292-1295, 1352- 1393, 1461-1881, 1989-2071
Lawrence W. Deitrich	Associate Director, Reactor Analysis and Safety Division, Argonne National Laboratory	1292-1295, 1352- 1393, 1461-1881, 1989-2071
Vencil O'Block	Technical Asst. to the CRBRP Systems Integration Manager Westinghouse Advanced Reactor Division	1293-1295, 1352- 1393, 1461-1881, 1989-2071
Lee Strawbridge	Manager of Nuclear Safety and Licensing, Westinghouse Advanced Reactor Division	1292-1295, 1352- 1393, 1461-1881, 1989-2071
John W. Healy	Staff Member, Los Alamos National Laboratory	1884-1922, 2074- 2091
Roger O. McClellan	President and Director, Inhalation Toxicology Research Institute, Lovelace Biomedical and Environmental Research Institute	1884-1922, 2074- 2091
Roy C. Thompson	Senior Staff Scientist, Pacific Northwest Laboratory	1884-1922, 2074- 2091
Glenn A. Hammond	Office of Safeguards and Security, DOE	3246-3560
Edward F. Penico	Industrial Security Specialist	3247-3560
Roger O. McClellan	President and Director, Inhalation Toxicology Research Institute	3994-4057, 4267- 4303

Name	Position	Transcript Pages
John W. Healy	Staff Member, Los Alamos National Laboratory	3994-4057, 4267-4303
Roy C. Thompson	Senior Staff Scientist, Pacific Northwest Laboratory	3994-4057, 4267-4303
R. Julian Preston	Senior Research Staff Member, Oak Ridge National Lab.,	3994-4057, 4267-4303
George L. Sherwood, Jr.	Nuclear Engineer, DOE	4158-4266, 4304-4347
Douglas C. Newton	Nuclear Engineer, DOE	4158-4266, 4304-4347
William M. Hartman	Manager, LMFBR Fuels Supply and Process Development. DOE	4158-4266, 4304-4347
Orlan O. Yarbro	Program Manager, Oak Ridge National Lab.	4158-4266, 4304-4347
Lawrence J. Kripps	Senior Analyst, Energy Incorporated	4226-4752
George H. Clare	Manager of Licensing, Westinghouse CRBRP	4966-5344, 5375-5420
Lee F. Strawbridge	Manager, Nuclear Safety and Licensing, Westinghouse	4966-5344, 5375-5420
Lawrence W. Deitrich	Associate Division Director, Argonne National Laboratory	4966-5344; 5375-5420
H. Wayne Hibbitts	Chief, Safety and Environmental Branch, CRBRP Project Office	4966-5344; 5421-38
John R. Longenecker	Acting Director, Office of CRBRP, Office of Breeder Reactor Programs, DOE	6291-6460
Carl A. Anderson, Jr.	Project Manager, Large Plant Projects, Westinghouse	6291-6460
Narinder N. Kaushal	Deputy Assistant Director for Emergency CRBRP	6291-6460

II. Staff's Witnesses

Larry W. Bell	Nuclear Engineer, Accident Evaluation Branch, NRC Office of Nuclear Reactor Regulation	2118-2439, 2483-2585
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Name	Position	Transcript Pages
Edward F. Branagan, Jr.	Radiological Physicist Radiological Assessment Branch, NRC Office of Nuclear Reactor Regulation	2118-2439, 2483- 2585
Lewis G. Hulman	Chief of Accident Evaluation Branch, NRC Office of Nuclear Reactor Regulation (NRR)	2118-2439, 2483- 2585
John K. Long	Reactor Physicist, Reactor Systems Branch, Nuclear Regulatory Commission	2118-2439, 2483- 2585
Jerry J. Swift	Reactor Engineer, CRBRP Program Office, NRC Office of Nuclear Reactor Regulation	2118-2439, 2445- 2482, 2483-2585
Farouk Eltawila	Senior Containment Systems Engineer, Containment Systems Branch, NRC Office of NRR	2118-2439, 2483- 2585
Irwin Spickler	Chief of Meteorology Section, Accident Evaluation Branch, NRC Office of NRR	2118-2439, 2483- 2585
Bill M. Morris	Technical Review Section Leader, CRBRP Program Office, NRC Office of NRR	2118-2439, 2445- 2482
Thomas L. King	Reactor Engineer, CRBRP Program Office, NRC Office of NRR	2118-2439, 2445- 2482
E. T. Rumble, III	Corporate Vice-President, Science Applications, Inc.	2118-2439, 2445- 2482
Robert J. Dube	Section Chief, NRC Division of Safeguards	3563-3646, 3663- 3753
Robert D. Hurt	MC&A Program Analyst, NRC Division of Safeguards	3563-3646, 3663- 3753
John W. Hockert	Senior Safeguards Scientist, NRC Division of Safeguards	3563-3646, 3663- 3753
Charles E. Gaskin	Plant Protection Analyst, NRC Division of Safeguards	3563-3646, 3663- 3753
Harvey B. Jones	Safeguards Analyst, NRC Division of Safeguards	3563-3646, 3663- 3753
Michael A. Bender	Senior Scientist, Brookhaven National Laboratory	4060-4127

Name	Position	Transcript Pages
Edward F. Branagan, Jr.	Radiological Physicist, NRC Office of NRR (Contention 11C) (Contention 6)	4063, 4134-4141, 4144-4157 4348-4472
Homer Lowenberg	Chief Engineer, Office of Nuclear Material Safety and Safeguards (Contention 6) (Contentions 5a and 7c)	4348-4472 4754-4906
Regis R. Boyle	Section Leader, NRC Division of Waste Management	4348-4472
A. Thomas Clark, Jr.	Senior Chemical Engineer, NRC Division of Fuel Cycle and Material Safety	4348-4472
Charles Ferrell	Site Analyst, NRC Division of Engineering	4754-4906
Leonard Soffer	Section Leader, NRC Office of NRR	4754-4906
Irwin Spickler	Section Leader, NRC Office of NRR	4754-4906
Paul Leech	Project Manager, NRC Office of NRR	4754-4864, 4907-4923
Bill M. Morris	Technical Review Section Leader, Office of NRR	5439-5650; 5748-5800
Jerry J. Swift	Reactor Engineer, NRC Office of NRR	5439-5650; 5748-5800
John K. Long	Reactor Engineer, NRC Office of NRR	5439-5650; 5748-5800 (Accidents); 6462-6551 (Design Alt.)
E. T. Rumble, III	Vice President, Science Applications, Inc.	5439-5650; 5748-5800
Lewis G. Hulman	Chief, Accident Evaluation Branch, NRC Office of NRR	5439- 5650; 5748-5800
Mohan C. Thadani	Nuclear Engineer, NRC Office of NRR	5439-5650; 5748-5800 (Cont. 2&3) 5652-5703 (Cont. 5b)

Name	Position	Transcript Pages
Homer Lowenberg	Chief Engineer, NRC Office of Nuclear Material Safety and Safeguards	5652-5703 (Cont. 5b) 6075-6086 (Rebuttal of Johnson)
Leonard Soffer	Site Analysis Section Leader, NRC Office of NRR	5652-5703
Paul H. Leech	Senior CRBRP Project Manager, NRC Office of NRR	6462-6551
Richard A. Becker	Reactor Engineer, NRC Office of NRR	6462-6551

III. Intervenors' Witnesses

Thomas B. Cochran	Senior Staff Scientist, Natural Resources Defense Council, Inc.	2593-2792; 2810-3018; 3051-3099
John C. Cobb	Professor of Community Health, University of Colorado School of Medicine	2874-2925; 3100-3118
Karl Z. Morgan	Consultant on Radiation Protection	2874-3018; 3119-3143; 3150-3188
Thomas B. Cochran	Senior Staff Scientist NRDC (Safeguards) (Fuel Cycle)	3755-3992; 4473-4616
Carl J. Johnson	Associate Clinical Professor, University of Colorado School of Medicine	5809-6003; 6018-6074
Thomas B. Cochran	Senior Staff Scientist, NRDC	6086-6289 (Accidents)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges

James L. Kelley, Chairman
Dr. A. Dixon Callihan
Dr. Richard F. Foster

In the Matter of

Docket Nos. 50-413
50-414
(ASLBP No. 81-463-01-OL)

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

February 2, 1983

The Licensing Board denies a motion for reconsideration of its rulings on environmental impact statement contentions. The Board establishes a detailed schedule for the remainder of the proceeding. The schedule is designed to bring the proceeding to a conclusion prior to the Applicants' anticipated fuel loading date, consistent with the Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981). The Board noted, however, that it may not be possible to complete the proceeding before fuel loading where, as in this case, the Applicants have substantially accelerated their fuel loading date after the proceeding is well under way.

MEMORANDUM AND ORDER
(Denying Motion for Reconsideration or Referral and Establishing
Schedule)

On December 20, 1982, Palmetto Alliance and Carolina Environmental Study Group filed a joint "Motion for Reconsideration or in the Alternative for Certifica-

tion" ("Palmetto Motion" or "Palmetto") of portions of the Board's Memorandum and Order of December 1, 1982 (LBP-82-107A, 16 NRC 1791). We have received and considered responses from the Applicants and the NRC Staff.¹

Palmetto's General Objections

The first three paragraphs of the motion object to virtually every adverse ruling in the December 1 Order. Those rulings were based on specific reasons applicable to each rejected contention. But Palmetto's sweeping objection assigns no specific reasons why we should modify or reverse particular rulings, except as discussed below. As we read it, the opportunity provided by 10 CFR 2.751a(d) to file "objections" to adverse rulings on contentions contemplates particularized assignments of error to the Board's reasoning. General objections, like Palmetto's opening three paragraphs, are not legally sufficient. We turn to Palmetto's specific objections.

Palmetto Contention 18 and CESG Contention 17

In our Order of December 1 we rejected Palmetto Contention 18, CESG 17 and several other contentions because they did not meet the specificity requirement of section 2.714. In response now to specific objections to our rejections of Palmetto Contention 18 and CESG 17, we have once again (and for the last time) considered these two contentions and we conclude, once again, that they are not sufficiently specific.

Palmetto 18 alleges, in substance, that the plant's diesel generators do not meet sufficiently stringent safety standards, but no particulars are given. One is left to guess about what is allegedly wrong with this equipment. The Applicants' onsite power systems, including the diesel generators, are discussed at some length in Section 8.3 of the FSAR. The contention cites this section, but does not specify any alleged deficiencies in it.

As we stated in our Order of March 5, 1982 (LBP-82-16, 15 NRC 566 at 583), CESG 17 "lacks specificity in that it fails to state how an infestation of the Asiatic clam *Corbicula* might affect the performance of the cooling tower system and why such an effect should be of health and safety concern or impact the environment." That is still true, and we again find a lack of sufficient specificity.

In asking us to accept these two contentions, Palmetto quotes out of context certain language from our March 5 and July 8, 1982 (LBP-82-51, 16 NRC 167)

¹ Responses to requests for reconsideration of rulings on contentions are not authorized without Board permission. 10 CFR 2.751a(d). However, parties are entitled to respond to a motion for referral, like any other motion. In this instance, several matters relevant to the referral issues are also relevant to the reconsideration issues. We accordingly considered the responses on both issues without pausing further over the lack of advance Board permission to respond to the reconsideration issues.

Orders. It appears to view this language as implying Board findings of adequate specificity. Assuming that any interpretation is necessary, the Board is, of course, in the best position to interpret its own orders. We never intended to state or imply that these two contentions meet specificity standards. That conclusion is demonstrated by what we actually held in the March 5 Order — that Palmetto 18 and CESH 17 were *not* sufficiently specific for unconditional admission. We have now reached that same conclusion three times.

Palmetto also argues that the language in the Board's earlier orders, and our general observation to the effect that we were probably more inclined toward findings of vagueness when we believed that conditional admission was an available option (Dec. 1 Order at 1794), somehow have the effect of foreclosing findings of fatal vagueness in our December 1 Order. But those statements had no such effect. When we decided to "reconsider" our earlier determinations on contentions in light of the guidance provided by ALAB-687, 16 NRC 460, that is what we meant, and that is what we did. In legal parlance, we looked at those issues "*de novo*." This is borne out by the fact that we did reverse ourselves and admit two contentions (Palmetto 6 (in part) and 7) that we had previously found lacking in sufficient specificity. But we find no reason to change our original vagueness findings on Palmetto 18 and CESH 17.

DES Contentions Rejected As Untimely

Palmetto asks us to reconsider our rulings that the joint DES Contentions 2, 3, 5, 14 and 20 were untimely.² The basis of those untimeliness rulings was that all of the essential facts on which the proposed DES contentions were based could have been derived from documents, notably the FSAR and ER, that were available before the initial deadline for contentions. For example, as we noted with respect to DES Contention 2 concerning sulfuric acid drift: "The ER and DES do not differ in material respects in their discussions of this topic." Order at 1799. Since we found nothing new on this topic in the DES, and the Intervenor pointed to nothing new, we concluded that DES 2 had to be rejected as untimely. It could not be said in any realistic sense that this contention was, in the words of ALAB-687, "wholly dependent" on the DES, or that it "could not . . . [have been] advanced with any degree of specificity . . . in advance of the public availability of" the DES. 16 NRC 469.

Palmetto still does not point to any new information in the DES that might justify consideration of these contentions without reference to the lateness factors in 10 CFR 2.714(a)(1). Rather, as we understand the argument, the very fact that Palmetto is seeking to challenge the adequacy of the Staff's draft environmental

² This request also covers DES 21. However, that contention was rejected for lack of specificity, not untimeliness. Order of December 1 at 1806.

impact statement in certain respects is enough to make any proposed contentions on the DES timely. We reject this argument. Of course it is true that the adequacy of the Staff's NEPA analysis in its impact statement cannot be determined in advance of its availability on the basis of earlier filings by the Applicants. The Commission cannot delegate its NEPA responsibilities to a private party. But this does not mean that an intervenor cannot and should not be held to an "ironclad obligation to examine [on a timely basis] the publicly available documentary material . . . with sufficient care to enable it to uncover any information that could serve as the foundation for a specific contention." ALAB-687, at 468. If we were to accept Palmetto's broad contention to the contrary, the so-called "ironclad obligation" would be a shadow without substance, at least with respect to environmental contentions, resulting in an unnecessary prolongation of the time for determining those contentions.

Possibly later in this case, or in other cases, application of the ALAB-687 principles to particular contentions may present some close questions. For example, the basic information underlying a contention might have been available in earlier documents, but the Staff analytical approach, or simply the weight the Staff attached to a particular environmental value, might be "new" (or at least unexpected). Whether a contention based on such elements should be considered "wholly dependent" on the DES would raise issues the Commission may well consider in its pending review of ALAB-687. We mention them here only to underline that the rulings we are now being asked to reconsider did not present these more difficult issues. On the contrary, as we view the present record, if ALAB-687's "ironclad obligation" means anything it clearly requires rejection of these contentions for untimeliness.

Alternative Request for Referral

Should we deny the request for reconsideration of the DES contentions, Palmetto asks us to certify or refer "the question of interpretation of the timeliness standard and the meaning of the term 'wholly dependent' as employed in ALAB-687" to the Appeal Board or Commission. We question whether these issues, at least in their present posture, warrant referral. We adhere to the view expressed in our Order of January 7, 1983 (unpublished) that the upcoming Commission review is not likely to have much impact on previously admitted or rejected contentions in this case. That factor argues against referral. In any event, in view of the Commission's pending review of pertinent aspects of ALAB-687, we see no practical reason for referral by this Board. It appears to us that the arguments Palmetto advances here are fairly encompassed within the issues pending before the Commission. Thus a referral order from us would only provide illustrative examples of the generic issues involved.

Contrary to Palmetto's claim, we do not believe that application of the rulings we have made pending the outcome of the Commission review would be in any

sense unfair. This case will, of course, be subject to any ruling the Commission may make, including the possibility of reinstated contentions and eventual hearings. For the present, however, the Intervenor's are not being required to do anything in response to those rulings. The request for referral is denied.

Scheduling

On January 20, 1983, the Chairman of the Licensing Board convened a meeting of the parties in Charlotte, North Carolina primarily to discuss prehearing scheduling matters. All parties appeared and participated in the conference.

As discussed in some detail at the meeting (Tr. 659-61, 701), the Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981) governs several key aspects of scheduling. The Statement includes a clear policy to seek to conclude operating license cases like this one prior to the completion of construction, in order to avoid otherwise substantial costs of delay. The Commission has said that it will —

seek to avoid or reduce such delays whenever measures are available that do not compromise the Commission's fundamental commitment to a fair and thorough hearing process. *Policy Statement* at 453.

The Intervenor's nevertheless argued that it was improper to use the Applicants' anticipated completion date as an important outside parameter for determining a schedule. They contended that the *Policy Statement* is not applicable to this case because it concerned only the licensing delays caused by the TMI accident. Tr. 687-88. We find no merit in this argument. Although the *Policy Statement* was largely an outgrowth of TMI, it speaks in general terms to the licensing process. If the Commission did not intend Licensing Boards to apply such a major and recent statement to current cases, we feel sure that it would have told us that explicitly.

The Intervenor's also argued that the Applicants' projections for completion of construction should not be used for scheduling purposes because they are inherently unreliable. Tr. 689, *et seq.* In this connection, they brought to our attention various changes in projected completion dates for both the Catawba and McGuire facilities. They also sought to show that the Applicants' financial situation casts doubt upon their ability to meet their present projected completion date. To that end the Intervenor's asked for "an opportunity to establish in an evidentiary fashion the probative value" of the Applicants' projected completion dates. Tr. 700.

The Board Chairman denied that request, ruling that scheduling matters are not litigable issues, at least in the circumstances of this case. Tr. 700. Generally speaking, Licensing Boards determine scheduling matters on the basis of representations of counsel about projected completion dates, availability of necessary information, and adequate opportunities for a fair and thorough hearing. To open up scheduling questions for full scale, on-the-record litigation could draw us into a quagmire of collateral issues. To be sure, we would take a harder look at an

Applicants' projected completion date if it could only be met by a greatly accelerated schedule, with minimal opportunities for discovery and the exercise of other procedural rights. In the present posture of this case, however, we see no need to adopt such an accelerated schedule in order to bring us to a hearing by next October, the only specific time being proposed by any party.

We of course recognize that projected completion dates for nuclear power plants typically change over the project's life, usually by slippage. The projected completion date for Catawba Unit 1 has illustrated that phenomenon by changing twice in the past nine months. When this case began, that date was August 1983. Last May, that date slipped to October 1984. Because of that slippage, the Staff postponed issuance of its review documents³ and the Board stayed discovery in this case, both for about six months.⁴ At the meeting of January 20, however, the Applicants reported that they expected to *accelerate* the previously announced schedule by about five months, and to complete construction by May 1984. Tr. 661. See letter of January 26, 1983 from Tucker to Denton.

The Board will factor this new information into the scheduling of this case and make an effort to resolve the issues in a timely fashion. But the Commission's policy of completing licensing ahead of construction, consistent with a fair hearing, necessarily assumes that a fairly firm completion date is projected well in advance. For example, if we had known last fall about this recent schedule acceleration, we would have then set an evidentiary hearing some months earlier than the date we are setting now. It may not be possible fully to accommodate a substantial acceleration of the completion date which comes, as this one does, well into the hearing process. Given the number of uncertain variables, we cannot predict now whether this case can be completed by May 1984, assuming that date holds firm. We note, however, that the most significant (and presently unknown) factors in that regard are the number and complexity of offsite emergency planning contentions. If that part of the case proves to be substantial, we are putting the parties on notice now that we may hear it separately later on.

The parties had been asked to submit in advance proposed schedules of specific dates leading to a hearing. Such schedules were submitted by the Applicants and the NRC Staff; none of the Intervenor submitted a schedule. The Applicants' and Staff's schedules were basically consistent in milestone dates and a target date for hearing. Discussion focused on the Applicants' schedule because it provided greater detail.

As revised and distributed at the hearing, the Applicants' schedule consisted of two parts: a brief list of major milestone dates and a more detailed Appendix of

³ See attachments to Staff Response to Applicants' Renewed Motion for Certification dated May 7, 1982.

⁴ Memorandum and Order of May 25, 1982 (unpublished).

interim steps between the major milestones. This proposed schedule was discussed at some length, a discussion we find unnecessary to restate here. Except for emergency planning contentions, the Applicants' proposed schedule provides at least 90 days for discovery. This would normally allow for two rounds of discovery, unless one assumes that every possible adversary step is taken in both rounds. We do not make that assumption and we reject the Palmetto argument that 90 days is inadequate. Additional time could be obtained upon a showing of good cause. Palmetto also objected that the 60 days of discovery proposed for emergency planning would be inadequate. Tr. 783. The Board shares that concern to some extent and also believes that, in light of the Applicants' acceleration of the projected completion date, we should not now adopt any dates for the close of discovery on emergency planning. We will reconsider this part of the schedule after the contentions for emergency planning have been determined.

Following discussion, the NRC Staff endorsed the Applicants' revised schedule and CMEC expressed no objection to it. Tr. 743, 770. The Board is revising the Applicants' proposed schedule in certain respects up to the commencement of hearings, and adopting it as follows:

Discovery Begins on DES 11, 22 and FES Contentions	March 25, 1983
Discovery Begins on SER Contentions	April 25, 1983
Discovery Ends on Contentions 6, 7, 8, 16, 27 and 44; DES 10, 17, and 19; CMEC 1-4	May 20, 1983
Motions for Summary Disposition on Contentions 6, 7, 8, 16, 27 and 44; DES Contentions 10, 17, and 19; CMEC 1-4	June 20, 1983
Responses to Above Motions for Summary Disposition	July 15, 1983
Discovery Begins on Emergency Plan Contentions	July 20, 1983
Discovery Ends on DES 11 and 22; FES and SER Contentions	July 25, 1983
Board Ruling on 6/20/83 Motions for Summary Disposition	August 15, 1983
Motions for Summary Disposition on DES 11 and 22; FES and SER Contentions	August 19, 1983
Responses to Motions for Summary Disposition on Above Contentions	September 9, 1983
Prefiled Testimony on Contentions 6, 7, 8, 16, 27 and 44; CMEC 1-4	September 19, 1983
Board Rulings on Motions for Summary Disposition on DES 11 and 22; FES and SER Contentions	September 30, 1983

Hearings Commence on 6, 7, 8, 16, 27 and 44; CMEC 1-4	October 4, 1983
Prefiled Testimony on DES 10, 11, 17, 19 and 22; FES and SER Contentions	October 31, 1983 ⁵

Other Matters

The Staff's Final Environmental Statement was issued on January 12 and was received by Intervenor around January 18, 1983. Tr. 811. Any new contentions on the FES must be filed within 30 days of its receipt. Accordingly, the Chairman ordered that they be filed by February 18, 1983, and that any revisions of DES Contentions 11 and 22 also be filed by that date. Tr. 813.

There was some discussion of using depositions as a more efficient means of securing information than interrogatories. Tr. 821. The Board is sympathetic to the Intervenor's problem that the cost of hiring a court reporter may be prohibitive. Palmetto suggested that a feasible alternative may be to take depositions by non-stenographic means: *i.e.*, to utilize a tape recorder rather than a court reporter, and to provide copies of the tape to the other parties. Tr. 822-23. The Board believes that this suggestion may have some merit;⁶ we will consider it as a possible option for the future. We would prefer that this approach be stipulated to by the parties.

Discovery in this case to date has been highly adversary and, as a result, unduly protracted and unproductive. The Chairman and parties had a useful off-the-record discussion at the meeting about ways in which informal, cooperative approaches to discovery might be encouraged. There was a consensus that a fuller delineation of the ground rules for discovery would be helpful. Our rulings of December 22, 1982 (LBP-82-116, 16 NRC 1937) should meet part of that need. In addition, our upcoming rulings on Palmetto's particularized motions to compel should give all parties a clearer appreciation of what is required. After those rulings are issued, all parties will be required to consult informally with the adversary party and seek to resolve any discovery differences before filing a formal objection, motion for protective order, or motion to compel. Any such formal filings shall certify and describe the filing party's efforts to resolve the dispute informally.

As indicated at the meeting, the Board will consider other options for expediting discovery, including special sessions for the purpose of resolving a substantial

⁵ The schedule assumes that DES 10 and 19 will be in the case. Rulings on these contentions will be issued shortly. The Applicants' Appendix A to its proposed schedule may also be useful in putting the parties on notice as to actions that may be expected of them. However, because of its detailed nature and the changes we are making, the dates in that Appendix are not being made binding.

⁶ Recording of deposition testimony is authorized in the federal courts in certain circumstances. *See* 4A Moore's Federal Practice ¶30.57[14].

number of discovery disputes by oral rulings on the spot. The parties should feel free to suggest any need for this approach as it arises.

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**James L. Kelley, Chairman
ADMINISTRATIVE JUDGE**

**Dated at Bethesda, Maryland,
this 2nd day of February, 1983.**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

James L. Kelley, Chairman
Dr. A. Dixon Callihan
Dr. Richard F. Foster

In the Matter of

Docket Nos. 50-413
50-414
(ASLBP No. 81-463-01-OL)

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

February 25, 1983

The Board rejects certain contentions relating to transportation of spent fuel, holding that the impacts associated with such transportation are governed by Table S-4, 10 CFR 51.20(g). The table applied to short-haul shipments of spent fuel from one reactor to another for interim storage, in the absence of a showing that significant impacts are associated with such transport which are not included in Table S-4.

MEMORANDUM AND ORDER
(Ruling on Spent Fuel Contentions)

This Memorandum and Order addresses and rules on DES Contentions 10 and 19, as jointly submitted by Palmetto Alliance and the Carolina Environmental Study Group. The background of these contentions will place our rulings in perspective.

DES 19 addresses itself to several different issues. They are: the need for shipping fuel from other Duke reactors to Catawba for storage; the environmental

costs and other impacts (including severe accidents) associated with the shipment of spent fuel to Catawba; alternatives to shipping spent fuel from other Duke facilities; and the environmental costs of operating Catawba as a storage facility for spent fuel from other Duke reactors. DES 10, which duplicates a part of DES 19, is concerned with the consequences of transshipment of Oconee and McGuire spent fuel to Catawba.

These contentions, filed on September 22, 1982 following issuance of the DES, are not entirely new. Palmetto Alliance's initial petition to intervene, filed December 9, 1981, included (a) Contention 14, which called for ". . . a full description and detailed analysis of the environmental effects of the transportation of spent fuel shipments to the Catawba Plant from other Duke Power Company facilities . . ." rather than application of Summary Table S-4 and (b) Contention 15, which asserted that the cost-benefit balance struck at the construction permit stage was compromised by use of Catawba as an "Away-From-Reactor" storage facility for spent fuel from other Duke facilities and by the transportation of spent fuel to Catawba.

This Board rejected Palmetto 14 because we saw no reason why Table S-4 should not apply to the transport of spent fuel to Catawba just as well as to a hypothetical fuel reprocessing plant. Memorandum and Order of March 5, 1982 (LBP-82-16, 15 NRC 566) at 579. We admitted Palmetto 15 on the condition that the words "Away From Reactor" be stricken, and subject to possible revision of this contention after receiving information in response to our questions about the extent of licensing authority sought by the Applicants, our jurisdiction over an application to store or transport spent fuel from other Duke facilities, and the scope of the environmental evaluation of storage and transportation of spent fuel contemplated by the Staff. After review of the responses to our questions, we ruled (Memorandum and Order of July 8, 1982, LBP-82-51, 16 NRC 167 at 171) that "Although . . . this Board lacks jurisdiction over shipment of spent fuel from other Duke facilities, we must consider the environmental impacts associated with its transport to, and storage at Catawba." In relation to Palmetto Contention 15, we stated that, "(w)e need also to confine this issue to the action now before us, which is a license to operate the constructed plant. Palmetto Alliance may resubmit this contention based on the OL Environmental Statement, when issued . . ." The intent of these words was to exclude any topics that were covered by licenses issued for other plants or to transport companies. Additionally, the intent was to better focus the contentions on the environmental impacts of spent fuel storage at Catawba in light of the Staff's response (April 5, 1982, at 10) that "[s]ince the request for spent fuel storage authority for non-Catawba fuel has been made as part of Applicants' facility operating license application, the environmental impacts that reasonably may be estimated to result from the grant of such authority must be evaluated now and *will be incorporated into the overall environmental impact*

statement on the operating license application to be issued by the Staff.” (Emphasis added.)

The wording of the first paragraph of DES 19 is identical to Palmetto’s original Contention 15, except that our instruction to strike the words “Away From Reactor” was followed. Unfortunately, the remainder of DES 19 goes against the grain of our advice to confine the contention to the Catawba OL. It instead introduces arguments about whether other Duke plants need to ship their spent fuel for storage elsewhere, the adequacy of the criteria for cask integrity in severe accidents, and alternatives that other Duke plants might use to avoid spent fuel shipments to Catawba. All of these aspects of DES 19 are again rejected. They are not within the scope of the Catawba OL proceeding.¹

At the second prehearing conference there was considerable discussion of whether the environmental cost of shipping Oconee and McGuire spent fuel to Catawba was covered by Table S-4 of 10 CFR 51.20 (Tr. 525-552). At that time the Staff was under the impression that the proposed volume of shipments was substantially greater than the 60 per year per reactor used as a basis for Table S-4. This was the reason that the Staff had made a separate “appraisal”² of the consequences of such shipments to Catawba and had included that appraisal in the August 1982 DES as Appendix G. The Applicants maintained that Table S-4 adequately covered the shipments, that Appendix G was unnecessary, and that Contentions DES 10 and 19 were an attack on Commission regulations (Tr. 540; Applicants’ Response to Supplement to Petition to Intervene, October 4, 1982, at 34, 56). Following the second prehearing conference and before the Board had issued its Order of December 1, 1982 (LBP-82-107A, 16 NRC 1791), the Applicants moved to defer a ruling on DES 10 and 19 so that the parties might have an opportunity to restate their position. The Staff supported the Applicants’ motion. We granted this motion in our Order of December 1, 1982. After reviewing the pleadings filed on this motion, we now reconsider the applicability of Table S-4 in this proceeding to the shipments of spent fuel from Oconee and McGuire for storage at Catawba.

As pointed out by both the Applicants and the Staff, the environmental costs associated with the shipments of spent fuel from Oconee and McGuire have already been taken into account and balanced against the benefits that those facilities will provide. In the case of Oconee, this was done in the FES issued

¹ Even assuming that they might be viewed as within the scope of this proceeding as proximate consequences of operating licenses for Catawba, they would be of no concern unless shown to result in significant environmental impacts. The insignificant impacts described in Table S-4 lay that concern to rest, since there has been no showing, or even any claim, that any specific incremental impacts beyond Table S-4 would be involved. In these circumstances, no analysis of the need for the proposed action — here, transshipment of spent fuel — or alternatives to that need are required. See *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-531, 9 NRC 263 (1979).

² Although Appendix G is called an Environmental Impact Appraisal, it does not serve that role as specified in 10 CFR 51.7.

March 1972 (prior to the existence of Table S-4). For McGuire it was by application of Table S-4. These environmental costs should not now be counted a second time. See *Northern States Power Co.* (Prairie Island Nuclear Generating Plant Units 1 and 2), ALAB-455, 7 NRC 41, 46 n.4 (1978). Having said that, it must be recognized that the environmental costs which were factored into those earlier proceedings were estimated on the basis of the full span of time and distance from when the fuel leaves the "home" reactor until it reaches a fuel reprocessing plant. The trip to Catawba represents only the first segment of the full journey. If the temporary diversion of the fuel to Catawba causes the total environmental impact for the full journey to be greater than that of a 1-step direct trip to a reprocessing plant, and if the impact of the diverted 2-step trip is appreciably greater than that previously taken into account (by use of Table S-4), then the new additional costs should be considered in the Catawba OL proceedings now before us.

On the basis of information originally supplied by the Applicants about the potential volume of spent fuel shipments to Catawba, the Staff concluded that the assumptions used in WASH-1238 to arrive at the values published in Table S-4 would be substantially exceeded. Because of the projected additional impact, the Staff prepared Appendix G for the DES. However the Applicants thereafter stipulated that ". . . it is Duke's intention that any such shipments will be made so that their environmental impacts will be encompassed within the values contained in Table S-4" (Letter of November 2, 1982 to the Staff). In response to this new information the Staff's FES, issued January 1983, has a replacement Appendix G which relies on Table S-4 and which states: "Because no new environmental impacts are introduced by the proposed transshipments and because the environmental impacts of transporting spent fuel from McGuire and Oconee have already been factored into the licensing of those facilities, no environmental impacts for spent fuel transport have been factored into the cost-benefit balancing for Catawba."

In view of Applicants' stipulation that the environmental impacts of fuel shipment to Catawba will conform to the values contained in Table S-4 and the Staff's position as stated in new Appendix G to the FES, we believe that Table S-4 and the March 1972 FES for Oconee adequately account for the environmental impacts of shipping spent fuel from Oconee and McGuire to a fuel reprocessing plant (or some other form of authorized disposal), including intermediate shipment to Catawba. Therefore, we reject DES 10 and the transshipment part of DES 19 as impermissible attacks on a Commission rule. If the Intervenor believe that they can make a *prima facie* showing that Table S-4 should not apply, identifying with reasonable specificity the environmental impacts that are not adequately accounted for by Table S-4, they may file a petition under 10 CFR 2.758 setting forth the special circumstances which would justify a waiver of the rule.

We might assume, for the sake of argument, that there could be some incremental environmental impacts associated with the transshipment phase that are

not accounted for in the earlier environmental reviews. But even under that assumption, an intervenor would be required to identify those impacts in a proposed contention with "reasonable specificity." DES contentions 10 and 19 do not identify any such incremental impacts; rather, they refer in general terms to the environmental consequences of transshipments and to the possibilities of accidents.³ They accordingly lack the requisite specificity and are also rejected on that alternative basis.

There remains the part of DES 19 relating to evaluation of the environmental costs of operation of Catawba as a storage facility for spent fuel from other nuclear facilities. When Palmetto 15 (a predecessor contention) was first submitted, we indicated that we would admit its corresponding part (Memorandum and Order, March 5, 1982, with restrictions as set forth in Memorandum and Order of July 8, 1982), subject to our evaluation of certain information and the environmental impact statement. We now admit this portion of DES 19, which reads as follows:

"Failure to evaluate the environmental costs of operation of Catawba as a storage facility for spent fuel from other Duke facilities compromises the validity of the favorable cost-benefit balance struck at the construction permit phase of this proceeding. Since the CP stage hearing, Duke Power has considerably expanded the Catawba spent fuel pool capacity and provided for denser storage of irradiated fuel. FSAR Table 1.2.2-1. Applicants intend to use Catawba for storage of irradiated fuel from the McGuire and Oconee nuclear facilities of Duke Power Company. FSAR 9.1.2.4; OL Application, pp. 11-12."

This contention is worded in rather general terms. This is due in part to the fact that the FES contains very little analysis of environmental impacts associated with the spent fuel pool. FES 5-19. DES 19 complements Palmetto 16, which concerns safety of storage of spent fuel transshipped from Oconee and McGuire. The Board understands in admitting it that the primary focus of DES 19 would be on the environmental effects of routine releases from such transshipped fuel during

³ In view of the fact that the Table S-4 values were based on an assumption that the spent fuel would travel 1000 miles in 3 days to a fuel reprocessing plant, we seriously doubt that a short trip — for example, of the less than 50 miles from McGuire to Catawba — could carry with it any significant increased risk of accidents. In adopting Table S-4, the Commission indicated that its values should be applied unless factors (e.g., distance) in a particular case were "much greater" than those used in developing the Table. 40 Fed. Reg. 1005, 1007 (1975). Similarly, it appears to us that Table S-4's value for exposures to transport workers would not be compromised by the short transshipments contemplated here. The only area of Table S-4 that appears to us to be impacted by the proposed transshipments is the dose to some *individuals* living close to the roadways that would carry the truck traffic. The chances of added exposure would especially increase for those individuals who live or work on portions of the highway used by truckers converging from both Oconee and McGuire. But as we read Table S-4 and its supporting documentation, even the members of the public who would be most exposed would receive only *de minimis* doses (e.g., at most a few millirem), doses that could not possibly affect an NEPA cost-benefit analysis. See *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-308, 3 NRC 20, 28 n.9 (1976).

normal operations at Catawba. Although the contention literally extends to environmental effects of severe accidents, there would be no reason to consider such effects unless it were first shown that severe accidents are credible in the spent fuel pool designed for Catawba.

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**James L. Kelley, Chairman
ADMINISTRATIVE JUDGE**

**Dated at Bethesda, Maryland,
this 25th day of February, 1983.**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

James L. Kelley, Chairman
Dr. Cadet H. Hand, Jr.
Mrs. Elizabeth B. Johnson

In the Matter of

Docket Nos. 50-361-OL
50-362-OL
(ASLBP No. 77-352-04-OL)

SOUTHERN CALIFORNIA EDISON
COMPANY, *et al.*
(San Onofre Nuclear Generating
Station, Units 2 and 3)

October 5, 1982

The Licensing Board sets the offsite medical arrangements question for an evidentiary hearing, specifying questions to be addressed by the parties. The Licensing Board then certifies to the Commission the question whether it should proceed with or suspend the hearing until after the Commission decides certain legal questions bearing on required medical arrangements.

MEMORANDUM AND ORDER
(Certifying a Question to the Commission)

On September 24, 1982, the Commission issued an Order (CLI-82-27, 16 NRC 883) directing the Appeal Board to certify to it certain questions of interpretation

*This opinion was inadvertently omitted from the October 1982 Issuances and therefore was not assigned a number until February 1983.

concerning the medical services arrangements requirement imposed by 10 CFR 50.47(b)(12). The Commission's Order did not refer to the site-specific factual issues pending before the Licensing Board by virtue of our retention of jurisdiction in the Initial Decision. However, the Commission's prior Order of July 16, 1982 (CLI-82-14, 16 NRC 24) had taken cognizance of those issues and directed this Board to "report on the status of the offsite medical arrangements question within four months of the date of issuance of the full-power operating license." That license was issued on September 7, 1982, making our report due to the Commission on January 7, 1983.

Although parts of the Commission's Order of September 24 were broadly phrased, in the totality of the circumstances we did not believe that it was intended to divest us of jurisdiction over site-specific aspects of the medical arrangements question for San Onofre. We accordingly issued an Order on October 1, 1982 setting those aspects of the question for a hearing to begin in Southern California on November 30, 1982. A copy of our Order is attached for your information. It is designed to elicit detailed site-specific information about a range of issues, including local medical resources that might be marshalled on an *ad hoc* basis and the need beyond that, if any, to make advance arrangements for medical services. Following a hearing, we expect to receive proposed findings from the parties and thereafter to render a decision. In view of the fact that the legal issues concerning medical services arrangements are now before you by directed certification, we contemplate that our decision would serve as our four-month report to the Commission.

This certification arises from our concern that the Commission might decide the questions certified in its September 24, 1982 Order before we can complete the hearing process and report to the Commission. The Commission's Order calls for initial and reply submissions within 35 days, so that the certified questions could be otherwise ready for Commission decision around mid-November, 1982. However, we cannot finish our site-specific inquiry by that time. Because of the detailed information we are seeking and the nature of the hearing process, it would be very difficult for us to finish our work much before January 7, 1982, the deadline for our report to the Commission.

We are concerned that substantial resources (both in time and money) may be wasted if the Commission were to decide the certified questions without factoring the results of our site-specific inquiry into its deliberations. We cannot, of course, anticipate how the Commission might decide those questions. But to illustrate our concerns about wasted resources, the Commission will have before it the differing interpretations of 10 CFR 50.47(b)(12) already adopted by this Board and tentatively outlined by the Appeal Board. Whatever the respective merits of those positions, if the Commission adopts the Appeal Board's interpretation after our hearing but before our report, the time and money spent by the Board and parties on

the site-specific inquiry will be wasted and our report to the Commission will be moot.

We think that the inquiry outlined in our Order would be helpful to the Commission in resolving medical services questions not only on the facts of this case, but also in providing guidance for other cases. If the Commission briefly postpones consideration of the certified questions until after it has our report in January, the Commission will then have before it considerable information about medical services available in a major metropolitan area in the event of a serious nuclear power plant accident. Such information is not in the rulemaking record or, so far as we are aware, in the records of other NRC cases. In addition some of the information in this area not only is complex in itself, it also involves complex underlying assumptions. Cross-examination at a hearing would probe those complexities and assumptions, producing a record that could not be obtained through written submissions alone.

In the foregoing circumstances, we certify to the Commission the following question:

Does the Commission wish the Licensing Board to continue the proceeding initiated by the Board's Order of October 1, 1982, with a view toward the Commission's considering the record and the Licensing Board's findings in its decision of the certified questions? Alternatively, does the Commission wish the Licensing Board to terminate or suspend its proceeding until after the Commission decides the certified questions, in order to avoid the possible waste of resources?

The Licensing Board will go forward with its inquiry pending the Commission's answer to our certified question. However, the Board would appreciate receiving an answer to that question as soon as possible in order to minimize the hazard of wasted resources.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

James L. Kelley, Chairman
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 5th day of October, 1982.

ATTACHMENT TO LBP-83-8C

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**James L. Kelley, Chairman
Dr. Cadet H. Hand, Jr.
Mrs. Elizabeth B. Johnson**

In the matter of

**Docket Nos. 50-361-OL
50-362-OL**

**SOUTHERN CALIFORNIA EDISON
COMPANY, *et al.***

**(San Onofre Nuclear Generating
Station, Units 2 and 3)**

October 1, 1982

**MEMORANDUM AND ORDER
(Setting Medical Arrangements Question for Hearing)**

Introduction

The Board has reviewed the submissions of the parties in response to our Memorandum and Order of August 6, 1982 (LBP-82-60A, 16 NRC 555). The primary purpose of that Order was to determine whether further proceedings might produce a better evidentiary record on the need, if any, for advance medical arrangements for the offsite public in the San Onofre plume EPZ. Your submissions indicate that a further hearing would produce additional relevant information and provide an opportunity to explore points of disagreement on that question.

We suggested the possibility of further proceedings based on affidavits, without a hearing. Your submissions did not support that approach. We also believe that a hearing, with an opportunity for cross-examination, is the best way to probe these rather complex issues.

The Board's General Approach

We have chosen to approach this problem initially from the perspective of available medical resources in the San Onofre area. We assume a serious accident at San Onofre, beyond design basis, and a release of radioactivity to the atmosphere. We further assume cases among the public in the plume EPZ of severe contamination and of radiation injuries involving whole body doses in excess of 150 rems. We then ask the following questions:

- (1) What kinds of emergency medical services would be needed for the contaminated and/or irradiated accident victims?
- (2) To what extent would those medical services be readily available in the local area without advance planning?
- (3) At what point would local area resources be overwhelmed by numbers of accident victims?
- (4) How serious an accident would be required to overwhelm local resources?
- (5) What is the probability that a comparable accident might occur at San Onofre?
- (6) How can ready availability of local area resources be augmented by advance planning?
- (7) What medical resources would be available from greater distances, but with longer delays?

We refine these questions below after first discussing two factors that limit this inquiry.

Emergency Medical Services

We are concerned with whether there is a need for advance arrangements for *emergency, medical* services for members of the offsite public. The underscored words are limiting factors.

First, by "emergency" services we mean services that must be provided or administered immediately or soon after the accident in order to be effective. This would rule out, for example, psychiatric treatment. As a bounding time, we would regard as an "emergency" service one that must be available within 48 hours after an accident victim is contaminated or irradiated. Conversely, we assume that any medical service which would be equally effective if administered 48 hours or more following the injury could be provided on an *ad hoc* basis under virtually any accident scenario; no advance arrangements would be necessary.

Second, by "medical" services we mean the term in its customary clinical sense. We make a separate point of this because of the Intervenors' desire to include planning for health education, screening and counseling services, and similar non-clinical services of a community health nature. Comments at p. 2. It may well

be that such services are important in the overall scheme of things, but we think they fit more logically under the heading of public education — a topic we have already covered and which is now pending on appeal — than under medical services.

Questions for the Parties

All Parties should answer the following questions providing expert testimony where the subject matter requires it.

1. *Kinds of Medical Services*

Describe in appropriate detail the kinds of emergency medical services that would be required for cases of severe contamination and of radiation doses involving upwards of 150 rems, whole body dose. In some cases, the same person may be both contaminated and irradiated. Consider requirements for the following types of personnel, equipment and medicine:

- a. Doctors
- b. Nurses and other health personnel
- c. Decontamination facilities, including monitoring equipment
- d. Hospital beds
- e. Testing facilities
- f. Potassium iodide; other medicines
- g. Ambulances or other transportation
- h. Other items

2. *Local Resources*

Some, most, or all of the required emergency medical services might be provided on an *ad hoc* basis — *i.e.*, without any advance arrangements by offsite planning authorities — because the proof may show that resources are readily available in the local area and that time is not of the essence. By “local area” we mean the Southern California coastal area, including Los Angeles and San Diego. For example, the Applicants offered some data in their submission concerning the number of hospitals having nuclear medicine services (with numbers of beds and associated oncologists) in the area. State in appropriate detail the extent to which the required services you listed in response to paragraph 1 could be provided on an *ad hoc* basis within about 48 hours or less following contamination or irradiation.

3. *Maximum Capabilities of Local Resources*

What are the approximate maximum numbers of accident victims local resources could cope with, assuming they are being strained temporarily to handle an emergency. For example, a doctor could increase his normal patient load and a hospital might add some temporary beds. At what numerical point would local resources, resource by resource, be not merely strained, but overwhelmed?

4. *Accident Magnitude*

Taking into account relevant variables, including quantity of the release, wind directions, and the like, how serious an accident would be required to produce the number of accident victims that would overwhelm local resources? Assume that evacuation and sheltering plans work substantially as expected, but bear in mind that evacuation will probably take three to seven hours in differing circumstances, and that sheltering does not afford complete protection.

5. *Accident Probability*

What is the approximate probability — per reactor year and over the life of the facility — that the accident described in response to question 4 might occur at San Onofre? Consider that there are three operating reactors there.

6. *Advance Arrangements*

How could the rapid availability of local area resources be augmented by advance arrangements by offsite emergency officials? "Arrangements" is used here in a broad sense to include not only determining the location of existing facilities and trained personnel, but also, for example, provision of additional training to health personnel. As we have made clear previously, however, these arrangements would not include large new capital expenditures for new facilities. Be specific as to each category of medical service.

Has it been determined whether local hospitals will accept low income accident victims who cannot meet usual credit standards? Presumably their expenses will be paid later under the Price-Anderson Act mechanism.

7. *Availability of Distant Medical Services*

Would it be possible to draw upon more distant medical services — beyond the Los Angeles and San Diego areas — if local resources were overwhelmed? Could this be done in a timely manner for radiation patients in need of hospitalization? What advance arrangements are necessary or desirable with respect to distant medical services?

Other Questions

1. All parties

Is the phrase "contaminated injured individuals" as used in 10 CFR 50.47(b)(12) a term of art with a clearly defined meaning? If so, state that meaning and cite scholarly treatises or articles illustrating term of art status. If this phrase is not a term of art, does it have any clear meaning derivable from the rulemaking record or elsewhere?

2. For the Applicant

What kinds of accidents was Dr. Linnemann assuming might occur when he expressed doubt at the prior hearing that "anyone offsite would receive anywhere near a dose of radiation resulting in symptoms of radiation sickness, much less a hospitalization dose"? (Tr. 7086-87) Did any of his assumed accidents exceed the design bases for San Onofre?

3. For the NRC Staff

In Supplement 6 to the SER at p. 13-3, you state that—"in worst case accidents, if one postulates large numbers of high radiation exposures, the effects are such that a number of days are available before treatment is needed and . . . during this time *ad hoc* plans for transportation to hospital beds anywhere in the U.S. could be carried out."

Provide the technical medical basis for your statement that "a number of days are available before treatment is needed."

If an *ad hoc* response might require transporting victims "anywhere in the U.S.," might not advance planning be preferable if that could keep people closer to home?

On the basis of the latest submissions, the Staff and FEMA appear to disagree about many aspects of this question. The Staff, in cooperation with FEMA, should isolate the separate elements of disagreement in terms of services involved and whether they are available *ad hoc*. The technical basis for any points of disagreement should be identified.

We expect the Staff to present technical witnesses at this hearing, including a medical witness. FEMA indicates in its September 3, 1982 memorandum that it could present experts to clarify or reaffirm its positions. We hope it will do so.

Filing Dates and Hearing Location

The Applicants and the Intervenors shall have their testimony in the Board's hands (note our separate addresses) by November 10, 1982. The NRC Staff, in cooperation with FEMA, will have an opportunity to review and comment on the

Applicants' and Intervenors' testimony. The Staff shall have its testimony in the Board's hands by November 19, 1982.

The hearing will be conducted somewhere in Southern California beginning on November 30, 1982. The exact time and place will be determined in consultation with the parties at a later date. We expect the hearing to last two to four days.

We will discuss further arrangements for the hearing with the parties by telephone during October.

Certification to the Commission

As you know, the Commission has recently directed the Appeal Board to certify to it two questions concerning the interpretation of 10 CFR 50.47(b)(12), without making reference to the related issues pending before this Board. That development indicates that the Commission might decide those questions before these further proceedings can be concluded and therefore without taking their results into account. In order to avoid a possible substantial waste of resources, we will shortly certify to the Commission the question whether it wishes us to terminate or continue these proceedings.

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**James L. Kelley, Chairman
ADMINISTRATIVE JUDGE**

Dated at Bethesda, Maryland,
this 1st day of October, 1982.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

James L. Kelley, Chairman
Dr. Cadet H. Hand, Jr.
Mrs. Elizabeth B. Johnson

In the Matter of

Docket Nos. 50-361-OL
50-362-OL
(ASLBP Docket No. 78-365-01-OL)

SOUTHERN CALIFORNIA EDISON
COMPANY, *et al.*
(San Onofre Nuclear Generating
Station, Units 2 and 3)

October 29, 1982

The Licensing Board rules on certain objections to its prehearing order on medical service arrangements. The Board rejects the Applicants' argument that the hearing should await legal rulings by the Commission.

MEMORANDUM AND ORDER
(Ruling on Objections to Prehearing Order)

The Applicants have filed objections to our Prehearing Order of October 1, 1982 (published as an attachment to LBP-83-8C, 17 NRC 297, at 300), setting the medical arrangements question for hearing. On the basis of those objections, the Applicants submit that no hearing should be scheduled until the Commission has

*This opinion was inadvertently omitted from the October 1982 Issuances and therefore was not assigned a number until February 1983.

decided the certified questions now pending before it. The NRC Staff has filed a response supporting most of the Applicants' objections. We have received no comments from the Intervenors.

Summary

We have considered the Applicants' and Staff's objections, and we are making certain clarifications and changes in the October 1 Order in response, as described hereafter. However, we are rejecting most of these objections, and we find no sufficient reason to postpone the hearing until after the Commission decides the certified questions. As we stated in certifying the postponement question to the Commission, we intend to go ahead with this hearing unless the Commission tells us to stop.

Clarifications and Changes

Probability and Consequence Evidence

Questions 4 and 5 of the October 1 Order call for information about accident consequences and probabilities. The Applicants object that these studies "would necessitate a site specific accident analysis exceeding the plant's design basis as well as probability studies of such specific accidents." We are told that such studies would be "costly" and would "require much more time."

We did not expect that these questions would require the parties to do substantial additional data collection or analysis. We note once more that the Staff has already performed a pertinent probability analysis, as reflected in Table 7.4 of the San Onofre environmental impact statement. This work having already been done, we see no need for the parties to start from scratch on these issues. As acknowledged in our Initial Decision, the Staff believes that Table 7.4 "significantly overestimates the consequences of very improbable and very severe accidents" and that therefore Table 7.4 should not be used for emergency planning purposes. Tr. 10340-41. However, as we also noted in the Initial Decision —

it does not follow that that Table . . . should not be used at all for emergency planning purposes, particularly when we have nothing better to consider. We are not looking to the FES for precise quantifications of risk and consequences, but only for a rough approximation of radiation effects on the public in the event of a serious accident at San Onofre. 15 NRC at 1197, 1199.

We need only add that we should err in the direction of conservatism when the matter for determination is needed medical arrangements for the public.

In light of these considerations, we will accept as answers to questions 4 and 5 information derived directly from Table 7.4, at least as a starting point. No independent site-specific studies of the consequences and probabilities of accidents at San Onofre will be required of the Applicants or the Intervenors. The Staff's data base shall be made available to the parties. In addition, we are directing the Staff to provide in one document — in addition to the explanation already in the FES and in the record — an explanation of how the Table 7.4 data were arrived at, including analytical techniques and factual assumptions. Furthermore, if the Staff continues to believe that Table 7.4 is not appropriate for emergency planning purposes, then they are to provide an explanation for that belief, and (2) a revised version of Table 7.4, representing their current best efforts to produce a Table of this kind that is appropriate for emergency planning purposes.

We are giving the lead role to the Staff in this area because of their past efforts and because they have more expertise in accident probability analysis than any other party. The other parties are invited to submit comments on the implications of Table 7.4 (and any revisions of it) for the issues before us, and the Staff's explanatory material. In addition, any party may, if it chooses, develop and present additional analysis and other evidence relevant to questions 4 and 5.

Related to the foregoing discussion, we are adding the following question and directing comments thereon:

8. Should emergency planning for offsite medical services arrangements at San Onofre be based upon the risks presented by accidents having more serious consequences and lower probabilities than those that would overwhelm local resources? If so, what is the lowest level of probability upon which arrangements should be based? What specific arrangements should be required at that level?

The interrelationships of most of our questions can be illustrated by a hypothetical example. The proof might show that hospital beds would be required for radiation injuries (question 1). There may be about 2000-3000 beds available in the area on an *ad hoc* basis at any time (question 2). Assuming that these hospital bed resources could be stretched in an emergency, that resource might be overwhelmed when accident victims requiring hospitalization exceed, say, 4000. Table 7.4 indicates that the probability of impact per year of an accident resulting in that number of persons being exposed over 200 rems is somewhat less than 10^{-6} (questions 4 and 5). (Presumably, however, that risk would be somewhat greater over the life of the facility.) At this point, a party might argue that any necessary medical services for accident risks having an approximate probability of 10^{-6} or greater can be provided on an *ad hoc* basis, without any advance arrangements, and rest its case. But another party might contend, in response to question 8, that risks presented by accidents having more serious consequences and lower probabilities should be the basis for arrangements for medical services. If a party wishes to

advocate that position, it should specify how remote a risk it believes should be the basis for advance planning, and what specific arrangements should be required.

Consideration of Unit 1

The Applicants and Staff object to our inclusion of Unit 1 in the consideration of accident risks. Whether Unit 1 should be included is debatable as an abstract proposition. The fact that we are not in the posture of licensing Unit 1 is not dispositive. However, the inclusion of Unit 1 would complicate the risk analysis, particularly now that we have decided to rely, at least initially, on FES Table 7.4, which does not consider Unit 1. We do not believe that exclusion of Unit 1 from this narrowly focused hearing would substantially affect the result. Therefore, we will only consider the risks posed by Units 2 and 3.

Extending Filing and Hearing Dates

The filing dates for the parties are extended, as follows: Applicants and Intervenors, December 15, 1982; NRC Staff explanation of Table 7.4 and any revision thereof, as soon as possible, and no later than December 1, 1982. The remainder of the Staff's direct case is due on December 24, 1982. The hearing will begin on January 11, 1983.

These extended filing dates should give the parties ample time to prepare their direct cases. We previously cautioned them to keep working while we were considering the extension now being granted. Unless the hearing goes forward as now scheduled, we may be unable to complete the hearing process before the Applicants' 6-month grace period expires. Accordingly, no further extension of these dates is contemplated.

Remaining Objections

The Applicants complain that our Order calls for evidence in excess of that indicated in the Initial Decision. On the contrary, our Order is fully consistent with the Initial Decision. If we have added anything to what was explicit there, it is the implicit element of the extent of medical resources in the area that might be available on an *ad hoc* basis. The Applicants and the Staff have repeatedly insisted — without any proof and contrary to the regulatory language (*see* 15 NRC at 1187) — that an *ad hoc* approach is all that is necessary for San Onofre. We simply want to find out if they are correct. If they are, then presumably no prior medical arrangements are necessary under 10 CFR 50.47(b)(12) because they would not be "significant for the plant in question," under the general "escape clause" provision, 10 CFR 50.47(c)(2).

The Applicants and Staff criticize the Order as calling for site-specific, single-accident analysis. The latter point is academic, since we have stated our willingness to rely on the Table 7.4 data, which represents a range of different accidents at San Onofre. We are calling for a site-specific analysis because that seems to be the only reasonable way to apply the present regulation. If the Commission had drafted it differently — such as by specifying medical arrangements (as they specified the radius of the 10-mile EPZ), or by specifying the level of accident risk at which to require arrangements — our task would have been easier and more mechanical. But the present regulation only tells us, in effect, to provide for adequate medical arrangements. That is an inherently site-specific inquiry, depending not only upon accident risks, but also population densities in the area. There are significant population densities near San Onofre, including about 100,000 residents in the plume EPZ. See 15 NRC 1169-71.

The Applicants (but not the Staff) baldly assert that our question 7 about distant medical resources exceeds the requirements of 10 CFR 50.47(b)(12), but they do not say why. We reject this objection summarily.

Finally, the Applicants and the Staff object to our allegedly “duplicative briefing” requirement in asking them whether the phrase “contaminated injured individuals” is a term of art. They claim that the Commission’s certified questions cover the same ground. This objection has no merit. If the Applicants and Staff are correct and our question is merely duplicative, they would only need to state that fact and serve this Board with a copy of their comments to the Commission. They have already done that, however, and we find no discussion in their papers of the question we have raised. Moreover, as matters now stand, our hearing may take place before the Commission answers the certified questions. If that happens, the parties’ answers can be helpful to the Board.

Prehearing Conference

We question from our perspective whether a prehearing conference on this narrowly focused hearing is necessary. However, we would consider scheduling a conference if the parties believe that would be useful. In that regard, Counsel should contact the Board Chairman as soon as possible.

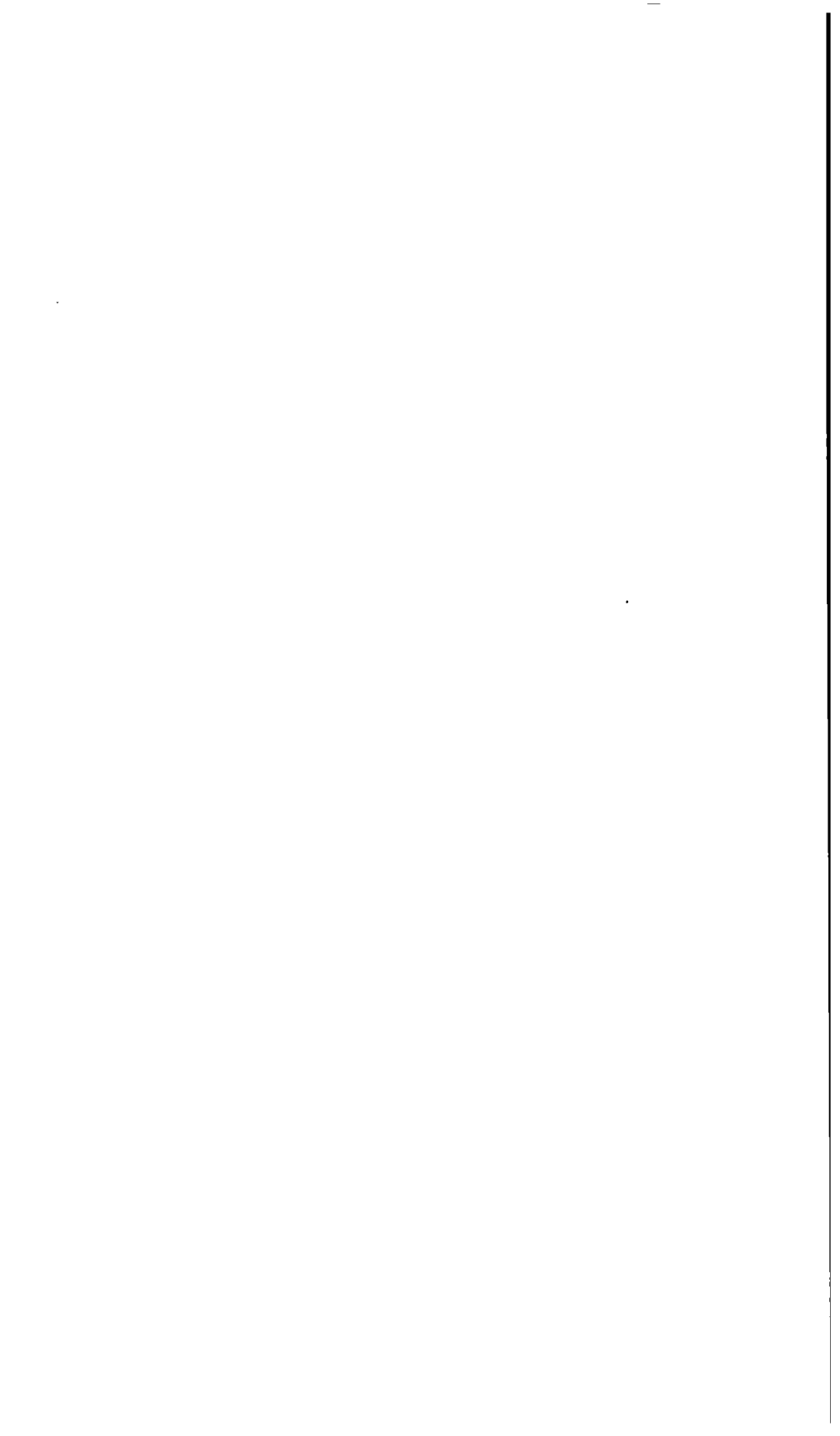
In view of the pendency of our certified question before the Commission, we are providing a copy of this Memorandum and Order to the General Counsel.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

James L. Kelley, Chairman
ADMINISTRATIVE JUDGE

cc: Leonard Bickwit,
General Counsel

Dated at Bethesda, Maryland,
this 29th day of October 1982.



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before Administrative Law Judge

Ivan W. Smith

In the Matter of

License No. 12-13568-01
(EA-81-32)

ISOTOPE MEASUREMENTS LABORATORIES, INC.

3304 Commercial Avenue
Northbrook, Illinois 60062

February 22, 1983

In this Memorandum and Order the presiding administrative law judge grants the joint motion of the NRC Staff and Isotope Measurements Laboratories, Inc. (IML) to terminate this civil penalty proceeding. The compromise settlement agreement negotiated by the parties is approved as modified to include the terms of a further commitment requested of and received from IML by the presiding officer.

CIVIL PENALTY: COMPROMISE

Pursuant to 10 CFR §2.203 the compromise of a civil penalty is subject to the approval of the designated presiding officer who, under the express provisions of that section, must accord due weight to the position of the Staff.

**MEMORANDUM AND ORDER TERMINATING CIVIL
PENALTY PROCEEDING**

Isotope Measurements Laboratories, Inc. (IML), Northbrook, Illinois is the holder of an NRC byproduct material license which, as pertinent to this proceeding, authorizes it to receive packaged radiopharmaceuticals from licensed suppliers and deliver them to licensed recipients.

Pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2282), and 10 CFR 2.205, on May 28, 1981, the Director of the Office of

Inspection and Enforcement served on the Licensee a Notice of Violation and Proposed Imposition of Civil Penalty which alleged that the Licensee was receiving and distributing radiopharmaceuticals without specific authorization. After considering the Licensee's response, the Director issued an Order Imposing a Civil Penalty on October 22, 1981 in the total amount of \$5700.00. 46 Fed. Reg. 53548 (October 29, 1981). On November 2, 1981, the Licensee requested a hearing which was authorized by the Commission's Notice of Hearing dated January 5, 1982.

No hearing was conducted, however, because counsel for IML and the NRC Staff on November 29, 1982 submitted a joint motion to terminate the proceeding. The motion is founded upon an agreement in which IML admits certain facts, the parties agree to settle the matter in the compromised amount of \$4000, and IML agrees to cease and desist from receiving radioactive material from any supplier not authorized to distribute it in accordance with 10 CFR 32.72. The agreement recites that IML neither admits nor denies that its activities did not comply with NRC "requirements." Pursuant to 10 CFR 2.203 the compromise of a civil penalty is subject to the approval of the designated presiding officer who, under the express provision of that section, must accord due weight to the position of the Staff.

I approve the settlement but several aspects of the Notice of Violation, the Licensee's answer, and the compromise agreement present unusual issues relating to the integrity of the NRC enforcement process. Therefore, the material aspects of the alleged violation and the reasons for approving the compromised settlement should be set out on the public record of this proceeding.

The facts of the controversy are not in dispute. Technetium-99m (Tc99m) is a byproduct material with a six-hour half life used in a diagnostic radiopharmaceutical. Because of the short half life some hospitals, in this case Mason District and Pana Community, are permitted to possess and to use a molybdenum/technetium-99m (Mo/Tc99m) generator which will permit the eluting or "milk-ing" of Tc99m as needed. NRC regulations, 10 CFR 32.72, require a license to manufacture and distribute radiopharmaceuticals containing byproduct material for use by persons such as physicians licensed for that purpose. Generally hospitals such as Mason District and Pana Community do not possess licenses to manufacture and distribute radioactive material, *i.e.*, they are not licensed radiopharmaceutical suppliers. Mason District and Pana Community did not, in fact, possess such licenses during the time relevant to this proceeding. As noted, IML's license, as pertinent, is limited to receiving radiopharmaceuticals from licensed suppliers.

Prior to August 8, 1980 IML received radiopharmaceuticals from hospitals not licensed under 10 CFR 32.72 and transferred them to other hospitals. On August 8, 1980, Mr. Keppler, Director of NRC Region III sent a letter to IML stating:

With regard to the matters discussed, we understand that you have undertaken or will undertake the following action by August 9,

1980: Discontinue all transfers and deliveries of byproduct material from facilities that are not licensed by the Nuclear Regulatory Commission for distribution under 10 CFR 32.72.

In a telephone conference with the parties on January 24, 1983, I confirmed that Mr. Keppler's letter was a reference to the same practice which has given rise to this civil penalty proceeding.

Nevertheless, beginning on August 11, 1980, IML began a series of 21 pickups (on 19 penalty days) of radiopharmaceuticals containing Tc99m from Mason District and Pana Community Hospitals and delivered them to other hospitals. This activity resulted in the imposition of the civil penalty by the Director of I&E.

IML defended on several bases. First it states: "Milking the generator does not constitute 'manufacture' of the eluate. Therefore, a hospital may ship eluate without first obtaining a 10 CFR 32.72 license."¹ This answer did not convince the Staff, nor does it convince me, because it does not address the fact that 10 CFR 32.72 specifically covers the *distribution* as well as the manufacture of radiopharmaceuticals.

IML also states that Mr. Keppler's letter referring to the distribution of byproduct materials under 10 CFR 32.72 could not mean what it seems to say because that interpretation would prevent the transport of standard sources for calibration purposes. The better reasoning, according to IML, is that IML was ordered to "[n]ot distribute radiopharmaceuticals which contain byproduct material unless the radiopharmaceutical was manufactured by a person licensed under 10 CFR 32.72."²

Apparently IML's logic is that the license to manufacture the Mo/Tc99m generator carried with it the license to distribute the eluate since eluting the generator is not a separate manufacturing step. But the logic fails because IML received the Tc99m from an unlicensed hospital, not from the licensed manufacturer/distributor of the generator/eluate. In any event, by advancing this argument, IML ignores the central concern that it had entered into an understanding with the Region III office that accepting radiopharmaceuticals from hospitals not licensed under 10 CFR 32.72 was a violation of the terms of IML's license and that the practice would stop. There was no basis to read Mr. Keppler's letter differently because it was that very practice which was involved.

Because of IML's apparent difficulty in interpreting and complying with the terms of its license and complying with its understanding with Region III, and because of its continued unwillingness to acknowledge that its activities were not in compliance with the regulations, the cease-and-desist terms of the settlement agreement seemed insufficiently specific to provide assurance that the practice would end.

¹ Answers to Order to Show Cause and to Notice of Imposition of Civil Penalty, June 24, 1981.

² Answer to Show Cause Order.

IML's commitment was:

3. IML agrees that it will cease and desist from any future receipt of radioactive material from persons who are not authorized as radiopharmaceutical suppliers to distribute material in accordance with 10 CFR 32.72, and from making further distribution of such material without a license under 10 CFR 32.72. In this regard, IML further acknowledges that hospitals such as Mason District Hospital and Pana Community Hospital are generally not authorized to distribute radioactive material as licensed radiopharmaceutical suppliers in the absence of an express license condition permitting such distribution.

Under IML's theory that the manufacturer of the Mo/Tc99m generator was the respective licensed distributor, the very practice now penalized would be permissible under the cease-and-desist agreement. Therefore I requested and received a further commitment from IML as a condition of approving the compromised settlement. Added to paragraph 3 will be:

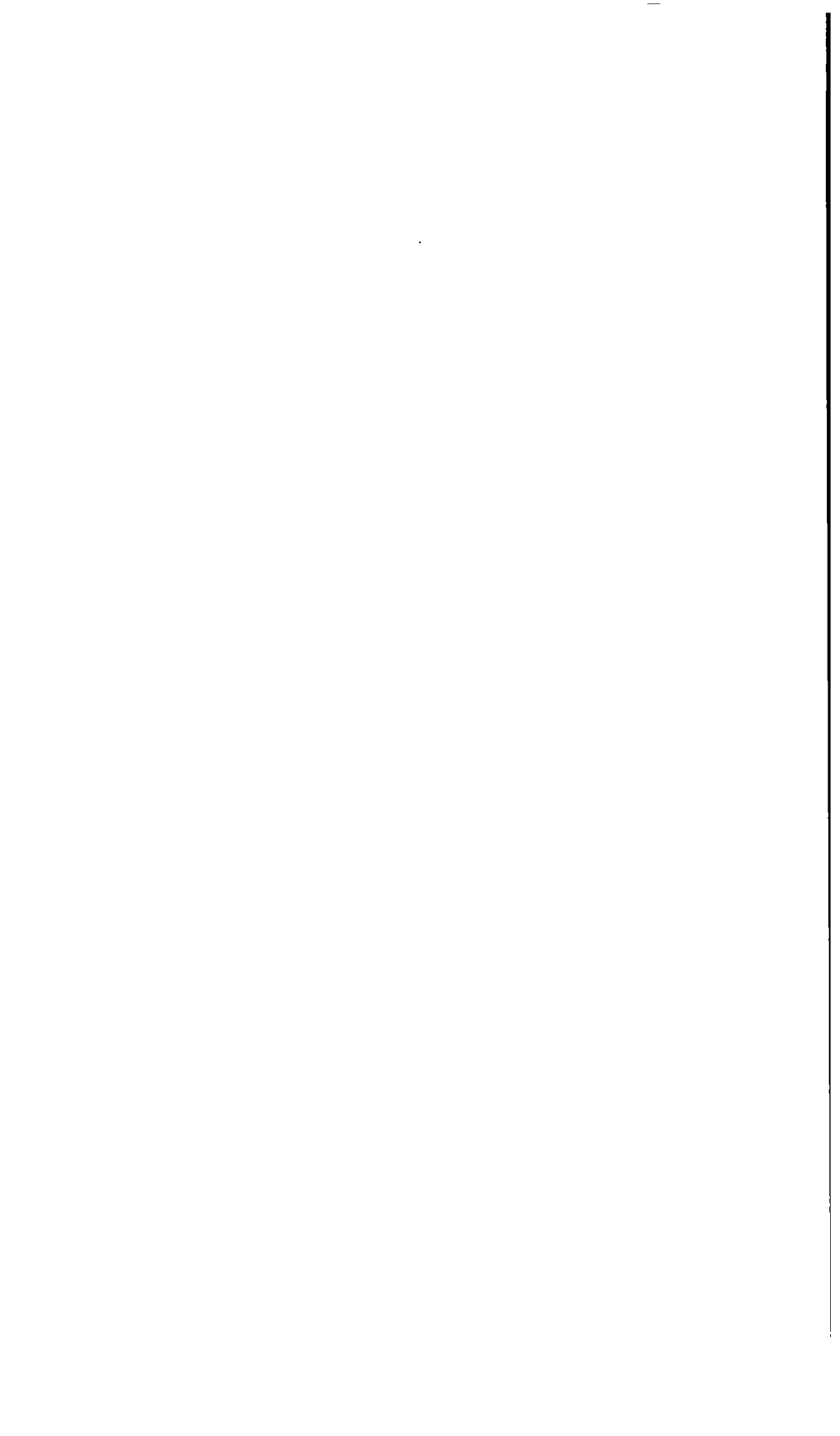
Upon receiving radiopharmaceuticals containing byproduct material, IML shall make an affirmative inquiry and receive a definite demonstration that the person supplying the material is authorized to do so by a license issued under 10 CFR 32.72, or, in the case of a hospital, that the hospital has the functional equivalent of a Section 32.72 license. The methods set out under 10 CFR 30.41 to verify the authority of a recipient, when applied to a supplier, would be an appropriate demonstration. Provided however, IML may continue to act upon emergency requests for the transfer of radiopharmaceuticals under a temporary authority granted by the NRC to a person authorized to receive radiopharmaceuticals pursuant to 10 CFR 35.14. When IML relies upon an oral certification from a transferor under emergency authority from the NRC, that oral certification must be confirmed in writing within ten days.

The amount of the penalty as compromised appears reasonable. Both parties agree that the practice in dispute did not endanger health under these circumstances. The Staff reports that its belief that IML's activities were in knowing violation of its understanding with Region III was considered in calculating the penalty. The penalty is in accordance with the Staff guidelines in effect during the time of the relevant activities, and approximately the same result would be achieved under the Commission's General Statement of Policy and Procedure for Enforcement Actions, 47 Fed. Reg. 9987, March 9, 1982.

Accordingly in consideration of the settlement agreement as modified I approve the imposition of the compromised civil penalty and terminate the proceeding.

Ivan W. Smith
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland
February 22, 1983



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of

Docket Nos. 50-373
50-374
(10 CFR 2.206)

COMMONWEALTH EDISON COMPANY
(LaSalle County Station,
Units 1 and 2)

February 9, 1983

The Director of Nuclear Reactor Regulation denies petitions filed by the Illinois Attorney General, the Illinois Friends of the Earth and Citizens Against Nuclear Power which requested institution of show cause proceedings on the basis of alleged construction deficiencies in the LaSalle County Station. The decision supplements an earlier decision (DD-82-9, 16 NRC 396) with respect to LaSalle Unit 1.

DIRECTOR'S DECISION UNDER 10 CFR 2.206

Attorney General Tyrone C. Fahner, Esquire, on behalf of the State of Illinois, filed a petition pursuant to 10 CFR 2.206, dated March 24, 1982, and an amendment thereto, dated May 3, 1982. The petition and amendment requested institution of a show cause proceeding with respect to Commonwealth Edison Company's LaSalle County Station, Units 1 and 2. The petition and amendment set forth allegations of poor construction. In addition, Ms. Bridget Rorem, on behalf of the Illinois Friends of the Earth, Essex, Illinois, filed a petition pursuant to 10 CFR 2.206, dated April 28, 1982, which requested institution of a show cause proceeding on the basis of certain allegations of improper construction practices at the LaSalle County Station, Units 1 and 2. Ms. Rorem's petition enclosed four affidavits from construction workers, setting forth allegations of various improper

practices. Mr. Edward M. Gogol, on behalf of Citizens Against Nuclear Power (CANP), Chicago, Illinois, also filed a petition pursuant to 10 CFR 2.206, dated July 28, 1982, requesting institution of a show cause proceeding to examine certain alleged safety issues based on alleged construction deficiencies cited in the petitions to the Commission from the State of Illinois and Illinois Friends of the Earth. In addition, the CANP petition alleged deficiencies in the work of the Zack Company, a subcontractor at the LaSalle Facility on heating, ventilating and air conditioning (HVAC) systems, and the competency of Morrison Construction Company project management relating to welding at the LaSalle Facility.

Both the petitions of the State of Illinois and the Illinois Friends of the Earth requested that I take certain immediate actions regarding the LaSalle Facility based on the allegations contained in the petitions. The State of Illinois requested immediate suspension of consideration of Commonwealth Edison's application for a fuel load and low power testing license for LaSalle Unit 1. For the reasons presented in my letter to the Attorney General dated April 17, 1982, I declined to suspend consideration of the LaSalle Unit 1 license application, and a license authorizing fuel loading and zero power testing was subsequently issued. The Illinois Friends of the Earth petition requested an immediate halt to further fuel loading at LaSalle Unit 1 based on the allegations contained in its petition. For the reasons presented in my letter to Ms. Bridget Little Rorem dated May 19, 1982, I declined to halt the activities then authorized, namely fuel loading and zero power testing.

In response to the petitions of the State of Illinois and the Illinois Friends of the Earth, the NRC staff completed a special inspection into the allegations identified which required resolution prior to authorizing power operation of the LaSalle Unit 1 Facility. On the basis of the special inspection, I issued a Director's Decision under 10 CFR 2.206 dated July 19, 1982 (DD-82-9, 16 NRC 396) which denied the requests of the Attorney General and Bridget Little Rorem for initiation of show cause proceedings with respect to LaSalle Unit 1. I further indicated in my Decision that, for LaSalle Unit 2, further investigations would be performed with respect to those outstanding allegations pertaining only to the LaSalle Unit 2 and a decision would be reached prior to taking licensing actions regarding Unit 2. These investigations are now complete. Enclosure 1 is the NRC Region III special inspection report addressing NRC staff findings with respect to the outstanding allegations pertaining to LaSalle Unit 2. No significant safety issues were identified during this special inspection and the report concludes that there are no remaining issues to be reviewed as a result of the allegations received. On this basis, I deny the remaining portions of the petitions of the State of Illinois and the Illinois Friends of the Earth which pertain to LaSalle Unit 2.

As noted above, the CANP petition was based, in part, upon information contained in the petitions of the State of Illinois and the Illinois Friends of the Earth. This portion of the CANP petition thus presents no information which has not been satisfactorily resolved by the special inspections conducted to date in response to the petitions of the State of Illinois and the Illinois Friends of the Earth.

The CANP petition also alleged deficiencies in the work of the Zack Company which performed work on the HVAC systems at the LaSalle Facility. In my letter to CANP of August 6, 1982, I declined to suspend the license of LaSalle Unit 1 as requested by CANP but recommended to the Commission that power operation of LaSalle Unit 1 be permitted subject to the following conditions:

- (1) Prior to exceeding 5% power operation, the licensee must provide formal documentation satisfactory to the staff on information regarding HVAC system design, fabrication, and installation presented in meetings with the NRC staff on August 2 and 4, 1982.
- (2) Prior to exceeding 50% power operation, the licensee shall submit the results of an independent review acceptable to the NRC staff on the HVAC system, including design changes, fabrication, and installation. The review shall encompass all safety-related HVAC systems and the effect of non-safety-related HVAC system failures on the safety systems.

These conditions were imposed and have been met. The conditions were imposed by License Conditions 2.C.(33)(a) and (b) in Amendment No. 4 to the facility license, NPF-11. The licensee provided the formal documentations called for in (1) above on August 11, 1982 and was authorized to proceed above 5 percent power on August 13, 1982. The licensee complied with condition (2) above by having an independent review performed on the LaSalle HVAC system. The NRC staff evaluated the report on this independent review, concluded that it provides reasonable assurance that the HVAC system is acceptable, and on December 3, 1982, authorized the licensee to proceed above 50 percent power at LaSalle Unit 1. Enclosure 2 is a copy of that letter of authorization and the associated NRC staff Safety Evaluation on this matter.

In addition, the Commission's Region III and IV offices and other members of the NRC staff have conducted an inquiry into the substance of the allegations related to the Zack Company. The inquiry was divided into four areas: (1) technical issues and allegations specifically related to the LaSalle Facility HVAC system, (2) allegations specifically related to Zack, (3) Zack program inspection, and (4) the investigative effort undertaken by the Commission's Office of Investigation. Enclosure 3 describes the special inspection conducted in area (1), namely, the technical issues and three allegations which apply specifically to the LaSalle Facility. The special inspection was limited to review of the Zack HVAC work at the LaSalle site. The results of inspections at other sites will be documented elsewhere. The remaining 3 areas identified above relate to matters other than the technical acceptability of the HVAC system at LaSalle and, as such, are not material to this Decision. The NRC staff review regarding the LaSalle Facility is described in Enclosure 3. Although two items of noncompliance with quality assurance requirements by Commonwealth Edison Company were identified, the NRC staff has concluded that the systems as installed at LaSalle are

acceptable from a safety standpoint. The inspection found no remaining technical issues to preclude the licensee from operating Unit 1 up to 100 percent power. Enclosure 3 further concluded that the inspection of these matters applied equally to both Units 1 and 2 and found no technical issues relating to HVAC systems to preclude licensing and subsequent operation of Unit 2.

The NRC staff has also found that both of the Morrison related allegations cited in the CANP petition had, in fact, already been investigated by Region III in March 1978. The results of that investigation are reported in Enclosure 4, Region III Inspection Report No. 50-373/78-06; 50-374/78-05, dated April 24, 1978. A more detailed description of the specific allegations and the NRC staff findings are found on pages 8 through 12 and 13 through 15 of Enclosure 4. In both instances the allegations either dealt with a nonconformance which was promptly resolved by Morrison or dealt with non-safety-related systems and, on that basis, were not further investigated. In both instances, the NRC staff, following its investigation of these two allegations, concluded that there were no items of noncompliance with NRC regulations that were observed.

In view of the above, the allegations raised by CANP regarding the Zack Company and Morrison project management adequacy provide no basis for initiating show cause proceedings or halting further licensing of the LaSalle Facility.

For the reasons set forth in this decision, my interim responses to the petitioners, and my July 19, 1982 Director's Decision, the requests of the Attorney General, Bridget Little Rorem, and Edward Gogol for initiation of show cause proceedings are hereby *denied* with respect to LaSalle County Station, Units 1 and 2. As provided in 10 CFR 2.206(c), a copy of this final decision will be filed with the Secretary for the Commission's review in accordance with 10 CFR 2.206(c).

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Dated in Bethesda, Maryland
this 9th day of February, 1983.

Enclosures:

1. IE Reports No. 50-373/82-43 (DETP); 50-374/82-11 (DETP)
2. Authorization to Proceed Above 50% Power at LaSalle Unit 1
3. IE Reports No. 50-373/82-51 (DETP); 50-374/82-18 (DETP)
4. IE Reports No. 50-373/78-06; 50-374/78-05

[The enclosures have been deleted from this publication but may be found at the NRC Public Document Room, 1717 H Street, N.W., Washington, D.C. 20555.]

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 CFR 2.206)

CINCINNATI GAS & ELECTRIC
COMPANY

(William H. Zimmer Nuclear
Power Station)

February 10, 1983

The Director of the Office of Inspection and Enforcement grants in part and denies in part a petition filed by the Miami Valley Power Project which requested suspension of construction of the Zimmer Station. The petition was granted insofar as the Commission's order suspending construction (CLI-82-33, 16 NRC 1489) imposed remedies similar to those requested by the petitioner.

DIRECTOR'S DECISION UNDER 10 CFR 2.206

By petition dated August 20, 1982, the Miami Valley Power Project (MVPP) requested that, among other things, the Commission order an immediate suspension of construction of the William H. Zimmer Nuclear Power Station. The Cincinnati Gas & Electric Company (CG&E) holds Construction Permit No. CPPR-88 which authorized construction of the Zimmer station when it was issued by the Atomic Energy Commission in 1972. The Zimmer station is located in Moscow, Ohio, and consists of a boiling water reactor and related facilities for use in the commercial generation of electric power.

After receipt of MVPP's petition, the Commission referred the petition to the NRC Staff for consideration in accordance with 10 CFR 2.206 of the Commission's regulations. MVPP submitted supplementary information in support of its petition on October 18, 1982. The petition contains numerous allegations and

supporting exhibits concerning deficiencies in construction of the Zimmer project and inadequacies in the quality assurance (QA) program for construction.

The petitioner asks the Commission to take three actions:

- “1) immediately suspend the construction permit at Zimmer;
- 2) replace the current Quality Confirmation Program with a comprehensive third-party reinspection program, with full authority to identify and impose corrective action on any nonconforming conditions; and
- 3) require an independent management audit of CG&E and KEI [Henry J. Kaiser Company] management, which would include recommendations whether to replace the permanent CG&E/KEI QA programs with independent structures administered by an outside organization.” Petition at 119.

On November 12, 1982, the Commission issued an Order to Show Cause and Order Immediately Suspending Construction to CG&E, pursuant to 10 CFR 2.202. CLI-82-33, 16 NRC 1489 (1982), *published in* 47 Fed. Reg. 51959 (Nov. 18, 1982). The 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 any future construction conforms to the Commission's requirements. The licensee has not contested the order. Because the Commission's order imposes remedies substantially similar to those requested by MVPP, its petition has been granted in part and denied in part pursuant to 10 CFR 2.206.¹

Of MVPP's three basic requests for action, the Commission's order satisfies substantially all of them. The Commission imposed an immediate suspension of

¹ Before the Commission issued the suspension order in November 1982, the staff had issued a formal Demand for Information to CG&E pursuant to section 182 of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.54(f). See Letter to E. A. Borgman, CG&E, from J. G. Keppler, Administrator, NRC Region III (Sept. 24, 1982). The Demand for Information requires CG&E to respond to the substantive allegations contained in MVPP's August 20th petition. Although today's Director's Decision is intended as final action on MVPP's petition, the staff continues to need CG&E's response to the petition's allegations because this information may be relevant to the Staff's review under the order of the adequacy of past construction, the management review, the updated plan to verify the quality of construction, and the plans to perform any future construction activities, including rework.

MVPP's October supplement to its petition, which was filed before the Commission issued the suspension order, suggested that the Staff should require a response to the petitioner's allegations before December 31, 1982, the date originally set for response in the Demand for Information. MVPP made this suggestion apparently on the assumption that the Commission might postpone any enforcement action until after receiving CG&E's response to the Demand for Information. Particularly in view of the fact that construction had already been suspended, there was no urgency in obtaining a response before December 31st. CG&E asked for an extension of time to answer the Demand for Information. An extension of time until March 1, 1983, was granted in view of the effort required to answer the Demand and because an extension will not affect the Staff's ability to ensure compliance with the Commission's November 12th order. The Demand for Information was not expanded to include the October supplement to MVPP's petition, because the Staff did not identify any new allegations in that supplement.

safety-related construction, including rework activities. The Commission has ordered that, as a prerequisite to resumption of construction, CG&E obtain "an independent review of its management of the Zimmer project, including its quality assurance program and its quality verification program, to determine measures needed to ensure that construction of the Zimmer plant can be completed in conformance with the Commission's regulations and construction permit." 16 NRC at 1497.

An independent organization is required to assess the advantages and disadvantages of at least the following alternatives to management of the Zimmer project:

1. Strengthening the present CG&E organization.
2. Creation of an organizational structure where the construction management of the project is conducted by an experienced outside organization reporting to the chief executive officer of CG&E.
3. Creation of an organizational structure where the quality assurance program is conducted by an experienced outside organization reporting to the chief executive officer of CG&E.
4. Creation of an organizational structure with both quality assurance and construction project management conducted by an experienced outside organization reporting to the chief executive officer of CG&E." 16 NRC at 1497-98.

The requirement to consider at a minimum these alternatives will assure that the independent management review under section IV.B(1) of the order addresses MVPP's concerns with respect to "the permanent CG&E/KEI QA programs."

MVPP also requested that the Commission order replacement of "the current Quality Confirmation Program with a comprehensive third-party inspection program, with full authority to identify and impose corrective actions on any nonconforming conditions." Petition at 119. In its supplement to the petition, MVPP argues that CG&E should be removed from any responsibility for reinspection of construction work. See Supplement at 23-26. The Commission's order requires submission of a comprehensive plan for verification of the quality of construction. As part of this plan, the licensee is required to examine the Quality Confirmation Program² to ensure that it is of adequate scope and depth. The Quality Confirmation Program has been successful in identifying thousands of nonconforming conditions including many significant construction deficiencies. The November 12th order also requires an audit of the quality verification program established under section IV.B(2) of the order.

The Staff sees no basis for removing the licensee from responsibility for the quality verification program. Under the Commission's regulations, the licensee is

² The Quality Confirmation Program was initiated by the CG&E after identification of significant quality assurance problems in 1981 and was submitted to the NRC on August 21, 1981.

ultimately responsible for the establishment and execution of its quality assurance program, though it may delegate to others the work of establishing and executing the program. *See* 10 CFR Part 50, Appendix B, Criterion I. Moreover, the changes in management of the Zimmer project made as a result of the recommendations under section IV.B(1) of the order will be applied to the management of the quality verification program. Implementation of the appropriate recommendations resulting from the management review will help ensure that any future construction activities and reverification activities are conducted in conformance with the Commission's requirements.

For the reasons described in this decision, MVPP's petition has been granted in part and denied in part. This decision will be filed with the Secretary of the Commission for the Commission's review in accordance with 10 CFR 2.206(c). As provided in 10 CFR 2.206(c), this decision will become the final action of the Commission 25 days after issuance unless the Commission institutes review of this decision within that time.

Richard C. DeYoung, Director
Office of Inspection and
Enforcement

Dated at Bethesda, Maryland,
this 10th day of February, 1983.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of

Docket No. 50-309
(10 CFR 2.206)

**MAINE YANKEE ATOMIC POWER
COMPANY**
(Maine Yankee Atomic Power
Station)

February 14, 1983

The Director of Nuclear Reactor Regulation denies a petition under 10 CFR 2.206 brought by Safe Power for Maine and its representatives Emil G. Garrett, John B. Green and John Jerabek, which requested issuance of an order to show cause why Maine Yankee Atomic Power Company should not be ordered to discontinue operation of its nuclear plant pending demonstration of adequate financial resources to continue operation and provide for eventual decommissioning.

**TECHNICAL ISSUES DISCUSSED: FINANCIAL
QUALIFICATIONS**

By amending its regulations to eliminate the need for a financial qualifications review for electric utilities seeking a license to construct or operate power reactors, the Commission has determined that no link has been demonstrated between finding an electric utility applicant financially qualified and that applicant's ability to construct and operate a nuclear power plant safely.

**TECHNICAL ISSUES DISCUSSED: FINANCIAL
QUALIFICATIONS**

Unless special circumstances are shown, the Commission will not engage in a financial qualifications review.

RULES OF PRACTICE: SHOW CAUSE PROCEEDINGS

The Director will not institute proceedings in response to a petition under 10 CFR 2.206 to consider an issue the Commission is treating generically through rulemaking.

DIRECTOR'S DECISION UNDER 10 CFR 2.206

On October 20, 1982, Mr. Peter L. Murray, on behalf of Safe Power for Maine and its representatives, Emil G. Garrett, John B. Green, and John Jerabek (referred to collectively herein as "the petitioners"), submitted a petition under the provisions of 10 CFR 2.206. The petition requests that the Director of the Office of Inspection and Enforcement issue an order to show cause why Maine Yankee Atomic Power Company should not be ordered to discontinue operation of its nuclear plant until it can demonstrate that it has adequate financial resources to continue operations and to provide for eventual decommissioning. The petition has been referred to the Director of the Office of Nuclear Reactor Regulation for action.

Effective March 31, 1982, the Commission's regulations were amended to eliminate the need for a financial qualifications review for electric utilities seeking a license to construct or operate power reactors. See 10 CFR 50.33(f)(1), 47 Fed. Reg. 13750 (March 31, 1982).¹ This action was taken after careful study and extensive consideration of public comments and the agency's regulatory experience. The Commission determined that no link had been demonstrated between, on the one hand, the NRC's review and finding that an electric utility applicant was financially qualified and, on the other hand, the applicant's ability to construct and operate a nuclear power plant safely. No electric utility applicant had in fact been found unqualified under the lengthy and detailed financial review procedures the Commission had been following. Thus, the Commission decided that retention of financial qualifications review for electric utility applicants was not warranted in terms of the NRC's statutory mission and resources in that the review did not significantly assist in protecting public health and safety. It was decided that, absent special circumstances that such a review is indicated (47 Fed. Reg. at 13752),² those resources would be better used if directed to the examination of those factors which affect the public health and safety more directly.

¹ This rule is currently under challenge in the United States Court of Appeals for the District of Columbia Circuit, *New England Coalition on Nuclear Power v. NRC*, Civil Docket No. 82-1581.

² As discussed in the latter portion of this decision, such special circumstances are not present here.

The Commission's March 31, 1982 rule change included elimination of the financial qualifications review of utilities at the operating license stage. This stage of the review had included a required demonstration by the utility that it possessed or had reasonable assurance of obtaining the funds to cover the estimated costs of permanently shutting down the facility and maintaining it in a safe condition (*i.e.*, decommissioning costs). Upon publication of the rule change, the Commission stated that elimination of the requirements regarding decommissioning funding was not an implication that such funding is unimportant to public health and safety:

This is not meant to discount the importance of decommissioning funding to public health and safety, but rather recognizes that any action on decommissioning is more appropriate in the context of the generic rulemaking now being conducted. Until that time, the Commission has concluded that it is premature to include any final decision on decommissioning in this final rule on financial qualifications. Because the generic decommissioning rule is scheduled to be published in 1982 and since all licensees will be required to meet any financial requirements imposed as a result of that rulemaking, there should be little practical effect in temporarily eliminating consideration of decommissioning funding from licensing activities.

47 Fed. Reg. 13751 (March 31, 1982)

The Commission has placed development of decommissioning criteria for nuclear facilities on its regulatory agenda.³ 47 Fed. Reg. 48972 (Oct. 28, 1982). At the time a Notice of Proposed Rulemaking is issued, the petitioner, along with other interested members of the public, will be given an opportunity to comment. If the Commission's generic rule on decommissioning includes a funding requirement, Maine Yankee Atomic Power Company would have to comply with such requirement in the same manner as any other power reactor licensee. As a general rule, the Director will not institute proceedings in response to a petition under 10 CFR 2.206 to consider an issue the Commission is treating generically through rulemaking. See *Petition Concerning Financial Qualifications of Nuclear Power Plant Licensees*, DD-81-23, 14 NRC 1807, 1810-11 (1981); *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), DD-80-20, 11 NRC 913, 914 (1980); *Public Service Electric and Gas Co.* (Salem Nuclear Generating Station, Units 1 and 2), DD-80-19, 11 NRC 625, 627-28 (1980).

The Commission continues to be concerned with the radiological protection of the public health and safety in all aspects of the construction and operation of nuclear power plants. In those instances where financial constraints of a utility are connected to a problem affecting safe operation or construction of a particular

³ Congress has also acted in this area. Section 302 of the Nuclear Waste Policy Act of 1982, Pub. L. No. 97-425, 96 Stat. 2201, provides for establishment of a nuclear waste fund to be used for radioactive waste disposal activities.

facility, the Commission will take the appropriate action. However, the petitioners have raised no such connection in their petition. Financial constraints, in a vacuum, are an insufficient basis for initiating show cause proceedings against a licensee.

Accordingly, the petitioners' request is hereby denied. A copy of this decision will be filed with the Secretary of the Commission for the Commission's review in accordance with 10 CFR 2.206(c). As provided in 10 CFR 2.206(c), this decision will become the final action of the Commission 25 days after issuance unless the Commission institutes review of this decision within that time.

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland,
this 14th day of February, 1983.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket No. 50-289-SP
(Restart)

METROPOLITAN EDISON COMPANY, et al.
(Three Mile Island Nuclear
Station, Unit No. 1)

March 4, 1983

The Commission denies an intervenor's motion objecting, as assertedly *ex parte* communications, to a Commission meeting concerning the seismic qualification of the TMI-1 emergency feedwater system (EFWS), on the basis that seismic qualification of the EFWS is outside the scope of this restart proceeding.

RULES OF PRACTICE: EX PARTE COMMUNICATIONS

Communications that do not involve any substantive matter at issue in a proceeding are not *ex parte*. 10 CFR 2.780(a).

ORDER

On January 7, 1983 the Union of Concerned Scientists (UCS) objected to the Commission's December 17, 1982 meeting concerning seismic qualification of the emergency feedwater system (EFWS) at the Three Mile Island, Unit 1 (TMI-1)

nuclear facility as violating the prohibition against *ex parte* communications.¹ UCS asserted that the reliability of the EFWS was a contested issue in the Restart proceeding, and that discussions regarding the seismic qualification of the EFWS were therefore *ex parte*.

The Commission is aware that some issues related to the reliability of the EFWS were raised in the Restart proceeding. It was because of this that the Commission provided the parties to the TMI-1 proceeding an opportunity to comment on the December 17 meeting. Nonetheless, the scope of the Restart proceeding did not include seismic qualification of the EFWS. See ALAB-708, 16 NRC 1770, 1773 n.5 (1982). Seismic matters are unrelated to the March, 1979 accident at Three Mile Island, Unit 2 and the concerns which led to, and were litigated in, the Restart proceeding. Accordingly, communications regarding the seismic qualification of the EFWS at TMI-1 do not involve "any substantive matter at issue in a proceeding,"¹⁰ CFR 2.780(a), and they are not *ex parte*.

The UCS motion is therefore denied.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 4th day of March, 1983.

¹ UCS also asserted that the Commission has been engaging in a pattern of *ex parte* communications, and that the Commission has never ruled on UCS' former objections. The Commission, in an unpublished order dated March 10, 1982, denied UCS' earlier motions because there have been no *ex parte* communications.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket Nos. 50-445
50-446

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

March 4, 1983

To maintain the *status quo* and to preserve its jurisdiction to consider the merits of the case, the Commission grants the NRC staff's request for a stay of the effectiveness of the Appeal Board's February 24, 1983 decision (ALAB-714, 17 NRC 86) leaving intact a Licensing Board order requiring the staff to identify certain individuals referred to in a staff investigation report introduced into evidence by the staff and to produce the signed statement of those individuals.

RULES OF PRACTICE: STAY PENDING APPEAL

If, absent a stay pending appeal, the *status quo* will be irreparably altered, grant of a stay may be justified to preserve the Commission's ability to consider, if appropriate, the merits of a case. *See Republican State Central Committee v. Ripon Society Inc.*, 409 U.S. 1222 (1972) (Rehnquist, J., in chambers); *Providence Journal v. F.B.I.*, 595 F.2d 889, 890 (1st Cir. 1979).

ORDER

On March 1, 1983, the NRC staff requested the Commission to stay the effectiveness of ALAB-714 pending further staff appeal of that decision to the Commission. See 10 CFR 2.788(a). The decision of the Appeal Board is currently subject to Commission review under 10 CFR 2.786(a). However, in its application for a stay, the staff has indicated its intent to file with the Commission a petition for review of ALAB-714 under 10 CFR 2.786(b). The staff has unsuccessfully sought a stay from the Appeal Board. ALAB-716, 17 NRC 341 (1983). In support of its application, the staff argued that the facts of this case, when considered in light of the four factors set forth in 10 CFR 2.788(e), warranted the grant of the stay.

As we read the operative order in this matter, the Appeal Board decision now before the Commission under 10 CFR 2.786(a) left intact the Licensing Board's September 30, 1982 order (LBP-82-87, 16 NRC 1195) requiring the staff to identify certain individuals and to produce the signed statements of those individuals. Yet, it is these very disclosures that are, in part, the basis for any possible review by this Commission. Thus, absent a stay pending appeal, the *status quo* will be irreparably altered: once official NRC disclosure is made it cannot be withdrawn from the public record. This being so, a stay is justified to preserve the Commission's ability to consider, if appropriate, the merits of this case. See *Republican State Central Committee v. Ripon Society Inc.*, 409 U.S. 1222 (1972) (Rehnquist, J., in chambers). The grant of a stay in these circumstances is supported by federal practice. In *Providence Journal v. F.B.I.*, 595 F.2d 889 (1st Cir. 1979), a stay of a district court order requiring the release of documents under the Freedom of Information Act, 5 U.S.C. 552, was issued for precisely this reason. As the Court observed:

Meaningful review entails having the reviewing court take a fresh look at the decision of the trial court before it becomes irrevocable. Appellants' right of appeal here will become moot unless the stay is continued pending determination of the appeals. Once the documents are surrendered pursuant to the lower court's order, confidentiality will be lost for all time. The *status quo* could never be restored. *Id.* at 890.

Although under NRC practice there is no appeal as a matter of right to the Commission, the Commission believes it should retain jurisdiction in order to have the benefit of the views of the parties before determining whether to accept review in this proceeding. Accordingly, the NRC staff application for a stay of the effectiveness of ALAB-714 pending filing and resolution of their appeal is hereby granted. By this Order the Commission does not intend to express any views on the

merits. Parties may seek reconsideration of this stay within 5 days of service of this order.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK,
Secretary of the Commission

Dated at Washington, D.C.,
this 4th day of March, 1983.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket No. 50-289-SP

METROPOLITAN EDISON COMPANY, *et al.*
(Three Mile Island Nuclear
Station, Unit 1)

March 21, 1983

The Commission decides to review two issues on emergency preparedness considered by the Appeal Board in ALAB-698, 16 NRC 1290 (1982): (1) whether the responsibility for radiological assessment and making protective action recommendations can reside in the Emergency Director in the control room during the first four hours after declaration of an emergency, and (2) the Appeal Board's ruling requiring the NRC staff prior to restart to modify and complete, in accord with certain conditions, the NRC's final emergency response plans and provide them to the licensee and Pennsylvania. The Commission requests briefs from specified parties on the first issue. With respect to the record, the Commission decides that the matters involved would be more appropriately addressed as a generic matter in the overall consideration of NRC emergency plans and vacates the ruling.

ORDER

On October 22, 1982 the Atomic Safety and Licensing Appeal Board issued ALAB-698 (16 NRC 1290), dealing with emergency preparedness at Three Mile Island, Unit 1 (TMI-1). After examining that decision and the petitions for

review,¹ the Commission has decided to review two issues in that decision.² The first issue is whether the responsibility for radiological assessment and making protective action recommendations can reside in the Emergency Director in the control room during the first four hours after declaration of an emergency. The Commission is requesting briefs from the parties on this issue. The NRC staff has thirty days from the date of this Order to provide its brief. The Commonwealth of Pennsylvania may also file a brief within this time period if it so desires. The licensee has thirty days thereafter to file a response brief, and the NRC staff and Commonwealth have fifteen days thereafter to file reply briefs. No other party participated in this issue, hence the filing of briefs will be limited to the parties listed above.

The second issue deals with the Appeal Board's action in requiring the NRC staff prior to restart to modify and complete, in accord with ALAB-698, the NRC's final emergency response plans and provide them to the licensee and Commonwealth. The NRC TMI program office and NRC Region I have now developed consistent emergency response plans and procedures, which appear to satisfy many of the Appeal Board's concerns regarding the NRC's emergency response plans. However, some of the issues regarding the NRC's emergency plans may require additional Commission action before they can be finalized. The Appeal Board raised this issue *sua sponte*; no party raised it before either the Appeal Board or the Commission. Nor was it one of the Commission's concerns in CLI-79-8, 10 NRC 141 (1979). The Commission, recognizing that this issue has been raised by the Appeal Board rather than a party and that it is an issue common to all plants, has decided that this issue would be more appropriately addressed as a generic matter in the overall consideration of NRC emergency response plans, rather than as an issue within this proceeding. The Appeal Board's condition is therefore vacated.

Commissioners Gilinsky and Asselstine dissent in part from this Order. They would not have vacated the Appeal Board's requirement that prior to restart NRC staff modify and complete the NRC's final emergency response plans and provide them to the licensee and Commonwealth. The separate views of Commissioners

¹ The NRC staff and the Commonwealth of Pennsylvania both filed petitions for review. The Commonwealth subsequently reached agreement with the Licensee and withdrew its petition.

² The Commission notes that staff is already evaluating the methodologies for predicting radiation releases, as recommended by the Appeal Board.

Gilinsky and Asselstine and the additional comments of Commissioner Ahearne are attached.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 21st day of March, 1983.

ADDITIONAL COMMENTS OF COMMISSIONER AHEARNE

Commissioners Gilinsky's and Asselstine's separate views appear to miss the mark. The Commission specifically notes that the NRC TMI program office and NRC Region I have now developed emergency response plans and procedures, which appear to satisfy many of the Appeal Board's concerns regarding the NRC's emergency response plans. The Appeal Board also raised the issue that the staff may not fully understand its role in making protective action recommendations, possibly failing to recognize licensee's primary responsibility in this area. However, the Commission recently approved a new manual chapter (Chapter 0502, "NRC Incident Response Plan") which describes the NRC's role in an emergency. This applies to TMI as well as to any plant. To the extent that additional issues remain, they are generic, *i.e.*, how does the NRC interact with any plant. There may well be no further issues remaining. But to the extent there are, the Commission itself will address them in its ongoing review of how to handle emergencies.

SEPARATE VIEWS OF COMMISSIONERS GILINSKY AND ASSELSTINE

In vacating the Appeal Board's decision that, prior to restart, the NRC staff must complete the NRC's emergency response plan for TMI-1 and provide this plan to the Commonwealth of Pennsylvania and GPU, the Commission has decided not to be as demanding of itself as of its licensees. This does not set a very good example.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gilinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket Nos. 50-445
50-446

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

March 30, 1983

To preserve its jurisdiction over the issue of disclosure of alleged informant identities in accordance with its order in CLI-83-6, 17 NRC 333 (1983), the Commission stays the effectiveness of two Licensing Board orders to the extent those orders might entail an inquiry by the board that could directly or indirectly result in identification of persons interviewed in the course of an NRC investigation.

ORDER

On March 4, 1983, the Licensing Board ordered the NRC staff to, *inter alia*, issue subpoenas to ten individuals who had been identified by a third party as allegedly providing written statements to I&E in the course of their investigation of an allegation of reprisal. Notice of Resumed Evidentiary Hearing (March 4, 1983) (unpublished). See also Memorandum and Order (Memorializing Conference Call) (March 9, 1983) (unpublished). The apparent purpose of this Licensing Board order is to permit it to conduct, by way of a direct examination of the

individuals, an independent investigation of the reprisal allegation and the resulting staff investigation. Having previously acted to preserve the Commission's jurisdiction over the issue of disclosure of alleged informant identities, CLI-83-6, 17 NRC 333 (1983) we believe it appropriate to act expeditiously to continue to preserve our jurisdiction. Accordingly, the Licensing Board's order of March 4, 1983 and its related order of March 9, 1983 are hereby stayed pending further Commission order to the extent that those orders in any way entail a Board inquiry which could, directly or indirectly, result in possible identification of persons interviewed by the NRC staff when conducting its investigation.

Parties may seek reconsideration of the stay within 5 days of receipt of this order.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 30th day of March, 1983.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

**Alan S. Rosenthal, Chairman
Dr. W. Reed Johnson
Thomas S. Moore**

In the Matter of

**Docket Nos. 50-445
50-446**

**TEXAS UTILITIES GENERATING
COMPANY, et al.**

**(Comanche Peak Steam Electric
Station, Units 1 and 2)**

March 1, 1983

The Appeal Board denies a motion by the NRC staff for a stay of the effectiveness of ALAB-714, 17 NRC 86 (1983) pending the filing and disposition of a petition for Commission review of that decision.

RULES OF PRACTICE: STAY PENDING APPEAL

The most crucial factor to be considered in passing upon a stay application pursuant to 10 CFR §2.788(e) is whether the movant will be irreparably injured unless a stay is granted. See, e.g., *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-77-27, 6 NRC 715, 716 (1977); *Rochester Gas and Electric Corp.* (Sterling Power Project, Nuclear Unit No. 1), ALAB-507, 8 NRC 551, 556 (1978); *Long Island Lighting Co.* (Jamesport Nuclear Power Station, Units 1 and 2), ALAB-481, 7 NRC 807, 808 (1978).

APPEARANCES

Guy H. Cunningham, III, and Sherwin E. Turk for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

On February 25, 1983, the NRC staff filed a motion for a stay of the effectiveness of ALAB-714, 17 NRC 86 (1983), pending the filing and disposition of a petition for Commission review of that decision. See 10 CFR 2.788. For the following reasons, the motion is summarily denied.

1. In ALAB-714, a majority of this Board concluded that there was no occasion to decide whether the Licensing Board had erroneously directed the staff to disclose the names of eight of the ten interviewees identified only by letters and job titles in its investigative report No. 82-10/82-05 (Staff Exhibit 199). The basis for this conclusion was that the identity of *all ten* of the interviewees already "had become public knowledge through the unequivocal testimony of a highly reliable applicants' witness [Ronald G. Tolson]." 17 NRC at 94. In this connection, we noted that the Tolson identifications had been corroborated through one or another of several independent sources, which included not only the original informant [Charles A. Atchison] but also staff witnesses Robert G. Taylor and Donald D. Driskill. *Ibid.*

Although disagreeing with the determination to refrain from addressing the merits of the issues presented by the staff's appeal, the dissenting opinion that accompanied ALAB-714 did not challenge this analysis of the evidentiary record before us. Similarly, the stay motion does not endeavor to demonstrate the analysis was erroneous. To the contrary, the staff refers to "the Appeal Board's own determination that the names [of the interviewees] are known" in support of its insistence that "no harm can result at this time" from a grant of the sought stay. Motion for Stay at 8.

In these circumstances, we are at a loss to understand how the staff can assert that it would be irreparably injured if ALAB-714 were allowed to go into effect.¹ On that score, the staff's principal claim is that, if it is now required to divulge "the identities of the eight individuals who do not object to their names being disclosed,

¹ It is long settled that, of the four factors to be considered in passing upon a stay application (see 10 CFR 2.788(e)), the most crucial is whether the movant will be irreparably injured unless a stay is granted. See, e.g., *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLF-77-27, 6 NRC 715, 716 (1977); *Rochester Gas and Electric Corp.* (Sterling Power Project, Nuclear Unit No. 1), ALAB-507, 8 NRC 551, 556 (1978); *Long Island Lighting Co.* (Jamesport Nuclear Power Station, Units 1 and 2), ALAB-481, 7 NRC 807, 808 (1978). Accordingly, we have looked first to the showing attempted by the staff on that factor. It should be noted, however, that we also have examined the staff's claims on the other factors and found that they likewise are unpersuasive.

there is a great risk that the names of the two individuals who seek to remain confidential will be readily ascertainable." *Id.* at 5. This, we are told, "could seriously jeopardize the Commission's ability to gather information from confidential sources in future investigations of applicant and licensee misconduct." *Ibid.* That line of argument — earlier pressed upon us on the appeal itself — might have been worthy of our consideration had Mr. Tolson's identification (and the confirmation obtained from other sources) involved only the eight interviewees covered by the Licensing Board's September 30, 1982 order (LBP-82-87, 16 NRC 1195). Given, however, the fact that the identities of the other two interviewees equally were revealed by Mr. Tolson (and confirmed by at least Mr. Atchison), the thesis is frivolous.

No more substantial is the staff's further insistence that compliance with the Licensing Board's disclosure order will leave the public with the clear, even if erroneous, impression that individuals "who provide information to Commission investigators cannot rely on this agency to protect their confidentiality." *Id.* at 6-7. In this regard, the staff appended to its stay motion a news article on ALAB-714 that appeared in the February 25, 1983 edition of the *Fort Worth (Texas) Star-Telegram*. That article correctly indicates, however, that (1) staff disclosure is being required only of the identities of those interviewees who did not object to such disclosure; and (2) the names of the interviewees had already been publicly disclosed by the applicant — the very basis of our action in ALAB-714. If, notwithstanding the accuracy of the newspaper account, the staff perceives a remaining danger that the roots of its compliance with the disclosure order would be misapprehended in some quarters, the staff need look only to itself in search of the cause. Once the controversy over the application of the informer's privilege here became academic last July, the staff could have complied with the Licensing Board's disclosure order without jeopardizing its legitimate interest in avoiding harm to its investigative ability. By choosing instead to pursue the controversy as a matter of abstract principle, the staff invited the kind of publicity it now decries.

2. The stay motion also alludes to the recent creation of an Advisory Committee for Review of Office of Investigation Policy on Rights of Licensee Employees under Investigation. The staff reports that it has been informed by the NRC Office of the General Counsel that the committee will be asked "to address, *inter alia*, the issue of confidentiality for persons interviewed in the course of an investigation." Motion for Stay at 4 fn. 8.

As we see it, this development has no relevance here. Obviously, the staff's compliance with the Licensing Board's disclosure order will not interfere to any extent with the advisory committee's deliberations or the implementation of any recommendations that it might make with regard to the procedures to be followed by the Office of Investigations in conducting future investigations. Further, the staff has overlooked that, no matter what procedures the Commission might choose to decree for future investigations, it has asserted an evidentiary privilege in this proceeding. If the issue of preserving confidentiality on the strength of the

privilege had not vanished by virtue of intervening events, it would have had to be resolved in the context of those procedures actually employed in this investigation — rather than another set of procedures which, when utilized, might bring about a different result on the applicability of the privilege.² In sum, the generic study upon which the stay motion relies simply could not affect the outcome of this dispute, even were it a live one.

3. Finally, the staff's motion does not come to grips with the fact that, if a stay were granted, the progress of this operating license proceeding might well be impeded. There is, however, a manifest need to avoid unnecessary delay in the completion of the proceeding. See the February 4, 1983 memorandum from the Director of the Office of Nuclear Reactor Regulation to the Executive Director for Operations, entitled "NRR Monthly Report," at 1-2.³ By any definition of "unnecessary," delay grounded in a staff desire to perpetuate a now academic disagreement with the Licensing Board would come within it.

The staff's motion for a stay of the effectiveness of ALAB-714 is *denied*.
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

Dr. Johnson, dissenting:

I would grant the stay for which the staff applies. As I see it, requiring the staff to comply with the Licensing Board's disclosure order will indeed send forth the message to potential informants that the NRC cannot be relied upon to protect their confidentiality (p. 343, *supra*). The particular circumstances of our cases most

² For example, what the new procedures called for in terms of promises of confidentiality to interviewees might be highly relevant. See ALAB-714, 17 NRC at 92. In this instance, the staff investigator was unable to recall whether, at the time of the interviews, there was even a request for confidentiality on the part of any of the individuals. *Id.* at fn. 13.

³ It appears from that memorandum that the Comanche Peak facility may be completed as early as September 1, 1983. And there is at least the possibility that, so long as the staff successfully persists in its endeavor to defer compliance with the Licensing Board's disclosure order, for its part that Board will hold open the quality control issues remaining before it pending the eventual outcome of that endeavor.

likely will not accompany this message nor will it matter who is to blame for the disclosure here (pp. 343-44, *supra*). Harm will be done, however, to the agency's ability to conduct investigations. In these circumstances I believe it would be best for us to grant a stay and thus give the staff an opportunity to seek Commission review of a matter that may have a serious and lasting influence on the agency's effectiveness.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Stephen F. Ellperin, Chairman
Dr. W. Reed Johnson
Dr. Reginald L. Gotchy

In the Matter of

Docket Nos. 50-361-OL
50-362-OL

SOUTHERN CALIFORNIA EDISON
COMPANY, *et al.*
(San Onofre Nuclear Generating
Station, Units 2 and 3)

March 4, 1983

The Appeal Board affirms the Licensing Board's decisions authorizing the issuance of full power operating licenses for Units 2 and 3 of the San Onofre facility (LBP-82-3, 15 NRC 61; LBP-82-39, 15 NRC 1163 (1982)), subject to certain license conditions that are designed to buttress the facility's emergency preparedness.

**OPERATING LICENSE HEARINGS: ISSUES FOR
CONSIDERATION**

The Commission may entirely eliminate certain issues from operating license consideration on the ground that they are suited for examination only at the earlier construction permit stage. Short of that, the Commission has considerable discretion to provide by rule that only issues that were or could have been raised by a party to the construction permit proceeding will not be entertained at the operating license stage except upon such a showing as "changed circumstances" or "newly discovered evidence." *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-673, 15 NRC 688, 696 (1982).

Commission practice, however, has been to determine the litigability of issues at the operating license stage with reference to conventional res judicata and collateral estoppel principles. *Id.* at 696-97.

RULES OF PRACTICE: ADMISSIBILITY OF EVIDENCE (AUTHENTICATION REQUIREMENT)

The requirement of authentication or identification as a condition precedent to the admissibility of evidence in NRC licensing proceedings is satisfied by evidence sufficient to support a finding that the matter in question is what its proponent claims. Fed. R. Evid. 901(a).

RULES OF PRACTICE: EVIDENCE (FEDERAL RULES)

While the Federal Rules of Evidence are not directly applicable to NRC proceedings, NRC adjudicatory boards often look to those rules for guidance. See generally *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 475 (1982)

EVIDENCE: HEARSAY (STANDARD FOR ADMISSIBILITY)

Hearsay evidence is generally admissible in NRC proceedings. Whether evidence is or is not hearsay is significant only insofar as it bears on the question of its reliability. 10 CFR §2.743(c); *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 411-12 (1976).

RULES OF PRACTICE: EVIDENCE (ADMISSIBILITY OF FSAR)

The final safety analysis report (FSAR) is conditionally admissible as substantive evidence, but once portions of the FSAR are put into controversy, applicants must present one or more competent witnesses to defend them.

EVIDENCE: SPONSORSHIP BY EXPERT

Technical analyses offered in evidence must be sponsored by an expert who can be examined on the reliability of the factual assertions and soundness of the scientific opinions found in the documents. *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669 15 NRC 453, 477 (1982). See also *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 754-56 (1977).

RULES OF PRACTICE: EVIDENCE (ADMISSIBILITY OF ACRS REPORT)

The contents of an ACRS report are not admissible in evidence for the truth of any matter stated therein as to controverted issues, but only for the limited purpose of establishing compliance with statutory requirements. *Arkansas Power and Light Co.* (Arkansas Nuclear One Unit 2), ALAB-94, 6 AEC 25, 32 (1973). See also *Consumer Power Co.* (Midland Plant, Units 1 and 2), ALAB-123, 6 AEC 331, 340 (1973). A licensing board may rely upon the conclusions of the ACRS on issues that are *not* controverted by any party. 10 CFR Part 2, Appendix A, §V(f)(1), (2).

RULES OF PRACTICE: FINDINGS OF FACT (EFFECT OF FAILURE TO FILE)

Absent a board order requiring the submission of proposed findings, an intervenor that does not make such a filing is free to pursue on appeal all issues it litigated below. The setting of a schedule for filing proposed findings falls short of an explicit direction and thus does not form the basis for finding a party in default. 10 CFR §2.754; *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-709, 17 NRC 17 (1983).

RULES OF PRACTICE: FINDINGS OF FACT (EFFECT OF FILING)

Where an intervenor chooses to file proposed findings, the board is entitled to take that filing as setting forth all of the issues that were contested.

EMERGENCY PLANS: CONTENT (SPECIAL POPULATIONS)

10 CFR §50.47 (b)(10) requires the development of a range of protective actions to protect the public in the plume exposure pathway emergency planning zone. This should include means for protecting persons whose mobility may be impaired, *e.g.*, the elderly, the handicapped, and school children.

EMERGENCY PLANS: CONTENT (PUBLIC INFORMATION)

Licensees, States, and local jurisdictions should disseminate, at least annually, information regarding how the public will be notified and what its actions should be in the event of an emergency. The information is to address, among other

things, the special needs of the handicapped and is to indicate how to effect protective measures, *e.g.*, evacuation routes, relocation centers and sheltering.

EMERGENCY PLANNING: EMERGENCY PLANNING ZONE (INGESTION PLANNING ZONE)

Unlike the much smaller plume EPZ where evacuation or sheltering from the plume may be a matter of immediacy, protective action in the 50-mile radius ingestion EPZ need not be as immediate. Moreover, the kinds of ingestion EPZ protective action that would be suggested — such as quarantining or disposing of certain foodstuffs in designated areas — are highly site and accident specific: hence, they are less amenable to planning in advance of an accident than the comparable responses of sheltering or evacuation that are appropriate for the plume EPZ.

EMERGENCY PLANNING: TRAINING

It is axiomatic that specific training should be required for persons expected to assist in a radiological emergency; that it should be tailored to the level of expertise expected in each area of responsibility; and that it should be effective. Consequently a training program should be formulated and instituted for them.

EMERGENCY PLANNING: FEMA FINDING (REBUTTABLE PRESUMPTION)

The finding of the Federal Emergency Management Agency (FEMA) in regard to whether State and local emergency plans are adequate and capable of being implemented is entitled to a rebuttable presumption in NRC licensing proceedings. 10 CFR §50.47(a)(2). See generally FEMA/NRC Memorandum of Understanding, 45 Fed. Reg. 82713 (Dec. 16, 1980)

RULES OF PRACTICE: EX PARTE COMMUNICATIONS

Conversations among parties, none of whom is a decisionmaker in the licensing proceeding, are not precluded by the Commission's *ex parte* rule (10 CFR 2.780). *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-680, 16 NRC at 144.

EMERGENCY PLANNING: FEMA FINDING (EFFECT ON LICENSING DECISION)

Subject to certain substantive and procedural limitations, licensing decisions on emergency planning issues need not await the rendition of a final FEMA finding.

TECHNICAL ISSUES DISCUSSED:

Seismic design criteria;
Safe shutdown earthquake;
Christianitos fault;
Maximum magnitude earthquake;
Peak ground acceleration;
Focal mechanisms;
Earthquake motions;
Connection between Christianitos Zone of Deformation (CZD) and Offshore Zone of Deformation (OZD);
Connection between CZD and onshore geologic features;
Surface wave magnitude;
Slip rate/magnitude analysis.

APPEARANCES

Richard J. Wharton, San Diego, California, for the intervenors, **A. S. Carstens**, *et al.*, on seismology issues.

Charles E. McClung, Jr., Laguna Hills, California, for the intervenors, **GUARD** and **A. S. Carstens**, *et al.*, on emergency planning issues.

David R. Pigott, **Edward B. Rogin**, **Samuel B. Casey** and **John A. Mendez**, San Francisco, California, and **Charles R. Kocher** and **James A. Beoletto**, Rosemead, California, for the applicants, Southern California Edison Company, *et al.*

Lawrence J. Chandler for the Nuclear Regulatory Commission staff.

DECISION

We have before us consolidated appeals from the Licensing Board's January 11 and May 14, 1982 decisions, which together authorized the issuance of full power operating licenses for the San Onofre Nuclear Generating Station, Units 2 and 3. LBP-82-3, 15 NRC 61; LBP-82-39, 15 NRC 1163 (1982). Those decisions, respectively, dealt with matters related to the seismic design of the plants and their emergency plan. In denying stay requests sought as to each, we canvassed many of the issues that are again pressed before us on the merits of the appeals.¹ Because of that overlap and our reliance in this opinion on the stay decisions to dispose of many of the issues on appeal, we briefly recount those earlier decisions. Our opinion deals with the seismic issues first, then those on emergency planning. We conclude by affirming the Licensing Board's decisions, subject to certain license conditions that are designed to buttress San Onofre's emergency preparedness.

I

Our stay decision on seismic issues focused on the ability of crucial power plant safety systems to withstand the most severe earthquake that might affect San Onofre during its operating lifetime — what NRC regulations term the "safe shutdown earthquake." 10 CFR Part 100, Appendix A, §III(c). This, in turn, involved two broad questions — (1) whether the Cristianitos fault, about one-half mile from the plant, was capable of generating earthquake activity, and if not (2) whether the Offshore Zone of Deformation (OZD), the geologic feature that otherwise controlled San Onofre's seismic design, could generate stronger ground motion than San Onofre was designed to accommodate. We concluded that although the Licensing Board erroneously foreclosed intervenors from fully litigating the capability of the Cristianitos fault, that ruling did not prejudice intervenors. From our review of the record to that point, we found that the great weight of the evidence supported the view that the Cristianitos fault was not active; moreover, intervenors had neither presented, nor offered to present, contrary evidence of any moment. ALAB-673, *supra*, 15 NRC at 694-702.²

¹ *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-673, 15 NRC 688 (1982), and ALAB-680, 16 NRC 127 (1982) (stay decisions).

² While our decision on seismic issues was in the context of ruling on a stay motion, it nevertheless contained a detailed analysis of the merits of intervenors' claims. Thus, we remarked (ALAB-673, *supra*, 15 NRC at 714):

In view of the extended length of time it takes for a nuclear power plant to proceed from fuel loading and testing to achievement of criticality — some three to four months — we have been able to gain a greater familiarity with the record and the issues than is normally the case when ruling upon a stay motion.

We next considered the second issue — whether an earthquake occurring on the OZD could be expected to shake the plant site with ground accelerations greater than two-thirds of gravity, the acceleration that characterizes the earthquake the plant was designed to withstand. The Licensing Board examined and approved the propriety of that design basis earthquake based upon the characteristics of the OZD, the historic record, and the various earthquake methodologies that had been developed separately by the applicants and the NRC staff. LBP-82-3, *supra*, 15 NRC at 99-150. We too concluded, preliminarily, that the design was properly conservative.

In particular, we reached the following tentative determinations. We rejected intervenors' argument that the Licensing Board underestimated the design basis earthquake by treating the OZD as segmented, contrary to an agreement among the parties. Instead, we found nothing in the Board's decision to contravene the parties' agreement that, for purposes of conservative nuclear design, the three segments of the OZD should be considered related *in some fashion* and capable of an earthquake the magnitude of which could be commensurate with the length of the zone. ALAB-673, *supra*, 15 NRC at 702-06. We also rejected intervenors' argument that the Board underestimated the maximum magnitude earthquake that might be expected on the OZD by accepting the testimony of the principal staff witness, Dr. David B. Slemmons, who intervenors claimed had calculated the "mean" earthquake rather than a more conservative event. We explained how intervenors had misapprehended Dr. Slemmons' methodology, set out the many conservatisms in his testimony, and concluded that it would not have been correct or reasonable to add an additional standard deviation to the earthquake magnitude he had estimated. *Id.* at 707-09.³

The determination of the maximum magnitude earthquake that might affect San Onofre is only one step toward the most critical portion of the seismic design: establishing the ground motion properties of the site. This latter determination is meant to express the *impact* at the plant site of the maximum earthquake should it occur on the controlling fault at the point nearest the site. Ground motion properties are usually summarized through the choice of a peak ground acceleration (PGA), or "g" value, expressed as a percentage of the acceleration produced by gravity. Our stay decision discussed, and found unwarranted, four separate objections that intervenors had raised to the Licensing

³ Dr. Slemmons' methodology, we said, "(1) chose the mean of the maximum magnitude earthquakes that had occurred on similar faults, (2) assumed the OZD to be a throughgoing fault, (3) added a standard deviation to the calculated earthquake rupture length, and (4) included in his data longer length faults that had the effect of overstating magnitude." *Id.* at 709.

Board's choice of a peak ground acceleration of two-thirds the force of gravity (0.67g). *Id.* at 709-14.⁴

On appeal, intervenors again press these claims and raise new ones as well. Their principal contention, however, and the one to which intervenors' oral argument was almost wholly devoted, is the claim that they were wrongly and prejudicially foreclosed from litigating the capability of the Cristianitos fault. Because of the prominence intervenors give to this argument, some additional discussion by us is warranted.

A. The Cristianitos Fault

1. Foreclosure

At the outset, we adhere to the view expressed in our stay decision that the Licensing Board erred in foreclosing intervenors from fully litigating the capability of the Cristianitos fault (*id.* at 694):

The crux of the Board's ruling was its belief that where an issue, such as the capability of the Cristianitos fault, was known at the construction permit stage and underwent intensive staff scrutiny *anyone* who could have litigated the issue (even if as here, no one had) was foreclosed at the operating license stage absent newly discovered evidence [emphasis in original].

That ruling, we said, was "at odds with generally recognized judicial principles and is premised upon the belief that organizations or persons who share a general point of view adequately represent one another in Commission licensing proceedings." *Id.* at 695. We explained that, even in its broadest readings, the judicial "standard for determining whether persons or organizations are so closely related

⁴ From our review of the record to that point, we found that the Licensing Board had fairly evaluated the testimony of United States Geological Survey (USGS) scientist Dr. David M. Boore and of Board witness Dr. Enrique Luco. In discounting the reliability of Dr. Boore's higher estimate of peak ground acceleration we noted, among other things, that Dr. Boore himself stated that his "prediction equations are not constrained by data, and the results should be treated with caution." *Id.* at 711. Dr. Luco's views on peak ground acceleration were offered without elaboration, and he declined to recommend any particular value for San Onofre's design. *Id.* at 712-13.

We also concluded that high peak vertical accelerations were not significant for the structural safety of San Onofre. This was for three reasons. First, the vertical peaks that had been observed elsewhere were of very high frequency and had little structural damage associated with them. Second, the design of San Onofre assumes that the significant ground motion from all components occurs simultaneously, while in fact the recorded high vertical peaks, such as that from the Imperial Valley earthquake of 1979, occurred early on, before the maximum horizontal motions. Third, the design spectra for San Onofre, horizontal and vertical, lie above that associated with the Imperial Valley earthquake of 1979 at all frequencies for relevant distances. *Id.* at 712.

Finally, we found that the possible "focusing" of seismic waves with attendant increased earthquake ground motion would not be a problem for San Onofre because the power plants stand off to the side of the OZD (the controlling geologic feature that might generate earthquake activity) and thus are not positioned to experience the effects of focusing. *Id.* at 713-14.

in interest as adequately to represent one another — and thus to foreclose further litigation — . . . has not encompassed the situation of a generally shared viewpoint.” *Id.* at 695-96 (footnote omitted). Rather, it requires virtual representation of one group by another.

The Licensing Board, together with the staff and the applicants, are of the view that Commission licensing proceedings warrant a more relaxed standard than would be applied in a court case. This is so, it is argued, because our proceedings are meant to adjudicate matters of public interest rather than private rights. The staff and Advisory Committee on Reactor Safeguards review at the construction permit stage of significant safety matters, we are told, is sufficient to discharge that public interest function. See LBP-82-3, *supra*, 15 NRC at 80-82. We do not agree.

While it is certainly true that nuclear licensing proceedings entail matters of generalized public interest, Congress recognized that construction or operation of a nuclear power plant can affect individuals and their private interests as well. Section 189(a) of the Atomic Energy Act, as amended, 42 U.S.C. §2239(a), accords any such person a right to be heard on the question whether a license to construct or operate a nuclear power plant should be granted. To be sure, that right to be heard is subject to the imposition of reasonable procedural requirements, *BPI v. AEC*, 502 F.2d 424, 428 (D.C. Cir. 1974), and the judicial doctrines of res judicata and collateral estoppel would be amenable to such administrative modification. Thus, our stay decision suggested that the Commission may entirely eliminate certain issues from operating license consideration on the ground that they are suited for examination only at the earlier construction permit stage. Short of that, the Commission has considerable discretion to provide by rule that any issues which were or could have been raised by a party to the construction permit proceeding will not be entertained at the operating license stage except upon such a showing as “changed circumstances” or “newly discovered evidence.” ALAB-673, *supra*, 15 NRC at 696. But our point, then as now, is that, insofar as safety issues are concerned, the Commission has not chosen to pursue either course. And Commission practice has been to determine the litigability of issues at the operating license stage with reference to conventional res judicata and collateral estoppel principles. *Id.* at 696-97. Given that practice, the Commission’s undoubted power to change it (at least prospectively), and the statutory right of interested persons to be heard in Commission licensing proceedings, we are unwilling to adopt the foreclosure principle advanced by the Licensing Board.⁵

⁵ We need not decide here whether an intervenor is obliged to plead the basis for a contention with a greater degree of specificity than is typically required where its subject matter (here the capability of the Cristianitos fault) has previously been investigated at an earlier licensing stage. That was not the ground of the Licensing Board’s foreclosure ruling and the occurrence of the two earthquakes in 1975 near San Juan Capistrano could have provided the factual predicate for meeting such a higher threshold requirement. See p. 355, *infra*.

Had it been necessary for them to reach the question of a more stringent threshold, Dr. Johnson and Dr. Gotchy would have held that such a requirement does exist and, further, that the proposed testimony of Mr. Richard S. Simons, taken as the sole basis for a contention that the Cristianitos fault was active, would not have been sufficient to meet it. See ALAB-673, *supra*, 15 NRC at 700-01.

2. Lack of Prejudice

We also adhere to our view that the Board's erroneous foreclosure ruling had little, if any, impact on the proceeding and did not prejudice intervenors. Our stay decision explained that intervenors' affirmative case on the capability of the Cristianitos fault was fully set out in the record, and that they had had a satisfactory opportunity to cross-examine Dr. Shawn Biehler, the applicants' consultant whose testimony covered the Cristianitos fault in its full historical range. The only evidentiary gap concerned pre-1973 information bearing on the fault's capability which might have been elicited from the NRC staff witnesses on cross-examination. *Id.* at 697. As to that, intervenors have never offered to show what, if anything, they might have proven. If it had been anything of substance, we expect that they would have alluded to it in their brief or at oral argument.

3. Non-Capable Fault

Indeed, intervenors' case on the claimed capability of the Cristianitos fault centered on *post-1973* events — more particularly, on two small earthquakes of magnitude 3.3 and 3.8 which occurred on January 3, 1975 near San Juan Capistrano. It was intervenors' position that, given the uncertain location of the Cristianitos fault at depth, those events could have occurred on it.⁶ As we explained in our stay decision (*id.* at 699):

The earthquakes were of concern to the staff: had the Cristianitos fault generated them it would constitute significant evidence that at least a portion of the fault was capable. The applicant's investigations included a geomorphic study, an evaluation of microseismic events, a study of focal mechanisms, the construction of a subsurface contour map, an updating of historic seismicity, and geophysical surveys.

The most telling of these investigations was the focal mechanism study performed by Dr. Biehler. A focal mechanism study describes the manner in which the ground moves during an earthquake and is based on the sense (compression or extension) of the first earthquake motions received at those seismographic stations that record the event. If the recording stations are sufficient in number and well

⁶ Applicants' witnesses described the Cristianitos fault as a "westward-facing listric normal fault." Testimony of Dr. Perry L. Ehlig, on Contention 4 at 13. See Tr. 1090-91. According to Dr. Ehlig, faults of this type would tend to flatten (*i.e.*, the plane of the fault becomes parallel to the earth's surface). On cross-examination the witness pointed out that while an oil well drilling gave at least one constraint on the possible depth of the flattened fault, there was really no data that could be used to fix its actual depth. Tr. 1091, 1096, 1099. See Testimony of Dr. Ehlig on Contention 4, Figure PLE-M. He did agree, however, that under the concept of a flattening of the fault plane extending to the west, the proposed location of the hypocenters of the 1975 earthquakes could be fairly close to the fault plane. Tr. 1099. Dr. Biehler also discussed this possibility in his direct testimony and upon cross-examination by intervenors' counsel. Tr. 3656-57, 3933-36.

located, a focal mechanism plot can be developed to determine the possible orientation of the fault on which the motion took place, and the type of motion (e.g., strike-slip, normal, thrust). See generally Tr. 3652-56.

In the case of the 1975 events, there were first motion data from thirty surrounding stations sufficient to develop focal mechanism plots for each. Testimony of Dr. Biehler on Contention 1 at 7; Tr. 3656.⁷ Ordinarily such plots can only establish the orientation of two possible fault planes for the motion. Here, because there were two events closely related in time and space, having virtually identical focal mechanism solutions, a firmer determination is possible. Both of the possible fault plane orientations developed for the two events were oblique to the direction of the Cristianitos fault which trends approximately north-south. One direction, however, was consistent with locating both events on the same, northeast-trending feature aligned with the Trabuco Canyon. Tr. 3657-60.

Moreover, the type of earthquake motion determined for both events was "strike-slip with a significant thrust component." Testimony of Dr. Biehler on Contention 1 at 7. The Cristianitos fault is normal, or listric normal, and hence the type of motion that might take place there is unlike the motion observed from the focal solutions. See *id.* at 8; Tr. 3661-62. See also note 6, *supra*.

Thus, in two crucial aspects — fault orientation and type of fault motion — the focal mechanism solutions of the 1975 events demonstrate that the Cristianitos fault was not the source of motion. In addition, as staff witness Dr. Leon Reiter pointed out, if the Cristianitos fault were flattened enough to bring it close to the projected location of the 1975 earthquakes (see note 6, *supra*), it would have to be nearly in a horizontal plane. The focal mechanism solutions, however, indicate motion on a steeply vertical fault. Tr. 5745-46. Dr. Reiter concluded that "one would have to be arbitrary with the location of the fault and disregard the focal mechanisms to find association of these particular earthquakes consistent with the fault plane, however one would project it." Tr. 5746.⁸

⁷ Intervenors' witness Mark R. Legg apparently did a focal mechanism study too, but it was not offered into evidence. Mr. Legg indicated that his focal mechanisms were consistent with those of Dr. Biehler. Tr. 5235-36.

⁸ As noted in our stay decision, intervenors' witness, Mark R. Legg, claimed that the change in the regional stress field since the formation of the Cristianitos fault could lead the fault to exhibit a different motion now. ALAB-673, *supra*, 15 NRC at 701-02. However, Mr. Legg conceded on cross-examination that he had no historical evidence that a listric normal fault (such as the Cristianitos is thought to be) had later undergone left lateral oblique thrust, the type of movement his view posited. Tr. 5246-47. In essence, the direction of fault motion would have to be reversed to support Mr. Legg's hypothesis. See Tr. 5246.

Mr. Legg's hypothesis was not supported by other witnesses. Dr. Ehlig described the Cristianitos fault in its present posture as being "buttressed and [unable to] move." Testimony of Dr. Ehlig on Contention 4 at 29. See also Tr. 1102-03. This assessment is also reflected in the testimony of applicants' witness Jay L. Smith, who stated that renewed movement on the Cristianitos is precluded due to stress changes since its formation. Testimony of Mr. Smith, fol. Tr. 887, at 38. Dr. Biehler, when similarly questioned, responded that the Cristianitos was not aligned to slip under the current stress regime. Tr. 3989.

(Continued)

B. Other Possible Controlling Faults

Intervenors also claim that the applicants failed to investigate adequately the possibility that other geologic features closer to San Onofre than the OZD (which is eight kilometers distant) could control the plants' seismic design. Specifically, intervenors contend that the applicants' investigations do not rule out the possibility that (1) the Cristianitos Zone of Deformation (CZD)⁹ is a branch of the OZD capable of generating earthquake activity, and (2) the CZD runs under San Onofre or connects with onshore features near San Onofre that are capable of causing the ground to rupture. Carstens, *et al.* Brief in Support of Exceptions (Feb. 25, 1982) at 50-57 (Intervenors' Brief on Seismic Issues). In essence, intervenors claim that movement on the OZD might initiate movement on the CZD, causing movement ultimately on the Cristianitos fault or other features onshore, and hence at the San Onofre site.¹⁰

To establish a possible connection between the OZD and the CZD, intervenors principally rely upon a review performed at the staff's request by Drs. H. G. Greene and M. P. Kennedy of the USGS and the California Division of Mines and Geology, respectively. Tr. 6450-51. The results of that review, and of a subsequent update using additional high resolution data specifically aimed at exploring the relationship of the OZD and CZD, are set out as Appendices F and G to the NRC staff's Safety Evaluation Report [SER], note 10, *supra*.

The applicants' rebuttal witness, Dr. David M. Hadley, also addressed Mr. Legg's testimony on the movement of the Cristianitos under the new stress regime. Dr. Hadley pointed out that Mr. Legg considered only one of the three relevant stress dimensions. He thus found Mr. Legg's theory to be "quite incomplete." Tr. 6392-93. Dr. Hadley was of the view that when the relevant stress orientations were considered, the Cristianitos fault, itself oriented north-south, is not favorably oriented for movement under a north-south compressive stress regime. Tr. 6392-94. Dr. Hadley was not cross-examined, nor was his testimony otherwise challenged.

Thus, our further examination of Mr. Legg's testimony confirms the tentative conclusion we reached in our stay decision that the Cristianitos fault is not an active fault.

⁹ The Cristianitos Zone of Deformation is not synonymous with the Cristianitos fault and its name is not intended to imply a structural relationship with the Cristianitos fault. The name was coined by two geologists, Drs. H. G. Greene and M. P. Kennedy, simply because the Cristianitos fault is nearby the CZD. Tr. 2139-40. The CZD refers to "an area of the sea floor lying to the south of the San Onofre site and between the site and the OZD." LBP-82-3, *supra*, 15 NRC at 90-91.

¹⁰ 10 CFR Part 100, Appendix A, §III(g) defines "capable fault," in pertinent part, as a fault that has exhibited one or more of the following characteristics:

- (1) Movement at or near the ground surface at least once within the past 35,000 years or movement of a recurring nature within the past 500,000 years.
- (2) Macro-seismicity instrumentally determined with records of sufficient precision to demonstrate a direct relationship with the fault.
- (3) A structural relationship to a capable fault according to characteristics (1) or (2) of this paragraph such that movement on one could be reasonably expected to be accompanied by movement on the other.

All parties are in agreement that the OZD contains at least one capable fault (*i.e.*, it shows evidence of recent movement). See Staff Ex. 1, "Safety Evaluation Report," NUREG-0712 (February 1981), at 2-34, 2-50 through 2-51 [SER]. The questions at issue here are whether the investigations have been sufficient to determine whether the OZD is structurally related to the CZD, and whether movement on the OZD could be reasonably expected to lead to movement on the CZD.

Drs. Greene and Kennedy concluded that “[t]he seismic reflection data . . . show that a fairly continuous fault zone extends south to southeastward offshore from [San Onofre] to within 1 km of the ‘OZD,’ where a projected connection is possible.” SER, Appendix F at F-8.¹¹ While the applicants thought that no connection existed,¹² in actuality their position was not much at odds from that of Drs. Greene and Kennedy. No witness’ confidence level was high because of the difficulty of interpreting the data. See Tr. 2962, 2975-76.¹³

This lack of certainty does not mean, as intervenors contend, that the applicants’ investigation of a possible CZD/OZD relationship was inadequate. To the contrary, the Licensing Board accurately described the applicants’ effort to explore this issue as “massive.” LBP-82-3, *supra*, 15 NRC at 91. More than 1,000 kilometers of seismic profile transects of the San Onofre shelf region were taken with an average line spacing of about 400 meters. Testimony of Dr. Moore on Contention 2 at 7, 9, 49. Indeed, Dr. Greene testified that the seismic profiling in the San Onofre area provided the “greatest density of track lines that I’ve ever dealt with as far as an area of this size. I’ve not had the fortune to have this much data available to me.” Tr. 2282. Dr. Kennedy was also of the view that the data were extensive. Tr. 2282-83. The inability to arrive at a more definitive assessment was attributable not to a faulty investigation, but to the nature of the area being investigated. See note 13, *supra*. See also Tr. 2282-86.

While the possibility of a CZD/OZD interconnection cannot totally be discounted, it is nonetheless not of critical safety significance. At the asserted point of merger the CZD is overlaid by unfaulted strata of the late Miocene age. Testimony of Dr. Moore on Contention 2 at 47-49. This means that any active faulting in the area ceased several million years ago. On that basis, the CZD may be disregarded as a prospective source of earthquake activity. See Tr. 2971, 3074-75; LBP-82-3, *supra*, 15 NRC at 91. See generally 10 CFR Part 100, Appendix A, §III(g).¹⁴

¹¹ Elsewhere, Drs. Greene and Kennedy stated that the CZD “appears to merge with, or is truncated by, the OZD.” Tr. 2397. And again (Tr. 2398),

in using our word “merge,” for instance, what we see is that the CZD is appearing to run into the OZD. We do not see an absolute intersection, as for instance two railroad tracks coming together. We do not put a point on where the two railroad tracks come together.

So we use the word “merge,” or there could be a “truncation” of some sort there. But we cannot define that, and that is why we use “appear” in that relationship.

¹² Dr. David G. Moore concluded that “the CZD shows its nearest faulting on the central shelf to be approximately 10,000 ft. o[r] 3.6 km away from the [OZD]. . . .” Therefore, he “cannot support a postulated connection between the [OZD] and the faults of the central shelf area [of the CZD].” Testimony of Dr. Moore on Contention 2 at 46.

¹³ Applicants’ expert Dr. Moore suggested that the possible connection between the CZD and OZD postulated by Drs. Greene and Kennedy results from a misinterpretation of the seismic data as a result of signal cross-overs on the relatively steep land of the San Onofre Shelf Syncline. However, he conceded that because the geometry of the structures has generated side echo cross-overs, the data are somewhat ambiguous. Testimony of Dr. Moore on Contention 2 at 46-47.

¹⁴ Staff witness Robert H. Morris of the USGS concurred that the CZD is not capable. He would not expect movement on the OZD to initiate movement on the CZD. Tr. 6036-37. See also SER, Appendix G at G-4.

Intervenors also claim that the applicants did not investigate thoroughly the possibility of connection between the CZD and onshore features. Again, intervenors rely upon the testimony of Drs. Greene and Kennedy, who mapped the CZD to within 12,000 feet of San Onofre and claimed that a further extension north, towards the shoreline, "could be one of many possibilities." Tr. 2409. See SER, Appendix F at F-24; Intervenors' Brief on Seismic Issues at 55-56.¹⁵ That rather hesitant evaluation¹⁶ is dispelled by substantial evidence that is fully detailed in the Licensing Board's decision. LBP-82-3, *supra*, 15 NRC at 175-79. See generally *id.* at 168-81.

Contrary to intervenors' position, we find that the CZD/onshore connection possibility was adequately explored. The combined testimony of applicants' witnesses Drs. Roy J. Shlemon and Moore demonstrates that there are undisturbed platforms offshore between San Onofre and the CZD that are 40,000 to 80,000 years old. Testimony of Dr. Shlemon on Contention 2 at 9-10; Testimony of Dr. Moore on Contention 2 at 21-22, 48; Tr. 3171-72, 3183-87. See also Tr. 6463-66, 6508. Dr. Shlemon also identified a wave-cut platform in the sea cliff, along the coastline, which was formed during the last major interglacial period about 125,000 years ago. Tr. 3189-92; Testimony of Dr. Shlemon on Contention 2 at 7-8. That feature exhibits no sign of offsets or displacements that would suggest the CZD projects onshore. See Tr. 3202-05. See also Testimony of Dr. Shlemon on Contention 2 at 10.¹⁷ Dr. Shlemon thought it "highly unlikely" that there are undetected displacements of the 125,000-year platform in the vicinity of the sea cliffs. Tr. 3211.¹⁸ Nor is there evidence that the faults or folds of the CZD project onshore in any of the marine and river terraces in the San Onofre area. Tr. 3208-09. Similarly, Dr. Moore testified that his seismic profiles of the immediate offshore area showed no evidence of faults or folds. Tr. 2970, 3009-12. He was clear from his investigations that the CZD features die out well before they approach the shoreline. Tr. 2978. See also Tr. 3082-83.

Intervenors' claim that applicants failed to investigate adequately a possible connection between the CZD and particular onshore features (denominated "A" and "B") is also refuted by substantial evidence of record. The Licensing Board fully recounts that investigation (which, we would note, consumed 221 person/

¹⁵ Intervenors again argued the absence of definitive data. According to Dr. Kennedy, as to near shore features there was (Tr. 2409)

a very small amount of data . . . and . . . the data that is present is of fairly poor quality because of the very shallow water and a very high level of ambient noise near the wave zone.

¹⁶ Dr. Kennedy further conditioned his response by stating (Tr. 2409):

We haven't worked north of where the Cristianitos zone of deformation has been shown on this map so again, in a purely speculative fashion, this is one of several possibilities, I would imagine.

¹⁷ Only in the area of the San Mateo flood plain where erosion has washed away the terrace is the platform not continuous. Tr. 3202.

¹⁸ Consistent with Dr. Shlemon's testimony, there is record evidence that terrace 1 has a minimum age of 120,000 years. See Applicants' Exh. 27 at 8-9, 15.

days) in its decision. LBP-82-3, *supra*, 15 NRC at 151-59. In essence, the "A" and "B" features have entirely horizontal senses of motion not compatible with motion on the Cristianitos fault or any other shear zone. They are not the surface manifestation of either a fault or zone of deformation located within or beneath the San Mateo formation.¹⁹ Rather, these features are discontinuous, ancient "joints" (not faults); they are minor elements of the San Mateo formation, that die out at the sea cliff and have no safety significance. Testimony of Jay L. Smith on Contention 3 at 12. See generally Tr. 2698-705.

C. Determination of Maximum Magnitude Earthquake

Our stay decision tentatively rejected intervenors' arguments that contested the Licensing Board's determination of the maximum magnitude earthquake that might be expected on the OZD. See p. 352, *supra*.²⁰ On appeal they renew those arguments, and press as well a claim not raised in the stay papers — that the Licensing Board's reliance on the slip rate method propounded by applicants' witness, Edward G. Heath, constitutes reversible error.²¹ We are satisfied that the discussion in our stay decision fairly disposes of the issues regarding the maximum magnitude earthquake there addressed. ALAB-673, *supra*, 15 NRC at 702-09. We therefore confine our discussion here to the issues raised by intervenors' new argument.

Preliminarily, however, we must note that the Board relied on several analytical techniques in addition to that of Mr. Heath in reaching its conclusion that an $M_s 7$

¹⁹ The San Mateo formation is a formation of marine bedrock laid down several million years ago. See Testimony of Dr. Ehlig on Contention 4 at 14; Tr. 3205.

²⁰ Intervenors had asserted that the Board erred in (1) treating the OZD as segmented, contrary to the parties' understanding, and (2) crediting Dr. Slemmons' testimony, which assertedly was not sufficiently conservative.

²¹ Mr. Heath's approach is based on comparing the degree of fault activity on the OZD with that of similar faults in the southern California region and in similar tectonic environments around the world. From his degree of activity correlations, Mr. Heath concluded that slip rate can be used to provide an estimate of the maximum magnitude earthquake that may be associated with the OZD. Testimony of Mr. Heath on Contention 4 at 6-7; Tr. 1339-41.

As the Licensing Board further explained (LBP-82-3, *supra*, 15 NRC at 85):

Slip rate is a quantitative measure of fault activity and is derived from the geologic record. Basically, one needs to know how much displacement has occurred on a particular fault and over how long a time period.

The slip rate method devised by Mr. Heath studies the (*ibid.*) relationships between slip rates and magnitudes of earthquakes that have actually occurred on particular faults.

* * *

[T]he Applicants' . . . basic conceptual approach was fairly simple. They compiled information on slip rates of faults relevant to the San Onofre analysis; for example, only strike/slip faults were examined. They then compiled historic earthquake magnitude data on the selected faults and plotted both the slip rates and magnitude data. By drawing a line bounding the maximum observed earthquakes, they established an "historic earthquake limit." They then performed a second analysis designed to take into account ranges of error in slip rate, and other factors. The bounding line of this analysis produced a "maximum earthquake limit" for the range of faults studied.

earthquake is appropriately conservative.²² These include the fault length/magnitude study performed by Dr. Slemmons, the historical analysis of seismicity in the Southern California area that is set out in (among other places) the staff's SER, and the geologic seismicity analysis conducted by Drs. Stewart W. Smith and Ehlig. See generally LBP-82-3, *supra*, 15 NRC at 99-123. The Licensing Board carefully limited its reliance on Mr. Heath's work (*id.* at 116):

The Board is not inclined to discount the results derived from the slip rate/magnitude study merely because it is a new method. Too, we believe the review of this method before and during the hearings represents a substantial "peer review". We do not suggest that this method standing alone is an adequate basis for assigning the [maximum magnitude earthquake] for San Onofre, but we agree with the Applicants, the Staff and Dr. Slemmons that this approach can be properly viewed as one of several approaches to the determination

In light of the limited use made by the Licensing Board of the slip rate/magnitude methodology, intervenors' concern as to its propriety is not a matter which, if decided in their favor, would constitute reversible error. We nonetheless proceed with our analysis of intervenors' claims.²³

The principal shortcomings intervenors find with Mr. Heath's analysis are the (1) use of a limited historic data base, (2) exclusion from the data of Japanese faults and the El Alamo earthquake, (3) absence of a deterministic explanation to define the slip rate/magnitude relationship, (4) unwarranted reliance on a single data

²² M_s stands for "surface wave magnitude." It is a measure of magnitude used to describe earthquakes of about magnitude six and above. See LBP-82-3, *supra*, 15 NRC at 101-02; *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 & 2), ALAB-644, 13 NRC 903, 930-31 (1981).

²³ Intervenors recognize that the Licensing Board's reliance on the slip rate/magnitude method was limited, but claim that nothing else supports the choice of an M_s 7.0 earthquake as a maximum. Intervenors' Brief on Seismic Issues at 28-29. As noted in text we reject that argument. Our stay decision specifically pointed out that (ALAB-673, *supra*, 15 NRC at 709 n.40):

The choice of a M_s 7.0 safe shutdown earthquake for San Onofre is amply supported by [Dr. Slemmons' fault length/magnitude study and] other expert testimony in the record. Thus applicant's expert, [Mr.] Heath, found the area surrounding the San Onofre site to have one of the lowest historic levels of seismicity in Southern California, with every expectation of remaining so. Testimony of [Mr.] Heath on Contention 4, Figures EGH-F and EGH-G. He thought that the M_s 6.3 1933 Long Beach earthquake on the Newport-Inglewood zone of deformation may be close to the maximum for the zone. *Id.* at 20.

* * *

So too, as already noted *supra* [15 NRC at 707], Dr. Smith concluded that earthquakes larger than about M_s 6.5-7.0 could not have occurred very often over the past million years without producing more impressive geologic deformation than what is seen in the region of the OZD. Dr. Ehlig, another applicant witness, concluded that the features of the OZD — its geologic strain rate, regional tectonic setting, and "[t]he absence of extensive and/or throughgoing fault ruptures in near-surface strata along much of the OZD" — all support earthquakes of less than about M_s 7. Testimony of Dr. Ehlig on Contention 4 at 21-22.

point, and (5) lack of an established slip rate for the OZD. See generally Intervenor's Brief on Seismic Issues at 28-37.²⁴ We deal with each argument in turn.

1. The historic record of California earthquakes extends back only about 200 years, and the instrumental record of world earthquakes only about 50 years. Yet the limited nature of this historic data is not a deficiency peculiar to the slip rate method of determining maximum magnitude. The historic record is what it is: its uses and limitations are the same whether correlations of earthquake magnitude are sought as to slip rate, fault length, surface rupture length, or any other geologically relevant consideration. Moreover, the likelihood that maximum or near maximum earthquakes will have been observed for a given range of slip rates increases as more faults are examined, thus adding confidence to the historic data. Tr. 1499. Observations suggest that truly large magnitude earthquakes in California occur only on active faults exhibiting large slip rates, and that earthquakes on specific strike-slip faults tend to be very much like their predecessors. Tr. 1438, 1447, 4898; Testimony of Mr. Heath on Contention 4 at 24-25. And, of course, the geologic record extends the historic record far into the past, hundreds of thousands of years and longer. The geologic and tectonic records of the OZD strongly support the conclusion that the OZD has not had an earthquake approaching a magnitude $M_{7.7}$ over the past million years. See note 23, *supra*.

2. Intervenor's suggest that the applicants selectively eliminated data which, if included, would have yielded a higher predicted maximum magnitude earthquake for the OZD. In particular, they question the exclusion of data from earthquakes in Japan and from the 1956 El Alamo earthquake on the San Miguel fault in Baja California. Intervenor's Brief on Seismic Issues at 32.

Mr. Heath testified that the applicants sent a geologist and seismologist to Japan to meet with a number of leading Japanese geologists and seismologists in order to obtain their latest earthquake data. The applicants' consultants learned that (1) the tectonic style of the Japanese strike slip faults is very dissimilar to that in Southern California (*i.e.*, in Japan the style is block faulting as opposed to linear *en echelon* faults, and the faulting occurs over a deep major zone of plate subduction as opposed to the translational faults occurring over the boundary of two large tectonic plates), and (2) "there are no solid slip rate data on [Japanese] strike-slip faults that have had major events . . ." Tr. 1406-07. See also Tr. 4043-44; Applicants' Exh. 3, Figure EGH-8. This information went uncontradicted. Intervenor's witness, Dr. James N. Brune, admitted that he had no familiarity with Japanese slip rate data, data that would be necessary to include Japanese earthquakes in a slip rate/magnitude correlation. Tr. 4301. Both he and another intervenor's witness, Dr. Clarence R. Allen, also agreed that there could be a difference in fault-caused earthquakes between California and Japan. Tr. 4567-68,

²⁴ We rely on the Licensing Board's discussion as to those of intervenor's arguments that are not discussed here. See generally LBP-82-3, *supra*, 15 NRC at 115-19.

4884-85. Drs. Reiter and Slemmons testified for the staff that exclusion of the Japanese strike-slip data was justified by the dissimilar tectonic settings and difficulties in measuring slip rates. Tr. 5819-20, 6159, 6196-98, 6222-24, 6256-61, 6271-72. This testimony adequately supports exclusion of the Japanese data from Mr. Heath's slip rate/magnitude analysis.

The 1956 El Alamo earthquake was a magnitude 6.8 earthquake which took place on the San Miguel fault. There is, however, no definitive information on the slip rate on the fault. Tr. 1487. Both Dr. Ehlig and intervenors' witness, Dr. Gordon Gastil, testified that it has not been possible to determine the time period over which the offset along the San Miguel fault occurred.²⁵ Without that information, a slip rate cannot be calculated. Tr. 1071-72, 5126-27.²⁶ The absence of reliable slip rate data justifies the exclusion of the 1956 El Alamo earthquake as well.

3. The absence of a fully satisfactory deterministic explanation for the slip rate/magnitude method does not invalidate its utility. The relevant Commission regulations, 10 CFR Part 100, Appendix A, assume that the state of knowledge of earthquake mechanisms and of the propagation of seismic waves from source to site has not yet reached the point of precise predictability. It is for this reason that earthquake risk is assessed through a variety of methods, conservatively applied. Moreover, Mr. Heath did provide a physical (if not completely deterministic) explanation for his slip rate/magnitude correlation. On cross-examination by Dr. Brune, Mr. Heath noted that, for low slip rates, the process of fault creep allows strain to be released aseismically over a long period of time. Thus, strain (*i.e.*, differential movement across the fault) does not build to the point of sudden release in an earthquake. Tr. 1440, 1446. This ability of low slip rate faults to relieve strain aseismically over a long period of time provides a plausible physical basis for the empirical observations presented in Mr. Heath's slip rate/magnitude curve.²⁷

4. Intervenors assert that the shape of Mr. Heath's slip rate/magnitude curve is controlled by a single data point at the low slip rate end which, if in error, would cause the entire curve to be shifted to a higher magnitude. To the contrary, Mr. Heath pointed out that the shape of the curve is established by approximately eight data points, most of them lying in the range of large slip rates and higher magnitude

²⁵ Intervenors' witness Dr. Brune set out some slip rate values in his direct testimony (Brune, fol. Tr. 4122, at 17-18), but on cross-examination admitted that the time periods he had used to generate those values were arbitrarily chosen. Tr. 4280-81.

²⁶ To obtain a slip rate value for a fault one must divide a measured, or inferred, displacement across the fault by the time period over which the movement took place. Tr. 1486-87.

²⁷ It was Dr. Brune's opinion that the slip rate/magnitude relationship merely expressed the probability that large earthquakes were less likely to occur on faults with low slip rates. Tr. 4274-76.

earthquakes. Tr. 1447. Our review of the curve, and the bases upon which it was developed, leads us to accept Mr. Heath's position.²⁸

5. Intervenor's contend that no clear slip rate has been established for that portion of the OZD closest to San Onofre. Intervenor's Brief on Seismic Issues at 30. We are meant to infer that no reliable estimate of a maximum magnitude earthquake on the OZD is possible. We disagree.

The earthquake potential of the OZD was modelled on slip rate data from its most seismically active segment, the Newport-Inglewood Zone of Deformation (NIZD). Mr. Heath explained that of the three portions of the OZD, the NIZD has the highest levels of both historical and recorded seismic activity. Its structure also suggests a greater seismic potential than the other segments. Testimony of Mr. Heath on Contention 4 at 8-9, 12, 16-17; Tr. 1350-53.²⁹ Thus, use of the NIZD as a model was an acceptably conservative approach to take.

In sum, our review of the record finds no error in the Licensing Board's analysis of the slip rate/magnitude method of determining maximum magnitude. It is a reasonable supplement to the other methods now used for such purposes, all of which suggest that an $M_{5.7}$ earthquake on the OZD is the maximum reasonably to be expected. We have no reason to depart from the conclusion reached in our stay

²⁸ The slip rate/magnitude plot is a representation, for each of a number of appropriately chosen faults, of the maximum known earthquake on that fault, plotted against the measured slip rate for the fault. A bounding curve, the maximum earthquake limit (MEL), is drawn to the right of all points to represent the maximum expected earthquake for faults of a given slip rate. Testimony of Mr. Heath on Contention 4, Figure EGH-M. See generally *id.* at 23-28. To the left of this line many points could be plotted representing less-than-maximum magnitude events on the various faults. Tr. 1438.

Applicants investigated essentially all the strike-slip faults in California that were ten kilometers or longer in an attempt to bolster the lower portion of the curve with more data. This effort provided little quantitative support for the MEL line, because there were virtually no earthquakes large enough to measure on these faults, and the exact slip rate values needed to plot the existing data were not available. See Tr. 1442-43, 1447-50; Applicants' Exh. 34. Mr. Heath notes, however, that of this large number of low slip rate faults none had resulted in significant earthquakes (*e.g.*, events exceeding the MEL line). Tr. 4037-43. See also Tr. 4048-61, Applicants' Exh. 3, Figure EGH-10. This in itself provides qualitative support for the validity of the MEL line at low slip rates. See Tr. 1442, 1449.

²⁹ In particular, Mr. Heath testified (Testimony on Contention 4 at 16-17):

The NIZD is a representative model of the OZD because of the similarities in structural style among the three elements of the OZD, and because of the extensive and high-quality data available regarding the style and amount of the deformation along the NIZD. The available surface and subsurface geologic data allow a higher degree of accuracy in assessing the amount and rate of faulting and folding for the purpose of estimating the maximum earthquake to be assigned to the OZD. Of the three elements of the OZD, the NIZD has by far the highest levels of both historical and recorded seismic activity. It has produced two damaging earthquakes, one in Inglewood in 1920, having an estimated magnitude of 4.9, and the other in Long Beach in 1933, having a recorded magnitude of 6.3. The NIZD is considered to be a conservative model for the other segments because (1) it has a higher level of historical seismicity; (2) it has the most prominent surficial anticlines and short but prominent fault scarps; (3) it is coincident with a Mesozoic basement rock discontinuity not known to exist beneath the [South Coast OZD] or the [Rose Canyon Fault Zone]; and (4) it is closer to the area of high stress at the interaction between the San Andreas fault system and the Transverse Range than are the other segments of the OZD to the south.

decision that the San Onofre seismic design is adequately conservative. ALAB-673, *supra*, 15 NRC at 714.

D. Procedural Objections

Intervenors object to the Licensing Board's admission into evidence of the applicants' 30-volume Final Safety Analysis Report (FSAR).³⁰ Their objections are essentially twofold: first, that applicants did not properly authenticate or identify the FSAR; second, that intervenors were denied an adequate opportunity for cross-examination because the Board did not require applicants' witnesses to sponsor particular portions of the FSAR. Intervenors' Brief on Seismic Issues at 58-59.

These questions are largely theoretical because the Licensing Board relied upon the FSAR for only two, neither critical, of its hundreds of findings.³¹ We nonetheless address the questions because they are pertinent to a later point (see pp. 381-82, *infra*) and may be of general interest for future cases.

The identification issue is straightforward. The requirement of authentication or identification as a condition precedent to the admissibility of evidence is satisfied by evidence sufficient to support a finding that the matter in question is what its proponent claims. Fed. R. Evid. 901(a).³² Here, the applicants' witness, Wesley C. Moody testified that he was responsible for managing and supervising the preparation and revision of the San Onofre license applications, of which the FSAR is a part. Tr. 709-10. While he had not reviewed the 30-volume FSAR "page for page," he had perused it prior to testifying and was satisfied that it reflected the various amendments applicants had made and was a true and correct copy of their submission to the Commission. Tr. 710-11. Intervenors did not impeach this identification in any way. We find it sufficient to authenticate the FSAR.

³⁰ By regulation each operating license application must include a final safety analysis report:

The [FSAR] shall include information that describes the facility, presents the design bases and the limits on its operation, and presents a safety analysis of the structures, systems, and components and of the facility as a whole

10 CFR §50.34(b). The information and analyses required of such a report are extensive. See generally 10 CFR §50.34(b)(1)-(8).

³¹ The FSAR received very little attention from either applicants or the Licensing Board. Applicants' proposed findings of fact and conclusions of law (September 3, 1981) do not cite the FSAR at all. The Licensing Board mentions the FSAR only twice in its seismic decision and cites independent authority for the same conclusions. On the safe shutdown earthquake issue the Board lists the FSAR as one source for the proposition that the San Onofre area historically has not been an area of high seismic activity. LBP-82-3, *supra*, 15 NRC at 103 (Finding of Fact No. 16). The Board also cites the SER and applicants' pre-filed testimony (each of which refers to the FSAR as basic source material and expands upon it) for the same proposition. On the question of whether the OZD extends into Baja California, the Board cites the pertinent discussion in the SER and adds a parenthetical reference to the FSAR, clearly intended as secondary authority. *Id.* at 111 (Finding of Fact No. 69).

³² While the Federal Rules of Evidence are not directly applicable to our administrative proceedings, we often look to those rules for guidance. See generally *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 475 (1982).

We do differ, though, with the Licensing Board's admissibility ruling. Intervenors asked the applicants to produce witnesses who would sponsor the portions of the FSAR that concerned the seismic matters in controversy. The applicants refused, asserting that the document had gone through so many hands that no one could claim pride of authorship. Tr. 1002-03, 1007-08. The Board nevertheless admitted the FSAR into evidence in its entirety for the truth of the matters stated therein. Lack of sponsorship, the Board ruled, was relevant as to weight, not admissibility. Tr. 946-47. The Board went on, however, to caution that it did not anticipate resolving any major issues by reliance on unsponsored portions of the FSAR. Tr. 947. As we have seen (note 31, *supra*), the Board was true to its word.

It is certainly correct, as the Board recognized, that there is usually no bar to the admissibility of hearsay evidence in our administrative proceedings. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 411-12 (1976). Whether evidence is or is not hearsay is significant only insofar as it bears on the question of its reliability.³³ Here, the Board found that the circumstances surrounding preparation and filing of the FSAR — “not the least of which is that [it is] filed under an obligation on the part of the person preparing it to tell the truth” — imbues the document with a trustworthiness and reliability that “far exceeds many of the historic exceptions to the hearsay rule.” Tr. 947.

The FSAR is the applicants' principal safety submission in support of an operating license for its plant. While the factors outlined by the Board go far toward assuring the factual accuracy of the FSAR, the controversial portions of the document are likely to be the judgmental opinions and conclusions of experts — opinions and conclusions about which reasonable persons may differ. The difficulty we have with the Licensing Board's ruling is that it denies intervenors an opportunity to conduct cross-examination on those sorts of judgments and the factual bases for them, at least insofar as they are reflected in the FSAR.³⁴ That ruling strikes us as erroneous.

In our judgment, while the FSAR may be conditionally admissible into evidence on the basis of the indicia of trustworthiness outlined by the Licensing Board, once portions of the FSAR pertinent to the contentions in the proceeding are put into controversy, the applicants must present a competent witness to defend them. We see no basis for allowing applicants to avoid cross-examination on a document of central importance that they themselves prepared. The witness need not be the author or authors of the sections in controversy. It may well be difficult to parse through an institutional document such as the FSAR, prepared over the course of

³³ “Only relevant, material, and reliable evidence which is not unduly repetitious will be admitted” in an NRC licensing proceeding. 10 CFR §2.743(c).

³⁴ Intervenors did, of course, have an opportunity to cross-examine the bevy of expert witnesses applicants presented on seismic issues. Indeed, it was for this reason that the Board was not obliged to rely heavily on the FSAR for its findings of fact.

years, to identify specific authors. But the applicants are obliged to put forward one or many witnesses, of the applicants' own choosing, who are competent to testify about those aspects of the FSAR that are in controversy. Failing that, the controverted portions of the FSAR lose what reliability they had. They should be given no weight, and excluded as substantive evidence.³⁵

We reached a similar conclusion in *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 477 (1982). In upholding the exclusion of unsponsored technical analyses, we said that that kind of material

manifestly is the type of evidence that calls for sponsorship by an expert who can be examined on the reliability of the factual assertions and soundness of the scientific opinions found in the documents.

See also *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 754-56 (1977). Our refusal to accept the reports of the Advisory Committee on Reactor Safeguards (ACRS) as substantive evidence on controverted issues rests on the same basis.³⁶ In *Arkansas Power and Light Co.* (Arkansas Nuclear One Unit 2), ALAB-94, 6 AEC 25, 32 (1973) (footnote omitted), we explained that

the contents of an ACRS report cannot, of themselves, serve as an underpinning for findings on the health and safety aspects of licensing proceedings. It is quite true that Section 182b of the Atomic Energy Act, 42 U.S.C. 2232(b), and a regulation of the Commission, 10 CFR 2.102, require both that the ACRS render a report on every docketed application for a construction permit or operating license and that the report be made a part of the record. But, since the persons responsible for the report (the members of the ACRS) are not subject to being examined by the parties or the Board with reference to its contents, the report cannot be treated as having been admitted into evidence for the truth of any of the statements therein. Rather, its introduction into the record must be deemed to be for the limited purpose of establishing compliance with the requirements of the statute. See [*Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 2), ALAB-78, 5 AEC 319 (1972)]. This being so, the report may not be assigned any independent probative value.

See also *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-123, 6 AEC 331, 340 (1973).

The decisions in *Boston Edison Co.* (Pilgrim Nuclear Power Station), ALAB-83, 5 AEC 354 (1972), *aff' d sub nom. Union of Concerned Scientists v. AEC*, 499

³⁵ The FSAR is, of course, admissible in its entirety to evidence compliance with NRC regulations that require its preparation. See note 30, *supra*.

³⁶ A licensing board may rely upon the conclusions of the ACRS on issues that are *not* controverted by any party. 10 CFR Part 2, Appendix A, §V(f)(1),(2).

F.2d 1069 (D.C. Cir. 1974), relied upon by the applicants and the staff, are not to the contrary. True enough, in *Pilgrim* we said with regard to the FSAR that

The admissibility . . . into the hearing record need be tested only by its identification as the document prepared pursuant to Commission regulations and submitted to the Commission as a part of the application. So long as the FSAR meets such an identification test it is admissible.³⁷

Id. at 369. But our statement in *Pilgrim* was made in the context of a Commission regulation, no longer in effect, that required that the entire license application (of which the FSAR is a part) be offered into evidence. 10 CFR §2.743(g) (1962).³⁸ Moreover, in the *Pilgrim* proceeding, a witness clearly identified himself as responsible for the contents of the FSAR, and applicants offered that witness for questioning on the sole issue in contest, including apparently the contents of the FSAR. See 5 AEC at 369.

The District of Columbia Circuit affirmed that ruling. The court noted that the evidentiary issue hinged on the reliability of the FSAR, and that could not be decided "prior to at least conditional admission in a proceeding in which reliability is the ultimate issue." *Union of Concerned Scientists v. AEC, supra*, 499 F.2d at 1094. Our ruling here, which allows the FSAR, when properly identified, to be conditionally admitted pending the sponsorship and defense on cross-examination of its controverted portions, is wholly consistent with those decisions.³⁹ In sum, the Licensing Board's ruling admitting the FSAR in its entirety was error, but the error was harmless in view of the limited reliance the Board placed upon it. See note 31, *supra*.

II

The second set of issues on appeal relates to the adequacy of the emergency planning for a nuclear accident at San Onofre. Our stay decision principally discussed whether (1) the applicants' warning system to notify the public of a nuclear accident was adequate in light of the absence of siren coverage for the

³⁷ We also noted that "[t]he weight which should be given to the contents of the FSAR is another matter which depends on the evidentiary record which is developed in connection with specific matters in controversy." 5 AEC at 369.

³⁸ Section 2.743(g) in its present form provides that the NRC staff shall offer in evidence in any proceeding involving an application the pertinent ACRS report, the SER, and any environmental impact statements. The record of the license application is no longer required to be offered in evidence. See 37 Fed. Reg. 15127, 15134 (July 28, 1972).

³⁹ Judicial decisions have also recognized the need for a sponsoring witness to support the introduction of material that contains experts' studies and opinions. See generally *Forward Communications Corp. v. United States*, 608 F.2d 485, 509-10 (Ct. Cl. 1979) (*per curiam*) (Fed. R. Evid. 803(6) hearsay exception for business records does not allow admission of appraisal report without a witness to sponsor its admission); *Carter-Wallace, Inc. v. Gardner*, 417 F.2d 1086, 1096 (4th Cir. 1969), *cert. denied sub nom. Carter-Wallace, Inc. v. Finch*, 398 U.S. 938 (1970) (hearing examiner properly excluded unpublished scientific paper where the party offering the document did not call its author to sponsor its admission but sought instead to introduce it through testimony of the company vice-president).

populated areas across San Juan Creek, (2) the emergency response plan must include provision for medical arrangements for members of the general public who might suffer radiation injury in a serious nuclear accident,⁴⁰ and (3) offsite jurisdictions had the ability to monitor and assess radiological emergencies. See ALAB-680, *supra*, 16 NRC at 130.

A. Siren Coverage

In our stay decision we rejected intervenors' attack on the Licensing Board's conclusion that the absence of siren coverage for the populated areas across San Juan Creek was not a ground for denying applicants a license for full power operation. The Board found, and we agreed, that alternative means (such as loudspeakers from helicopters and police cars) exist to provide a prompt alert to this segment of the public in the event of an emergency. The Board imposed a license condition requiring the siren deficiency to be remedied within six months of operation. Thus, we found reasonable assurance that "adequate interim compensating actions have been or will be taken" for the temporary gap in siren coverage. 10 CFR §50.47(c)(1). See ALAB-680, *supra*, 16 NRC at 133-35.

On appeal, intervenors renew their argument that alternative measures to sirens do not assure prompt public notification. Our stay decision canvassed the issue fully. ALAB-680, *supra*, 16 NRC at 133-35. The evidence demonstrated that the affected population would be notified within thirty minutes of an alert through a combination of emergency vehicles, helicopters, and existing siren coverage. Tr. 9003-05, 9021-22. That kind of coverage comports with the outer limit of about forty-five minutes that is contemplated in the Commission's regulatory scheme governing public notification. See 10 CFR Part 50, Appendix E, §IV.D.3; 10 CFR §50.47(b)(5); NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Rev. 1 (November 1980), Appendix 3 at 3-3 [NUREG-0654]. We are satisfied that the record fully supports the Board's decision. See ALAB-680, *supra*, 16 NRC at 133-34.

B. Radiation Monitoring

1. Plume emergency planning zone

Intervenors argue that full power operation must await upgraded radiation assessment and monitoring capabilities on the part of local jurisdictions. We set

⁴⁰ We do not address this issue here because the Commission has taken review of it. See CLI-82-27, 16 NRC 883 (1982).

out the background of this issue in our stay decision (ALAB-680, *supra*, 16 NRC at 139 (footnote omitted):

The governing regulation, 10 CFR 50.47(b)(9), requires the applicants and local jurisdictions to have "[a]dequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency. . . ." The Licensing Board explained the importance of this requirement in its decision [LBP-82-39, *supra*, 15 NRC at 1201]:

Should there be an actual or potential radiological release from San Onofre, the nature and magnitude of the release and the prevailing meteorological conditions must be established and kept current so that potential offsite doses can be projected. Such projections give decisionmakers in the offsite response organizations the information they need to make correct decisions concerning the appropriate protective action — sheltering or evacuation. Field monitoring confirms the accuracy of offsite dose projections made on the basis of onsite data.

The Licensing Board found that the cities and counties near San Onofre possessed somewhat deficient but nonetheless substantial monitoring and assessment capabilities. Given the applicants' more than adequate capabilities in that regard, however, the Board concluded that the deficiencies of the local jurisdictions were not significant. LBP-82-39, *supra*, 15 NRC at 1202.

In their merits brief, intervenors argue that the applicants meet only the minimum staffing requirements suggested by controlling NRC guidance for offsite monitoring capability, *i.e.*, applicants can put only four health physics technicians in the field within the first hour.⁴¹ They argue that as a matter of law, that capability cannot compensate for the deficiencies in preparedness by the surrounding jurisdictions. Intervenors' Brief on Emergency Planning (June 29, 1982) at 13-15. We are unpersuaded.

First, as our stay decision makes clear, the record shows that the local jurisdictions have a considerable and continually improving capability for radiation monitoring and for relaying that data to the Offsite Dose Assessment Center. Each of the surrounding jurisdictions — Orange County, the City of San Clemente, San Diego County, and Camp Pendleton — has the capability to send equipped and trained monitoring teams into the field. ALAB-680, *supra*, 16 NRC at 141.

⁴¹ NUREG-0654, *supra*, at 37, calls upon nuclear power plant operators to have two persons available, within 30 minutes of declaring an emergency, for the purpose of conducting offsite radiological assessment and monitoring surveys. Another two people are to be available within another half hour.

Each health physics technician will be accompanied by a maintenance worker who is to assist the technician in transporting equipment, driving the survey vehicle, and recording data. Tr. 7173-74. We do not count these maintenance workers toward meeting the minimum staff requirements of NUREG-0654 because the maintenance personnel may not be competent to perform the monitoring and assessment functions there specified.

Second, the applicants have two independent facilities — a Technical Support Center and an Offsite Dose Assessment Center — at their disposal to assess potential offsite radiological consequences and to provide local officials with the information necessary for their protective action decisions. *Id.* at 140-41. Even if intervenors correctly argue that the applicants' monitoring and assessment capabilities do not fully compensate for the deficiencies of the local jurisdictions, the claimed gap is not so wide as to be a significant deficiency. See 10 CFR §50.47(c)(1).⁴² As it turns out, the applicants would be at such a minimum staffing level only infrequently. Indeed, the applicants will usually have ready access to a far greater number of health physics personnel and would be able to field additional monitoring teams in short order. Tr. 7173-74, 9066-71.

2. *Ingestion emergency planning zone*

Intervenors also argue that the Board erred in not treating as contested the issue of the adequacy of the emergency plans for radiological monitoring and assessment in the ingestion pathway emergency planning zone (ingestion EPZ). They assert that their proposed findings were sufficient to put this issue in contest. The Board termed the record on this matter "decidedly equivocal" but ruled that the issue was uncontested to be resolved informally by the staff prior to full power operation based on what the Board considered intervenors' failure to file proposed findings of fact as to this matter. LBP-82-39, *supra*, 15 NRC at 1209-11.

Recently in *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-709, 17 NRC 17 (1983) we held that, absent a board order requiring the submission of proposed findings, an intervenor that does not make such a filing is free to pursue on appeal all issues it litigated below. We based our ruling on the text of 10 CFR §2.754 which makes the filing of proposed findings of fact optional unless the presiding officer directs otherwise. The setting of a schedule for such a filing, we held, falls short of an explicit direction and thus does not form the basis for finding a party in default. *Id.* at 21.

Here, as in *Fermi*, the Licensing Board set a schedule, mutually agreed upon by the parties, for filing proposed findings but issued no direction to do so. Tr. 11,357-59. Unlike the *Fermi* intervenors, however, intervenors in this case *did file* proposed findings of fact. We think in this circumstance the Board was entitled to take that filing as setting forth *all* of the issues that were in contest. There is no good reason why a party should pick and choose among issues it contests,

⁴² The Licensing Board imposed a license condition requiring the applicants to maintain their monitoring and assessment capabilities at no less than the level described at the hearing. LBP-82-39, *supra*, 15 NRC at 1252.

proposing findings as to some but not others.⁴³ Having reviewed the proposed findings that intervenors did file, we conclude that the Licensing Board was correct in ruling that the ingestion EPZ issue was not raised below, and was appropriately left to the staff for resolution.⁴⁴

As an independent matter, we are also of the view that the deficiencies in emergency planning for the ingestion EPZ are not significant. Our stay decision noted that (ALAB-680, *supra*, 16 NRC at 142-43):

The Board's hesitancy on the question of adequacy stemmed from the fact that the lead role in emergency planning and implementation for the ingestion EPZ is given to the State. While the applicants had "done about all that might reasonably be expected of them in this area," the Board found that the State plan was still evolving [footnote omitted].

We then reviewed the planning that had thus far been accomplished (*id.* at 143 n.22):

Applicants submitted an extensive study of potential radiological hazards in the ingestion pathway EPZ in the event of a serious accident, a study that included suggested protective response levels for food, milk, and water. Applicants' Exhibit 121. They also presented an emergency response plan for the ingestion pathway. Applicants' Exhibit 143. The latter document was reviewed by the State Health Department and was found to be "excellent, generally well organized, concise and consistent with the RHS [Radiological Health Services] planning procedures document." Applicants' Exhibit 159. See also Tr. 7388-89. Mr. David F. Pilmer, for the applicant, testified that the State had prepared a draft emergency plan for the ingestion pathway, which assigns responsibilities to the local jurisdictions and designates the State's supporting role. Tr. 11,115. He also indicated that the applicants' plan would guide the ODAC [offsite dose assessment center] personnel in selecting appropriate pathway samples and evaluating them. Tr. 11,123. The Orange County Emergency plan includes provisions for taking samples of water and foodstuffs, and the County has an agreement with the University of California at Irvine to analyze such samples. Tr. 8982-83.

In short, the applicants have largely accomplished all that can be accomplished in advance. They have identified the critical pathways by which radioactive

⁴³ Indeed, intervenors here do not claim otherwise. Moreover, a different result would open up the possibility that a licensing board would be misled into not directing the filing of proposed findings because it had already received what it thought were the complete proposed findings of a party.

While this possibility could be obviated by a licensing board direction at the close of the evidentiary hearing to require the submission of proposed findings (and we think that would be the better practice), we are reluctant to place that obligation on the licensing boards.

⁴⁴ The findings on which intervenors rely pertain to contention 2H which concerns radiation monitoring and dose assessment in the plume EPZ, not the ingestion EPZ. See Intervenor's Proposed Findings of Fact and Conclusions of Law on Emergency Planning and Preparedness Issues (Nov. 24, 1981) at 38-49.

materials from the plume could be incorporated into foodstuffs and the water supply, and set suggested protective action levels. Further, they have formulated an emergency response plan that entails defining the area of possible contamination, determining, by field monitoring, the nature and extent of the contamination, and calculating the dose commitment results. *Ibid.* See also Tr. 11, 123-26. It is the State of California which is to complete its planning in this regard, and we urge it to do so.

The deficiencies that remain in State planning are not significant in light of the applicants' efforts, and the comparatively less extensive planning that is required and possible for the ingestion EPZ. Unlike the much smaller plume EPZ where evacuation or sheltering from the plume may be a matter of immediacy, protective action in the 50-mile radius ingestion EPZ need not be as immediate. Contamination would be traceable to ingestion, not to external radiation exposure, and the conservative response of a broad-scale foodstuffs quarantine or disposal is always available. Moreover, the kinds of ingestion EPZ protective action that would be suggested — such as quarantining or disposing of certain foodstuffs in designated areas — are highly site and accident specific: hence, they are less amenable to planning in advance of an accident than the comparable responses of sheltering or evacuation that are appropriate for the plume EPZ. In sum, even if intervenors had properly preserved their argument on the ingestion EPZ, we would still be of the view that deficiencies that exist in emergency planning for this area are not significant.

C. Special Populations

Much of intervenors' brief is devoted to a question not raised in their stay papers — whether adequate emergency plans are in place to assure protective action on behalf of special segments of the "at risk" population. 10 CFR §50.47(b)(10) requires the development of a range of protective actions to protect the public in the plume EPZ, and implementing guidance specifies that this should include "[m]eans for protecting those persons whose mobility may be impaired" NUREG-0654, *supra*, at 61. We think that the transportation arrangements for the elderly, the handicapped, and school children are in need of improvement, and so condition the operating licenses in this case.

1. *The Elderly and Disabled*

If evacuation is to be a possible course of action in a nuclear emergency, those persons in need of transportation must know who to call for assistance or, better

still, be identified in advance.⁴⁵ The San Onofre emergency plans provide for public transportation to be available at central locations. Tr. 7292-93. However, for housebound individuals, *i.e.*, those who are unable to reach the central locations, other arrangements, such as door-to-door pickup, have to be made.

The applicants have attempted to fulfill that responsibility by a variety of means, including the mailing of an information packet to all people within the emergency planning zone with a request that those in need of special assistance return an enclosed postcard. Tr. 7040-51. However, according to Marilyn Ditty, Executive Director of San Clemente Seniors, only about half of the people in the area who are housebound returned the postcard. Tr. 9838-43. See also Tr. 8576-79. Although Ms. Ditty could not provide a precise estimate of the number of elderly persons who would need special assistance, perhaps as many as another 500 people remain to be identified.⁴⁶

There is a willingness among all groups — applicants, service organizations, and city officials — to cooperate in that identification effort. Tr. 8641, 9861-62, 10,093-94. Indeed, that willingness may already have led to further efforts. See Tr. 8579. Nevertheless, we think it best if the matter is formalized through a license condition requiring applicants to work with city officials and private service groups, such as San Clemente Seniors, to continue to identify housebound people who would need transportation assistance in the event that a nuclear accident at San Onofre occasioned the need for evacuation. Once identified, adequate transportation will be arranged. See Tr. 7292-93, 8908. See also pp. 382-83, *infra*.

We leave to the applicants to decide what form the further and continuing identification procedure should take — whether, for example, they should undertake a second mailing or telephone survey utilizing lists compiled by groups such as San Clemente Seniors, and/or place further newspaper advertisements. In any case, the objective should be to assemble and keep current as reasonably complete a list as possible of housebound people within the plume EPZ who would require transportation assistance in an evacuation. One-hundred-twenty days should be time enough in which to undertake that effort.⁴⁷

⁴⁵ The Commission's emergency planning guidance calls upon licensees, States, and local jurisdictions to disseminate, at least annually, information regarding how the public will be notified and what its actions should be in the event of an emergency. The information is to address, among other things, the "special needs of the handicapped" and is to indicate how to effect "protective measures, *e.g.*, evacuation routes and relocation centers [and] sheltering." NUREG-0654, *supra*, at 49.

⁴⁶ Ms. Ditty thought about 1,100 senior people would need door-to-door assistance. Tr. 9864. Earlier testimony indicated that about 600 assistance requests had been received. Tr. 8578.

⁴⁷ We do not impose this requirement as a condition precedent to full-power operation. The Commission has generally provided at least 120 days to remedy emergency planning deficiencies more pervasive than this, especially where (as here) the applicants have made a concerted effort to fulfill their responsibilities and the necessary remedial measures are straightforward. See *Consolidated Edison Co. of New York* (Indian Point, Units 2 and 3), CLI-82-38, 16 NRC 1698, 1702-03 (1982).

2. *School children and others requiring bus transportation*

Conservatively estimated, approximately 200 buses would be needed to transport school children if an evacuation is ordered while school is in session, and another 200 buses needed for people not having access to a private automobile at the time of an evacuation. Tr. 7294-95; Applicants' Exh. 132 at 24-25, 27-28. See generally Applicants' Exh. 132 at 21-32.⁴⁸ These resources are available.

Buses from the Orange County Transit District (OCTD) and the Capistrano Unified School District (CUSD) constitute the primary source of assistance. During normal working hours on weekdays the Orange County Transit District can provide about 125 buses for immediate response. Applicants' Exh. 59 at X-9.⁴⁹ Some 200 additional buses in Irvine, just outside the emergency planning zone, could be available in about forty-five minutes. Tr. 7295, 8907. Another 200 buses are available at OCTD's Garden Grove facility, and the Capistrano Unified School District has approximately fifty-five buses on hand. Tr. 7295, 8802-05.

All of OCTD's buses are equipped with two-way radios capable of being used both to receive emergency instructions and to request emergency information from the dispatcher if necessary. Tr. 9909-10, 9913-14. OCTD also maintains a list of the home telephone numbers of its 800 drivers. Tr. 9913-15. Finally, emergency procedures are in place to notify senior transit and school officials in the event of an accident at San Onofre. See Applicants' Exh. 53, Attachment 2; Applicants' Exh. 140; Tr. 7296-97.

Although the resources at hand are plentiful, and some procedures for their use are extant, there are yet deficiencies in need of correction. Jan Goodwin, General Chairman, United Transportation Union, Local 19, the managing union official for OCTD bus drivers, explained that there have been no training sessions for drivers geared toward alerting them to the problems they might confront in a radiological emergency. For example, the drivers have not been instructed what the effects of radiation are, how to measure radiation dose, whether dosimeters will be available for them, how to deal with frightened passengers, and how to locate, absent street maps, specific pick-up points outside their normal service area. Tr. 9900-06. See also Tr. 9888-91. While many of these questions may seem prosaic, and might be handled effectively in an actual emergency through the two-way radio system with which the buses are equipped, nevertheless in our judgment a training program for bus drivers would greatly smooth the emergency response.

⁴⁸ Approximately 12,000 students are enrolled in schools within the emergency planning zone. Buses of the Capistrano Unified School District and the Orange County Transit District can seat, on the average, 45 adults or 67 children. Applicants' Exh. 132 at 27-28. See also Applicants' Exh. 140 at 3-5; Tr. 8813.

⁴⁹ At all other times 75 buses can be provided on a two-hour response basis. Applicants' Exh. 59 at X-9.

The Licensing Board put it well, albeit in a different context:

It is axiomatic that specific training should be required for persons expected to assist in a radiological emergency; that it should be tailored to the level of expertise expected in each area of responsibility; and that it should be effective.⁵⁰

LBP-82-39, *supra*, 15 NRC at 1206. Bus drivers are not ordinarily considered emergency workers, but they have extensive responsibilities in the event of a nuclear accident at San Onofre. Unlike police or firefighters, the OCTD bus drivers probably have received little general emergency training, and have received none relating specifically to a nuclear emergency.⁵¹ Consequently we impose a license condition requiring that a training program for OCTD bus drivers be formulated and instituted within the next 120 days.⁵²

3. Other Special Populations

Intervenors argue that certain aspects of the emergency response plans are inadequate for (1) boaters, and (2) persons in Riverside County and San Juan Capistrano. We find no merit in these claims.

(a) Boaters

The United States Coast Guard is responsible for clearing the offshore area within a 10-mile radius of San Onofre. Applicants' Exh. 59 at IV-9; Tr. 9212-13. In the event of a nuclear accident, the Coast Guard in San Diego would be notified promptly and send a radio alert on marine channels to boaters. Additionally, a Coast Guard helicopter could be on the scene within about 15 to 30 minutes. Tr. 9211-15. Closer helicopters from Camp Pendleton and Orange County, as well as a thirty-foot rescue boat maintained by the State Parks Department at nearby Doheny Beach could also be available. See Tr. 8271-72, 8533-34, 8557-59, 9342. The Licensing Board was plainly correct in finding that, these measures collectively provide reasonable assurance that boaters in the emergency planning zone will be promptly notified and instructed in the event of a nuclear accident at San Onofre. See LBP-82-39, *supra*, 15 NRC at 1268-71; 10 CFR §50.47(b)(5).

⁵⁰ See generally 10 CFR Part 50, Appendix E, §IV.F ("a radiological orientation training program shall be made available to local services personnel").

⁵¹ The CUSD drivers, by comparison, have monthly safety meetings which include information pertinent to their responsibilities in a nuclear accident. Tr. 8837-38.

⁵² We think this additional requirement will facilitate the emergency response. It need not, however, be fulfilled as a precedent to full-power operation. As we discussed earlier (see pp. 375-76, *supra*) we are satisfied that there are sufficient resources to provide reasonable assurance that an adequate emergency response capability exists for San Onofre. The number of buses and drivers is sufficient to cope with an emergency and an effective radio communication system is in place. Additionally, training is in place for the CUSD drivers. At issue is the efficiency, rather than the very availability, of the response.

(b) *Riverside County*

Intervenors argue that officials of Riverside County should have been consulted before a decision was made whether or not to include the County in the plume EPZ. 10 CFR §50.47(c)(2) provides that:

Generally, the plume exposure pathway EPZ for nuclear power plants shall consist of an area about 10 miles (16 km) in radius The exact size and configuration of the EPZs surrounding a particular nuclear power reactor shall be determined in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries.

The regulation, by its terms, does not impose the consulting requirement for which intervenors argue and we decline their invitation to read one into it. The pertinent inquiry is whether the plume EPZ was properly drawn after a consideration of the factors specified in 10 CFR §50.47(c)(2). Here, the Licensing Board found that the applicants excluded Riverside County from the plume EPZ because only a very small segment of that County (less than one-half square mile) lies within ten miles of the reactors, and that small segment is remote and uninhabited. LBP-82-39, *supra*, 15 NRC at 1224-25. See Tr. 7277, 7370, 8129-30. The absence of need for local emergency response fully justifies the exclusion of Riverside County from the plume EPZ.⁵³

(c) *San Juan Capistrano*

Intervenors assert that the Licensing Board erred in not finding that the City of San Juan Capistrano (which contains about one-half the population of the plume EPZ) was a "principal response organization" that must fulfill detailed emergency planning requirements. See 10 CFR §50.47(b). We disagree.

A principal response organization is one that has a "major or lead role[] in emergency planning and preparedness." NUREG-0654, *supra*, Appendix 5 at 5-1 (emphasis in original). The Commission's guidance recognizes that in any emergency planning zone there will be overlapping layers of government, and that these must be integrated into a cohesive emergency response. It suggests *inter alia*, that townships and municipalities by mutual agreement integrate their resources into an overall county or multi-county emergency response plan. *Id.* at 19-22.

That is what has been done here. The City of San Juan Capistrano does not itself have extensive resources that would be of use in an emergency. Consequently, it

⁵³ The portion of Riverside County that is within 50 miles of San Onofre is, of course, included in the ingestion EPZ. See generally Tr. 7343-52; Applicants' Exh. 121. The State of California is responsible for developing the emergency plan for that EPZ. 10 CFR §50.33(g).

has contracted with Orange County to provide the fire, law enforcement, transportation, and monitoring services it needs. Tr. 8689-90, 8691-92, 8694-95. The City has been an active participant in the regional planning of an emergency evacuation, has worked with other government agencies to develop procedures for coordinated emergency response actions, and has integrated its own emergency plan into the overall Orange County plan. Applicants' Exh. 134; Tr. 8685-92. By these efforts the city has assured that it will have available to it mutual assistance around the clock. Tr. 8691-92. These arrangements are fully consonant with the Commission's regulations and guidance. It would be highly unusual for a governmental entity, bereft of extensive resources of its own, to be required to take a lead role in planning the response to a radiological emergency.

D. Procedural Objections

Lastly, intervenors object on a number of grounds to the testimony of the Federal Emergency Management Agency (FEMA). FEMA is the lead agency responsible for evaluating whether State and local emergency plans are adequate and capable of being implemented. Its finding in that regard is entitled to a rebuttable presumption in Commission licensing proceedings. 10 CFR §50.47(a)(2). See generally FEMA/NRC Memorandum of Understanding, 45 Fed. Reg. 82713 (Dec. 16, 1980).

In this case FEMA issued "interim" findings on June 3, 1981 which were critical in various respects of the state of offsite preparedness at San Onofre. See LBP-82-39, *supra*, 15 NRC at 1212-13. The applicants sought to have the cited deficiencies corrected. To this end they met with local county and city officials, discussed with members of FEMA's West Coast regional office which criticisms FEMA considered most significant, and developed a set of proposals aimed at correcting the deficiencies. See Applicants' Exhs. 144, 146. Intervenors claim that those discussions between FEMA and the applicants violate the Commission's *ex parte* rule and denied them a fair hearing.

1. *Ex parte* discussions

This argument need not detain us long. As we said in our stay decision:

[N]othing in the Commission's *ex parte* rule (10 CFR 2.780) precludes conversations among parties, none of whom is a decisionmaker in the licensing proceeding. We doubt intervenors will persuade us in the pending appeal that it was improper for FEMA, the applicants, and the staff to confer about defects in the applicants' emergency plan and to suggest ways to correct them.

ALAB-680, *supra*, 16 NRC at 144. The fact that a final FEMA finding is entitled to a rebuttable presumption does not convert that agency into a decisionmaker in

Commission licensing proceedings. The adjudicatory boards and the Commission are the decisionmakers, not FEMA.

2. *Other Asserted Defects*

Intervenors allege further defects involving FEMA's testimony at the hearing: (1) that Kenneth Nauman, the regional FEMA analyst on the San Onofre emergency plans, was permitted to give testimony that contradicted the FEMA interim findings;⁵⁴ and (2) that the evaluation (included in Mr. Nauman's presentation) of applicants' proposed corrective actions by the FEMA national office was admitted into evidence without a proper sponsoring witness. Intervenors argue these errors were prejudicial because the Board relied on Mr. Nauman's testimony to conclude that the needed corrective actions for offsite emergency preparedness were straightforward and would be satisfactory to FEMA when accomplished. See LBP-82-39, *supra*, 15 NRC at 1213-16.

(a) *FEMA Interim Findings*

We are unpersuaded that Mr. Nauman was not entitled to contradict or expand upon the FEMA interim findings. This is so for three reasons. First, FEMA counsel represented that Mr. Nauman's direct testimony — testimony that reviewed and evaluated the corrective actions that the applicants then had underway — had been reviewed and approved by the national office. Tr. 10,399-10,400, 10,444. Thus, there is no inconsistency between the position of FEMA's regional office (for whom Mr. Nauman spoke) and the views of the national office. Second, Mr. Nauman testified to activities that had taken place *following* the issuance of the interim findings. Accordingly, his statements would not conflict with those findings. In essence, intervenors' position would "freeze" FEMA's contributions to the evidentiary record on emergency planning at the point of the FEMA interim findings, and would ignore evidence of any subsequent corrective actions until FEMA issued its "final" finding. As we explain below, this argument is inconsistent with the role of FEMA in Commission licensing proceedings and leads us to our third and most fundamental reason for rejecting intervenors' argument.

Intervenors' limiting view of the evidentiary record is at odds with the FEMA/NRC Memorandum of Understanding and a recent amendment to the Commission's emergency planning regulations. The Memorandum recognizes the distinct possibility that a final FEMA finding may not always be available in a timeframe compatible with the schedule of Commission licensing proceedings. It therefore provides that FEMA will offer its preliminary views on the state of offsite

⁵⁴ Mr. Nauman was the principal author of the interim findings.

emergency preparedness "based upon plans *currently* available to FEMA." 45 Fed. Reg. at 82714 (emphasis added). The Memorandum states further that to support its findings and determinations, "FEMA will make expert witnesses available before . . . NRC hearing boards and administrative law judges." *Ibid.* The clear import of the Memorandum is that FEMA will provide Commission licensing proceedings, through FEMA witnesses, the benefit of its most current evaluation of State and local emergency planning. There is no hint of "freezing" either FEMA or the licensing proceeding to earlier and likely outmoded information.

A recent amendment to the Commission's emergency planning regulations further supports this understanding. As revised, 10 CFR §50.47(a)(2) provides that emergency preparedness exercises are not required for a nuclear power plant operating license decision. Rather, the exercises "are part of the preoperational inspection and thus [are] required prior to operation above 5% of rated power, but not for a Licensing Board, Appeal Board, or Commission licensing decision." 47 Fed. Reg. 30232 (July 13, 1982). See also *id.* at 30233.⁵⁵ In contrast, FEMA will not issue its final finding on the adequacy of offsite preparedness until after State and local emergency planning exercises have been held.⁵⁶ It thus seems plain that the Commission expects licensing decisions on emergency preparedness to be made on the basis of the best available current information, and not deferred to await FEMA's last word on the matter.⁵⁷

⁵⁵ A petition for review of the amended rule has been filed. *Union of Concerned Scientists v. NRC*, No. 82-2053 (D.C. Cir. filed Sept. 10, 1982).

⁵⁶ FEMA's proposed rules regarding its approval of offsite emergency plans require the prior holding of a complete exercise of those plans. 45 Fed. Reg. 42341, 42345 (June 24, 1980). These rules reflect FEMA's current practice.

⁵⁷ There are, to be sure, both substantive and procedural limits as to how much of the emergency preparedness evaluation, or how many open items, may be deferred until after the close of the hearing. Substantively, the evidence must be sufficient for the Board to conclude that the state of emergency preparedness "provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." 10 CFR §50.47(a)(1). The Commission has stressed that this conclusion may be a predictive one, rather than a reflection of the actual state of emergency preparedness at the time of the board's decision. 47 Fed. Reg. at 30233. Moreover, as the Licensing Board points out (LBP-82-39, *supra*, 15 NRC at 1216), the Commission

has long . . . recognized in other areas of reactor regulation that not all matters have to be definitively resolved on the hearing record. Certain matters may be "left for the Staff to resolve following the hearings." (*Consolidated Edison Co. of New York* (Indian Point Station, Unit 2), 7 AEC 947, 951-952 (1974)). These matters typically are of a minor nature and/or are such that on-the-record procedures, including cross-examination, would be unlikely to affect the result. Procedurally, the limits are established by Section 189 of the Atomic Energy Act, as amended, 42 U.S.C. §2239, which entitles interested persons to an adjudicatory hearing on the issuance of a construction permit or operating license. This means that an intervenor must have the opportunity to litigate the substantive question whether there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. The Commission, may, of course, condition the exercise of that right upon the meeting of reasonable procedural requirements. See p. 354, *supra*.

(b) *Un-sponsored Expert Opinion*

Finally, we agree with intervenors that the Board erred in admitting into evidence the FEMA national office evaluation of the corrective actions then underway. Our analysis is much the same as that we applied to the admissibility of the FSAR, albeit the two documents vastly differ in magnitude. See pp. 365-68, *supra*.⁵⁸ The evaluation by the FEMA national office is essentially a conclusory expert opinion concerning the state of offsite emergency planning as of September 24, 1981, and the ease of implementing the needed corrective actions.⁵⁹ But FEMA witness Nauman, through whose testimony the FEMA national view was elicited, considered himself incompetent to speak to any questions regarding those national views. His authority, he indicated, ended at the regional level. Tr. 10,437-38. Thus, just as with the FSAR, the Board admitted expert opinion into evidence despite the proponent's refusal to stand cross-examination on a document it had prepared. This was error.

The error was not prejudicial, however. Mr. Nauman, speaking for the FEMA regional office, had reached the same conclusion as to offsite preparedness as the national office and was willing to stand cross-examination on those conclusions. Tr. 10,437-38. His testimony in that capacity provides the evidentiary basis for the Board's decision on the adequacy of emergency planning.⁶⁰ The absence of a

⁵⁸ The FSAR is more than 30 volumes. The FEMA national view at issue here, presented through the prepared testimony of Mr. Nauman, reads in full as follows:

Q. Are you familiar with the current National Office Views of the Federal Emergency Management Administration as to the adequacy as to the offsite Emergency response planning at SONGS II and III?

A. Yes.

Q. What is that view?

A. Given the commitment of Southern California Edison and local jurisdictions to the correction of the deficiencies noted in the FEMA interim findings of June 3rd, 1981, and their continuing efforts to correct these deficiencies, it is believed that, provided the needed corrective actions are completed, there is a reasonable assurance adequate protective measures can and will be taken in the event of a radiological emergency at SONGS II and III.

Additional Testimony of Kenneth Nauman, Jr. (September 24, 1981), fol. Tr. 10,420.

⁵⁹ As the Licensing Board noted, the testimony is rather ambiguous. We agree with the Licensing Board's interpretation of it (LBP-82-39, *supra*, 15 NRC at 1215-16 (footnote omitted)):

Read literally, it is tautological: all it really seems to say is that FEMA will find the plans to be adequate, if and when the plans are adequate. But we reject this reading of the testimony because it would then serve no useful purpose. In the light of Mr. Nauman's testimony as a whole, we read the quoted testimony as a "bottom line" determination that FEMA is satisfied with the adequacy of emergency planning for San Onofre, subject only to the completion of the previously agreed upon corrective action items. Implicit in this interpretation is a FEMA judgment that the corrective action items are fairly simple and straightforward, not likely subjects of debate. Otherwise, FEMA presumably could not render a favorable opinion in advance.

⁶⁰ The testimony did not rise far above the minimally adequate. Much of it was a wearisome train of circumlocution. However, it did conclude that the corrective actions then under way were straightforward and satisfactory to FEMA. Intervenors have not advanced an evidentiary basis to dispute that general conclusion, nor particularized what corrective actions are claimed to be deficient.

national imprimatur is not critical. As the Board explained (LBP-82-39, *supra*, 15 NRC at 1216):

This FEMA testimony points up the practical problem that confronts the San Onofre Applicants and others like them who may not have had enough time to come into full compliance with the new emergency planning rule before hearings on their operating licenses. They must demonstrate to a board a "reasonable assurance" of adequacy based in part upon future actions. The Commission has recognized this problem and has addressed it in part by amending the rule to provide for full-scale emergency preparedness exercises after the hearing. (See 46 Fed. Reg. 61134, amendment to 10 CFR 50.47(a) and Appendix E) In so doing, the Commission recognized that "the findings on emergency planning required prior to license issuance are predictive in nature and do not need to reflect the actual state of preparedness at the time the finding is made." A licensing board is to find a "reasonable assurance . . . that there are no barriers to emergency planning implementation . . .," but that consideration "can be adequately accounted for by predictive findings."

While a FEMA national review undoubtedly would lend more weight to a predictive finding of adequacy, we are unwilling to give it decisive importance. To do so would run contrary to the Commission's judgment, reflected in its recent amendment to 10 CFR §50.47, that licensing decisions on emergency planning issues need not await the rendition of a final FEMA finding.⁶¹

For the foregoing reasons, the Licensing Board's January 11 and May 14, 1982 decisions authorizing the issuance of full power operating licenses for San Onofre Nuclear Generating Station, Units 2 and 3, are *affirmed*, subject to the following license conditions:

1. Within 120 days applicants are to undertake further efforts to assemble and to keep current as reasonably complete a list as possible of house-bound people within the plume emergency planning zone who would require transportation assistance in the event of an evacuation.
2. Within 120 days a training program is to be developed and initiated to assist Orange County Transit District bus drivers in the discharge of

⁶¹ See note 57, *supra* as to the limits of this approach. Subsequent FEMA evaluations have borne out the Board's positive findings based upon the hearing record. As we said in our stay decision:

Another training exercise involving these jurisdictions was carried out on April 15, 1982 and evaluated by FEMA. Although FEMA's evaluation material is outside the record of these proceedings, no party objects to our looking at the evaluation for the specific purpose of confirming that the monitoring capabilities have not deteriorated since the time of the evidentiary hearing. App. Tr. 82. They have not deteriorated. We note this summary statement found on page ii of the evaluation: "Overall, our observations concluded that all jurisdictions reflected an adequate or better capability to respond to an offsite emergency at San Onofre N.G.S."

ALAB-680, *supra*, 16 NRC at 141 n.20. See also LBP-82-39, *supra*, 15 NRC at 1218-19.

their responsibilities in the event of a radiological emergency at San Onofre.

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. STN 50-437-ML

**OFFSHORE POWER SYSTEMS
(Manufacturing License for
Floating Nuclear Power
Plants)**

March 10, 1983

The Appeal Board, *sua sponte*, affirms the Licensing Board's decision (LBP-82-49, 15 NRC 1658 (1982)), authorizing the issuance of a license, subject to a condition, for the manufacture of eight standardized floating nuclear power plants.

MANUFACTURING LICENSE: SCOPE OF REVIEW

In a manufacturing license proceeding, where particular sites have not yet been identified, the focus is on issues arising from the standardized plant itself. Consequently, analyses and evidence will be generic in character. Consideration of site-specific concerns is properly deferred.

DECISION

This proceeding involves the first application for a license to manufacture standardized nuclear power plants.¹ In its initial decision, the Licensing Board resolved all issues contested at the hearing and concluded that the issuance of a license to applicant Offshore Power Systems for the manufacture of eight standardized floating nuclear plants was warranted. Accordingly, the Board authorized the Director of Nuclear Reactor Regulation to issue such a license, subject to a condition concerning hydrogen control. LBP-82-49, 15 NRC 1658 (1982). No party has appealed that decision, but, as is our practice, we have reviewed it and portions of the underlying record *sua sponte*. We are in substantial agreement with the Board's opinion and have discovered no error requiring corrective action.

In reaching this judgment, we have noted several areas in which the record at first blush does not seem to be fully developed or the analysis appears to be limited.² But this must necessarily be the case with regard to an application for a manufacturing license, where particular sites have not yet been identified. In this type of proceeding, the focus must and should be on issues arising from the standardized plant itself. Consequently, analyses and evidence will be generic in character. Consideration of site-specific concerns is properly deferred, not wrongly ignored.³

One such matter in particular, however, does deserve some additional comment at this time. Amended Contention 3 of the City of Brigantine, New Jersey, questioned whether the high voltage electrical cables that will transmit electricity between the shore and the floating plant will provide a reliable source of emergency power. The Licensing Board found that "[t]ransmission circuits for emergency power are not within the scope of the FNP [floating nuclear plant] design; specific designs for emergency power transmission will depend upon the site chosen." *Id.* at 1693. Nonetheless, applicant and the NRC staff presented, and the Board discussed, general evidence concerning underground and underwater cables. Among the questions touched upon were the desirability of a spare circuit, the

¹ As we explained at an earlier stage of this case, the licensing of commercial reactors has traditionally been accomplished in two steps, through the issuance of first a construction permit and then an operating license. The procedure invoked by a request for a manufacturing license, however, contemplates three steps. First, pursuant to such license, standardized plants are produced at industrial locations. When a site for one of these plants is later selected, a construction permit is required before commencement of the necessary site preparatory work. Lastly, an operating license must be obtained before operating the facility. See ALAB-686, 16 NRC 454, 455 n.1 (1982).

² For example, applicant evaluated aircraft crash probability for only representative sites along the Atlantic and Gulf coasts more than five miles from airports. It is not improbable, however, for a floating plant to be located at an ocean or river site within five miles of an airport, where crash probability increases dramatically. See LBP-82-49, *supra*, 15 NRC at 1713.

³ See, for example, *id.* at 1708, where the Board indicates that sites ultimately selected for the standardized plants will have to be evaluated and must meet regulatory requirements relating to meteorological and geological conditions at those particular sites.

assurance of the integrity of the cables and their ability to withstand leaks, and the feasibility of flexible connections between the FNP platform and the underwater cables. *Id.* at 1694. These concerns highlight the special nature of the plants proposed here: moored offshore, they are tethered by a limited number of circuits to onshore power sources. The increased vulnerability of these plants to loss of offsite power, and thus the possibility of complete station blackout, is manifest.

In this respect, the FNP's are not unlike at least one land-based plant, the St. Lucie facility. Because of that plant's location on the Florida peninsula, its electrical transmission system can be connected with only the grids of other systems to the north. Consequently, the reliability of *onsite* emergency power and the consideration of station blackout assumed special significance during the licensing process. See *Florida Power and Light Co.* (St. Lucie Nuclear Power Plant, Unit No. 2), ALAB-603, 12 NRC 30 (1980). The same extra attention to the probability of loss of offsite power and the reliability of onsite sources is, in our view, justified with respect to floating nuclear plants, once sites for them are selected.⁴ Thus, while this matter does not warrant further pursuit now, it appears to be fertile ground for greater exploration at the construction permit stage.

The Licensing Board's decision (LBP-82-49) is *affirmed*.
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

⁴ Specifically, the plants' ability to withstand station blackout should be evaluated in terms of how quickly some power (*i.e.*, offsite or onsite) can be restored.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Thomas S. Moore, Chairman
Dr. W. Reed Johnson
Dr. Reginald L. Gotchy

In the Matter of

Docket No. 50-266-OLA-2

WISCONSIN ELECTRIC POWER
COMPANY

(Point Beach Nuclear Plant,
Unit 1)

March 22, 1983

The Appeal Board affirms the Licensing Board's decision (LBP-82-108, 16 NRC 1811 (1982)) dismissing an intervenor from this license amendment proceeding for failing to fulfill its hearing obligations and, alternatively, for failing to put forth at least one acceptable contention as required by 10 CFR §2.714(b).

APPEAL BOARD: STANDARD OF REVIEW (SCHEDULING OF HEARINGS)

An appeal board will overturn a licensing board's denial of a request for a schedule change only on a finding that the board abused its discretion by setting a schedule that deprives a party of its right to procedural due process. *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 1), ALAB-696, 16 NRC 1245, 1260, quoting from *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-459, 7 NRC 179, 188 (1978).

LICENSING BOARD: DISCRETION IN MANAGING PROCEEDINGS (DISMISSAL)

Dismissal of a party is a serious step that generally should be reserved for the most severe failure of a participant to meet its obligation. *Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-678, 15 NRC 1400, 1416 (1982). The Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981), consistent with the practice in the federal courts, requires that a board consider all the circumstances in determining whether a dismissal is warranted. See Fed. R. Civ. P. 41(b); *Link v. Wabash Railroad Co.*, 370 U.S. 626, 634-35, *reh'g denied*, 371 U.S. 873 (1962).

RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES

A participant in an NRC proceeding should anticipate having to manipulate its resources, however limited, to meet its obligations. *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Units 1 and 2), ALAB-666, 15 NRC 277, 279 (1982); *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-566, 10 NRC 527, 530 (1979).

RULES OF PRACTICE: BRIEFS

Issues must be fully briefed in order to be considered on appeal. *Point Beach*, ALAB-696, *supra*, 16 NRC at 1255, and cases cited.

APPEARANCES

Peter Anderson, Madison, Wisconsin, for the intervenor, Wisconsin's Environmental Decade.

Bruce W. Churchill and **Delissa A. Ridgway**, Washington, D.C., for the applicant, Wisconsin Electric Power Company.

Richard G. Bachmann and **Henry J. McGurren** for the Nuclear Regulatory Commission staff.

DECISION

We have before us the appeal of Wisconsin's Environmental Decade (Decade) from the Licensing Board's special prehearing conference order dismissing Decade's petition to intervene in this license amendment proceeding concerning the applicant's plan to replace the two steam generators in Point Beach Nuclear Plant, Unit 1.¹ The Board dismissed the petition on two independent grounds: that Decade (1) willfully failed to attend a scheduled prehearing conference and was thereby in default of its hearing obligations, and (2) failed to put forth at least one acceptable contention as required by 10 CFR §2.714(b). For the reasons stated below, we affirm the dismissal.

I.

This is another of the three license amendment proceedings to reach us concerning the Point Beach steam generators. The first involved the applicant's request for permission to repair a specified small number of degraded steam generator tubes in Unit 1 as a demonstration project using a newly developed "sleeving" technique. We ruled, on Decade's appeal, that the Licensing Board properly authorized a license amendment.² The second, which is now pending before us on Decade's appeal, involves the applicant's desire to perform a full-scale sleeving operation on the degraded steam generator tubes in Point Beach Units 1 and 2 (hereinafter referred to as the sleeving proceeding). In that proceeding, the Licensing Board authorized the license amendment.³ The instant license amendment proceeding was initiated on May 27, 1982, when the applicant notified the Commission of its intention to replace the steam generators in Point Beach Unit 1.⁴ The Commission subsequently published a notice of opportunity for hearing⁵ and Decade timely filed its intervention petition on August 10, 1982.

¹ See LBP-82-108, 16 NRC 1811 (1982).

² See *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 1), ALAB-696, 16 NRC 1245 (1982).

³ See LBP-83-4, 17 NRC 109 (1983).

⁴ In early 1982, the applicant notified the Licensing Board that, for reasons of economy, it would replace the Unit 1 steam generators rather than undertake further sleeving in that unit. Letter from applicant's counsel to Licensing Board (Jan. 15, 1982). The applicant did not withdraw its application for authorization to sleeve Unit 1 because further repair of those steam generators might be required. Licensee Response to Decade Motion to Dismiss Application in Part (Feb. 16, 1982) at 2. In denying Decade's motion to dismiss the sleeving amendment application with respect to Unit 1, the Licensing Board stated (LBP-82-10, 15 NRC 341, 345 (1982)):

Applicant seeks a change in the technical specifications for its power reactors so that it may repair them pursuant to the changed specifications at a time of its choosing. We see no reason why a change in the timing or extent of repairs should affect applicant's right to seek a license amendment. Nor has Decade provided us with any authority to the contrary.

⁵ 47 Fed. Reg. 30125 (July 12, 1982).

On October 6, 1982, the Licensing Board, which has presided over all three proceedings, held a telephone conference in the sleeving proceeding and scheduled a hearing in Wisconsin to commence on the morning of November 17 and to continue, if necessary, through the morning of November 20. The Board indicated that the final matter to be considered at the hearing would be a special prehearing conference concerning the steam generator replacement license amendment.⁶ Notice of this schedule was subsequently published in the *Federal Register*.⁷

The evidentiary hearing in the sleeving proceeding commenced as scheduled in Milwaukee on Wednesday morning, November 17. That evening, the Board traveled to Two Rivers, Wisconsin, where it heard limited appearance statements⁸ and then returned to Milwaukee. The sleeving hearing reconvened Thursday morning, November 18, and was completed at approximately 6:00 p.m. At that time, the Board announced that the scheduled prehearing conference relating to the replacement amendment would begin the following morning at 9:00 a.m.⁹ Following an off-the-record discussion, the Board stated that Decade's representative had just brought to its attention a scheduling conflict. Decade had informed the Board of an "important meeting that might occur at 11:00 a.m." the following morning.¹⁰ The applicant and the NRC staff, the Board stated, preferred to begin the conference the next morning but nonetheless were willing to proceed that evening. The Board, noting that the hearing had originally been scheduled to last at least three days, then ruled that the conference would begin the next morning when the parties would be "fresher."¹¹ It cautioned Decade's representative that, if Decade were not represented, there was a "good chance they will default in the proceeding."¹²

Confronted with continued protest by Decade, the Board asked Decade's representative to "[r]efresh" its recollection "in detail" of the asserted conflict and the reason why he had waited until Thursday evening to raise it. Decade's representative responded that he had been notified by his office that afternoon of the meeting and that "the Governor-elect wasn't elected until [after] this hearing was set"¹³ — which was the first mention by Decade on the record of the party with whom Decade was meeting. When the Board then asked, "[t]he Governor-elect is going to do what?," Decade's representative replied only that he did not think it "appropriate for me to discuss exactly what we're doing," but the general issue was

⁶ Tr. 1350-51. Transcript references in this decision are to the record of the sleeving proceeding unless otherwise indicated.

⁷ 47 Fed. Reg. 46914 (Oct. 21, 1982). The hearing was later relocated from Two Rivers, Wisconsin to Milwaukee. 47 Fed. Reg. 47954 (Oct. 28, 1982).

⁸ See 10 CFR §2.715(a).

⁹ Tr. 1880.

¹⁰ Tr. 1881.

¹¹ *Ibid.*

¹² Tr. 1882.

¹³ *Ibid.*

to be the "transition that is going on with the Governor's office in Wisconsin."¹⁴ The meeting time, he asserted, was the "only option" given Decade. The Board again ruled that the special prehearing conference would go forward at 9:00 a.m. the next day. It advised Decade's representative that, if Decade were not present, the Board would proceed without it.¹⁵

The Board convened the special prehearing conference at 9:00 a.m. on Friday, November 19. Decade was not represented.¹⁶ On December 10, the Board issued its order dismissing Decade's intervention petition. This appeal followed.

II.

Preliminarily, we think that the Board reasonably decided not to convene the prehearing conference on the evening of November 18 in accordance with Decade's last-minute request. We will overturn a licensing board's denial of a request for a schedule change only on a finding that the board abused its discretion "by setting a . . . schedule that deprives a party of its right to procedural due process" [footnote omitted].¹⁷ We do not find that here. Decade was well aware that this hearing was scheduled to last at least three days. In denying Decade's request to alter the schedule, the Board was simply directing that the hearing proceed into a previously scheduled third day rather than extraordinarily prolong the first two days of the session.¹⁸ Thus, the Board was not denying Decade the opportunity to participate in the prehearing conference but rather holding it to the previously noticed schedule.

After Decade failed to abide by the Licensing Board's ruling by not appearing at the prehearing conference, the Licensing Board found that Decade's action was "willful" and merited the application of sanctions. In determining that Decade should be dismissed, the Licensing Board analyzed the factors specified in the Commission's guidance governing the imposition of sanctions against hearing

¹⁴ Tr. 1883.

¹⁵ *Ibid.*

¹⁶ Tr. 42 (OLA-2).

¹⁷ *Point Beach*, ALAB-696, *supra*, 16 NRC at 1260, quoting from *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-459, 7 NRC 179, 188 (1978). See also *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-541, 9 NRC 436, 437-38 (1979) (interlocutory challenge to licensing board denial of intervenors' request to reschedule prehearing conference).

¹⁸ The Licensing Board reasoned, and we cannot disagree, that after two full days of hearings and one evening of limited appearances at a location in another city, it would be "fresh[er] of mind and body" the next morning. The Board said (16 NRC at 1814):

Although mental processes can be made to function with some efficiency after extended hearing hours, there is inevitably some loss of efficiency; that must be weighed against the importance of the need for proceeding immediately.

participants for failure to meet their obligations.¹⁹ As we read that guidance, the balancing it suggests seems most applicable where the circumstances present a board with a choice of several appropriate sanctions. As we explain below, that was not the situation confronting the Licensing Board.

Dismissal of a party is a serious step that generally should be reserved for "the most severe failure of a participant to meet its obligations."²⁰ The Commission's policy statement, consistent with the practice in the federal courts,²¹ requires that a board consider all the circumstances in determining whether dismissal is warranted. See note 19, *supra*. Considering all the circumstances, we think no lesser sanction than dismissal is commensurate with Decade's failure to fulfill its hearing obligation after the Licensing Board denied Decade's eleventh-hour request for a schedule change. As early as October 6, 1982, Decade was on notice that the special prehearing conference concerning the steam generator replacement amendment would be held following the sleeving hearing scheduled for November 17-20. Decade knew that the purpose of the conference was to consider the admissibility of its contentions.²² The "bases" Decade submitted to the Licensing Board in support of its contentions consisted mainly of unconnected quotations drawn from various documents and technical reports. Decade therefore had a paramount obligation to ensure it was represented at the prehearing conference to support its contentions. The Licensing Board thus was justified in concluding that Decade's failure to do so warranted serious redress.

The Commission's policy statement suggests various sanctions a board may impose (13 NRC at 454):

warn the offending party that such conduct will not be tolerated in the future, refuse to consider a filing by the offending party, deny the right to cross-examine or present evidence, dismiss one or more of the party's contentions, impose appropriate sanctions on counsel for a party, or, in severe cases, dismiss the party from the proceeding.

But, here, the choice of a sanction less severe than dismissal was neither available to the Licensing Board nor appropriate in the circumstances. Because

¹⁹ See *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981). In the policy statement, the Commission suggests the following factors be considered in selecting a sanction once it is determined some sanction is appropriate (*id.* at 454):

the relative importance of the unmet obligation, its potential for harm to other parties or the orderly conduct of the proceeding, whether its occurrence is an isolated incident or a part of a pattern of behavior, the importance of the safety or environmental concerns raised by the party, and all of the circumstances.

²⁰ *Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-678, 15 NRC 1400, 1416 (1982).

²¹ See Fed. R. Civ. P. 41(b); *Link v. Wabash Railroad Co.*, 370 U.S. 626, 634-35, *reh'g denied*, 371 U.S. 873 (1962).

²² See 47 Fed. Reg. 46914 (Oct. 21, 1982). See also 10 CFR §2.751a(a)(1), (2).

Decade was appearing with a lay representative, the Board could not impose sanctions against counsel, and reprimand or censure of a non-lawyer representative has no practical utility. It independently determined that Decade had not pled even one acceptable contention, so it did not have the option of striking or limiting discovery on any contention. Indeed, no discovery had been initiated so the Board could not, for example, limit the number of interrogatories Decade could otherwise file. All that could be done short of dismissal was to warn Decade not to default on its obligations in the future. Given that Decade had already been warned of the possible consequences if it did not appear at the conference, we think further warning would have been futile. Dismissal in these circumstances was the sole available sanction.²³

On appeal, Decade has elaborated somewhat on the nature of its scheduling conflict. Decade explains that, at approximately 4:30 p.m. on November 18, during a recess in the sleeving hearing, Decade's representative called his office and learned that the office of Wisconsin's Governor-elect had scheduled a meeting with him for 11:00 a.m. the following day. The purpose of the meeting, Decade explains, was to "discuss issues related to the new Governor's impending appointments and transition policies" and was, in Decade's view, of "enormous importance."²⁴ More specifically (Decade Brief at 6),

the Governor-elect makes appointment to the [S]tate Public Service commission and Wisconsin Division of Energy, where decisions are made that may implicate the safety and operation of Point Beach. Those appointments were being discussed and made in the period when the conflicting meeting was scheduled. If we did not attend that conflicting meeting at the time provided, it is unlikely that we could have been rescheduled before those appointments were tentatively determined.

According to Decade, the conflict was irremediable — the prehearing conference had been scheduled prior to the November 2 election, "which led to the conflicting meeting," and the "meeting was set by the Office of the Governor-Elect at the last minute without any control by [Decade]."²⁵ Were it not to attend the meeting in the Governor-elect's office at the time offered, Decade suggests, it would risk not receiving another opportunity to voice its views on the impending appointments until it was "too late."²⁶

The additional information bolsters, to a certain extent, Decade's assertion that its competing commitment on the morning of November 19 was important. But its explanation — assuming *arguendo* its validity — comes too late. Decade had the

²³ As the Licensing Board stated (16 NRC at 1816):

It is . . . important that the nonappearance was willful. Decade argued that the schedule should accommodate its needs and the Board rejected its argument. It had full notice that it would risk default if it did not appear.

²⁴ Decade Brief (Dec. 20, 1982) at 3, 5.

²⁵ *Id.* at 5.

²⁶ *Id.* at 8.

opportunity and the obligation to supply the Licensing Board with all pertinent facts in support of its request to alter the prehearing conference schedule. The Board explicitly asked Decade's representative to explain "in detail" why the schedule should be altered at the eleventh hour. His response was curt and essentially uninformative.²⁷ Having failed to provide the Licensing Board with even the limited explanation it now proffers in its appellate brief, Decade cannot be heard to complain about the Board's refusal to alter the conference schedule — a schedule that Decade then chose to ignore.

Moreover, Decade's new explanation, like its original one, still does not justify Decade's failure to have *any* representative at the prehearing conference. It was unreasonable, Decade argues, to expect it to have had another representative in the instant proceeding because of Decade's limited resources and commitment to addressing other major environmental matters.²⁸ But Decade does not indicate that it even attempted to arrange for another individual to be present at either location.²⁹ Nor does it mention that any effort was made to reschedule the meeting with the Governor's office (beyond its assertion that the time offered was its "only option").³⁰ It is well-settled that a participant in an NRC proceeding should anticipate having to manipulate its resources, however limited, to meet its obligations.³¹ Thus, considering all the circumstances, we cannot conclude that the Licensing Board abused its discretion in dismissing Decade's intervention petition for Decade's failure to fulfill its hearing obligations.³²

The Board also assigned an independent ground for dismissal of Decade's petition. The Board analyzed each of Decade's contentions and its basis and found

²⁷ See pp. 390-91, *supra*. As stated by the Licensing Board, the information provided by Decade was "highly incomplete." 16 NRC at 1816.

²⁸ Decade Brief at 8.

In a previous decision in the sleeving proceeding, we observed that Decade appears to be quite a substantial organization (*Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Units 1 and 2), ALAB-666, 15 NRC 277, 279 (1982)):

Its letterhead lists an organization staff of 10 individuals (quite apart from its 17 member Board of Directors) and its brief informs us that [Decade] has over 50,000 members.

The Licensing Board paraphrased this statement from ALAB-666 and added that Decade's staff included "two co-directors, one of which is a lawyer that appeared in the companion proceeding." 16 NRC at 1815. Further, Decade's intervention petition states that, although its principal office is in Madison, Wisconsin, it has a district office in Milwaukee, which was the site of the prehearing conference. Decade Petition (Aug. 10, 1982) at 1.

²⁹ As the Licensing Board stated, Decade "never commented on why it could not be represented by some other individual or why . . . Decade's representative . . . was personally needed by the governor-elect." 16 NRC at 1815-16.

³⁰ Decade claims only that it is "unlikely" that the meeting could have been rescheduled. See p. 393, *supra*. In this regard, the Licensing Board noted that "Decade owed us, at the very least, a statement that the governor-elect had been informed about the scheduling conflict and had been unable to make a different time available." 16 NRC at 1816.

³¹ *Point Beach*, ALAB-666, *supra*; *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-566, 10 NRC 527, 530 (1979). See also Commission Policy Statement, *supra*, 13 NRC at 454.

³² See *Kung v. Fom Inv. Corp.*, 563 F. 2d 1316, 1318 (9th Cir. 1977); *Zavala Santiago v. Gonzalez Rivera*, 553 F.2d 710, 712-13 (1st Cir. 1977); *Beshear v. Weinzapfel*, 474 F.2d 127, 131 (7th Cir. 1973).

that each was either irrelevant to the steam generator replacement proceeding or insufficiently pled.³³ Thus, irrespective of the fact that Decade was in default of its hearing obligations, the Board would have dismissed its petition pursuant to 10 CFR §2.714(b) for failure to proffer at least one good contention. On appeal, Decade asserts that the Board erred in rejecting Decade's petition on this ground. Yet Decade's brief does not challenge the Board's analysis and conclusion concerning the basis Decade offered for any particular contention. Rather, Decade's brief merely quotes, with little more, its original contentions.³⁴ We have said before that issues *must* be fully briefed in order to be considered on appeal.³⁵ We repeat what we said in ALAB-696:

[B]riefs are necessary to "flesh out" the bare bones of [an appeal], not only to give us sufficient information to evaluate the basis of objections to the decision below, but also to provide an opponent with a fair opportunity to come to grips with the appellant's arguments and attempt to rebut them. The absence of a brief not only makes our task difficult but, by not disclosing the authorities and evidence on which the appellant's case rests, it virtually precludes an intelligent response by appellees. For these reasons we generally follow the course charted by the Federal courts and disregard unbriefed issues as waived.³⁶

Decade has failed to brief adequately its claim that the Board erroneously dismissed its contentions and its appeal on this ground must therefore fail.

In sum, we find that the Board's dismissal of Decade's intervention petition was not an abuse of its discretion and we affirm its order of December 10, 1982. In view of two potential problems that are apparent to us from our review of this case, however, we are issuing today a separate order seeking from the applicant certain additional information in relation to the proposed steam generator replacement.

³³ It did so, of course, without the benefit of guidance from Decade at the prehearing conference. Decade's supplement to its intervention petition contained seven contentions. The Licensing Board found that five of them (numbers 1, 2, 4, 5 and 6) were irrelevant to the steam generator replacement amendment and therefore outside the scope of the proceeding. See 16 NRC at 1818-21. Of the remaining two contentions, the Board found that number seven did not meet the specificity requirement of 10 CFR §2.714(b) because it was so vague that it failed to give the applicant notice of what it must defend against, and that each of the four subparts of contention three failed to state an adequate basis as required by the regulation. *Id.* at 1821-24.

³⁴ In this regard, Decade's brief provides no substantive argument on the relevancy of its contentions numbered 1, 2, 4, 5 and 6 to the steam generator replacement amendment. Similarly, the brief neither explains how its contention seven meets the specificity requirement of the Commission's regulations, or demonstrates the adequacy of the bases for each of the four subparts of contention three. See note 33, *supra*. Rather, the sole "argument" advanced by Decade consists of a string of citations and propositions about when summary disposition is appropriate. Decade then claims that the Licensing Board ruling on its contentions is inconsistent with these propositions. It appears, however, that Decade has confused the standards of admissibility of contentions with those that relate to summary disposition; Decade's citations and propositions thus are all inapposite. Moreover, any argument that the Commission cannot impose the threshold requirements for the admissibility of contentions contained in 10 CFR §2.714(b) is frivolous. See *BPI v. Atomic Energy Commission*, 502 F.2d 424 (D.C. Cir. 1974).

³⁵ See *Point Beach*, ALAB-696, *supra*, 16 NRC at 1255, and cases cited.

³⁶ 16 NRC at 1255, quoting from *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-461, 7 NRC 313, 315 (1978) (footnotes omitted).

For the foregoing reasons, the Licensing Board's special prehearing conference order of December 10, 1982 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
Stephen F. Elperln
Howard A. Wilber**

In the Matter of

Docket No. 50-70-SC

**GENERAL ELECTRIC COMPANY
(Vallecitos Nuclear Center —
General Electric Test Reactor,
Operating License No. TR-1)**

March 23, 1983

The Appeal Board, *sua sponte*, affirms the Licensing Board's initial decision (LBP-82-64, 16 NRC 596 (1982)) in this show cause proceeding instituted to consider certain issues pertaining to the appropriate seismic and geological design bases for the General Electric Test Reactor (GETR).

APPEAL BOARD: STANDARD OF REVIEW

An appeal board's *sua sponte* affirmance of a licensing board decision does not have *stare decisis* effect insofar as concerns the questions of law addressed in the licensing board decision.

TECHNICAL ISSUES DISCUSSED

Probabilistic analyses of fault occurrence and soil displacement;
Fault deflection.

DECISION

We have before us the Licensing Board's initial decision in this show cause proceeding instituted to consider certain issues pertaining to the appropriate seismic and geological design bases for the General Electric Test Reactor (GETR). LBP-82-64, 16 NRC 596 (1982). Located at the General Electric Company's Vallecitos Nuclear Center near Pleasanton, California, this 50 megawatt (thermal) reactor received an operating license in January 1959 for the purposes of (1) the production of radioisotopes for medical and industrial uses and (2) the testing of reactor fuels and materials.

The events leading up to the show cause proceeding (and the suspension of the operating license *pendente lite*) are adequately described in the introductory section of the Licensing Board's opinion and need not be rehearsed in detail. It suffices here to note that the proceeding was triggered by an NRC staff review of the geology and seismology of the Vallecitos site that had been undertaken in connection with GE's application for a license renewal. During the course of that review, the staff received a United States Geological Survey (USGS) report that disclosed that a geological anomaly, denominated the Verona fault, comes within approximately 200 feet of the GETR. (It previously had been believed that the fault was about one-half mile from the reactor.) Given this disclosure, the Licensing Board was called upon to reassess the seismic and geologic design bases for the GETR and to determine, in light of that reassessment, whether facility modifications would be required to meet any revisions in those design bases.

On the basis of the record developed at the evidentiary hearing on these questions, the Licensing Board made numerous findings of fact, from which it reached several conclusions of law. As to many of those findings and conclusions, the Board was unanimous. There was sharp disagreement, however, between the Board Chairman and his colleagues on one matter. This disagreement prompted a lengthy separate opinion by the Chairman, followed by a rejoinder on the part of the Board majority.¹

Nevertheless, no party has appealed any portion of the initial decision. Thus, as is customary in such circumstances, we have reviewed the decision and the underlying evidentiary record on our own initiative. On those issues respecting which there was no difference in result below, we find no cause to disturb the

¹ The Licensing Board's ultimate determination was that (1) the design of safety-related GETR structures, systems and components required modification in light of the geological and seismic design bases prescribed by the Board; and (2) the necessary modifications could be accomplished.

The proceeding involving the GETR license renewal application itself is still pending below. Also remaining before the Licensing Board is GE's application for a renewal of its special nuclear material license for the Vallecitos Nuclear Center.

outcome announced in the majority opinion.² With regard to the matter on which the Licensing Board was divided, for the reasons summarized below we accept the majority view. Accordingly, the initial decision is affirmed.

1. Were an earthquake to occur on the Verona fault, there could be some permanent soil displacement (*i.e.*, surface offset). Because of the particular characteristics of this fault, the displacement would be in both horizontal and vertical directions. Accordingly, in the event that the displacement took place under the reactor building, there would be stresses upon both its foundation and walls — which would carry over, at least in part, to the safety-related structures and equipment within the building.

Obviously, the facility must be designed to provide reasonable assurance that any such stresses would not threaten the integrity of those components. Because of the relationship between the extent of soil displacement and the particular stresses associated with it, the Board necessarily had to address the question of how much displacement under the reactor is to be assumed for design basis purposes. It was on this question that the Board was not unanimous. In the view of the majority, a one meter displacement should be assumed; in the opinion of the dissenting member, the appropriate figure is two meters.

It should be noted preliminarily that there is considerable uncontroverted evidence in the record suggesting that it is highly unlikely that a seismic event on the Verona fault would produce *any* soil displacement under the reactor building itself. This evidence took the form of analyses — performed independently by the licensee and the staff — which indicated that the soil displacement would be deflected away from the base of the building (Pichumani, fol. Tr. 996, at pp. 5-7; Lic. Exh. 1, at pp. 84-94; Tr. 236-39, 401-02, 467-69, 491-93, 2264-96). In such circumstances, the displacement might nonetheless occasion damage to the outer walls (containment) of the building (Tr. 1965-66).³ But there would not be a like

² To be sure, in his separate opinion the Board Chairman noted that, on several such issues, he had come to the same conclusion as his colleagues without subscribing to all that was said on the particular point in the majority opinion. We believe those issues were correctly resolved by the Board and see no reason to pursue here the differences between the Chairman's analysis and that of the other Board members.

³ As all three members of the Licensing Board agreed, the record reflects that a loss of containment attributable to an earthquake would not result in radioactive releases beyond those permitted by Commission regulation. 16 NRC at 646, 696-97. This is so, according to a staff witness, because (1) the reactor would automatically shut down prior to any possibility of fuel damage stemming from continued operation; (2) the core would not become uncovered; and (3) the fuel would not be adversely affected by the seismic motions (Tr. 2219).

The full Board below also agreed that it was not necessary to consider the consequences of the simultaneous occurrence of an earthquake and a non-seismic design basis accident. Although recognizing that such consideration would have been required by Appendix A to 10 CFR Part 50 had the facility at bar been a power reactor, the Board concluded that Appendix A had no applicability to test reactors such as the GETR. 16 NRC at 646, 653, 698. This conclusion seems adequately supported by the introduction to the Appendix, which indicates that its requirements extend solely to "nuclear power plants." A "nuclear power unit" is then defined in terms of "nuclear power reactor and associated equipment necessary for electric power generation." In the absence of any challenge to the conclusion, we therefore accept it for the purposes of this case. See fn. 7, *infra*.

threat to the safety-related components contained therein; *i.e.*, the stresses associated with a displacement adjacent to (rather than under) the reactor slab would not have an impact upon those components (Lic. Exh. 22, at p. 55).

No party attempted to demonstrate that the fault deflection analyses were flawed in some material respect. That being so, it would appear that the difference of opinion between the Board Chairman and his colleagues is of very limited significance. The short of the matter is that, whether one or two meters in extent, a deflected soil displacement is not a major safety concern.

2. In coming to grips with the question of the appropriate design basis respecting soil displacement, the Licensing Board majority assessed several lines of evidence bearing upon the location, dip, and extent of any displacement that might result from an earthquake on the Verona fault. In addition to the fault deflection analyses, the record included (1) data derived from trenches that had been dug at the site in the course of GE's geological investigation; (2) a comparison of the characteristics of the Verona fault with those of other faults in California (*e.g.*, the San Fernando fault); (3) worldwide data for maximum soil displacements during seismic activity; and (4) two independent probabilistic analyses that focused on the likelihood (fault deflection considerations to one side) that a seismic event on the Verona fault would produce soil displacement under the reactor of over one meter. See 16 NRC at 619. The majority's detailed appraisal of this evidence led to its ultimate adoption of a design value of one meter.

Our independent examination of the record has brought us to the same result. In this connection, we have scrutinized the reasons assigned by the Chairman of the Licensing Board in support of his contrary conclusion that the seismic design of the facility should make allowance for a two meter soil displacement under the reactor. When evaluated in the light of the full record, however, those reasons do not carry the day.

More specifically, as we see it, there are several crucial difficulties with the dissenting opinion below. Inasmuch as no party to the proceeding has urged the correctness of any portion of the dissent, we need not undertake to expound upon each such difficulty here. By way of illustration, we briefly note two of them.

a. GE performed one of the two probabilistic analyses to which we have earlier referred.⁴ A part of the staff review of that analysis was conducted in a consultant capacity by Dr. David B. Slemmons, a Professor of Geology and Geophysics at the University of Nevada at Reno. Testifying as a staff witness, Dr. Slemmons stated that, in his opinion, the GE analysis rested on an adequate data base (Tr. 1549).

In questioning the validity of the GE analysis, the dissent did not even allude to this testimony. Rather, the dissent confined its consideration of the "sufficiency of [the] geological information" underlying the analysis to what it characterized as

⁴ The other analysis was performed by the TERA Corporation for the NRC. Both analyses yielded results indicating that a one meter design basis value would be conservative. See 16 NRC at 628.

the “reservations” of “USGS experts.” 16 NRC at 662. It appears from the record that only one USGS employee testified on the point — Dr. Earl E. Brabb, who likewise was called as a staff witness.⁵ And, while Dr. Brabb did express the reservations attributed to him by the dissent, at a later point in his testimony he expressly conceded that he had not made “a thorough review of the geological data that went into the probability analyses” (Tr. 1675). In that circumstance, we see no reason why the Board below should have taken Dr. Brabb’s view as more persuasive than that of Dr. Slemmons — who, unlike the USGS experts, had been asked by the staff to focus directly upon the probabilistic analyses (Tr. 1533, 1547).

b. The dissent relied upon the opinion of the USGS witnesses (Drs. Brabb and Darrell G. Herd) that the soil displacement in one of the trenches dug as part of the GE geological investigation (T-1) was between five and seven feet (*i.e.*, in excess of one meter). 16 NRC at 665-66. But this opinion did not rest upon the witnesses’ observations of that trench — which had been cursory and for an entirely different purpose (Tr. 1469-70, 1496, 1498).⁶ To the contrary, the witnesses’ conclusions regarding the extent of the displacement in trench T-1 were derived from the trench log supplied by the licensee (Tr. 1470). According to Dr. Brabb, however, the log did not “accurately show some of the soil conditions in T-1, and possibly some of the faulting” (Tr. 1112). Given that doubt, it is difficult to understand how the log could be taken as a reliable indicator of displacement size.

It is noteworthy on this score that, although putting substantial emphasis on the USGS judgment respecting the dimensions of the *unmeasured* soil displacement in trench T-1, at the same time the dissent disparaged GE’s reliance upon the actual measurements of displacement in other trenches on the site. 16 NRC at 666-67. Those measurements disclosed no displacement in excess of three feet (Tr. 1485). It may not perforce follow that there could not be greater soil displacement under the reactor as a result of a seismic event on the Verona fault. But, surely, the Board majority was justified in attaching larger significance to the measured displacements than to inferences drawn from trench log data of questionable accuracy.

⁵ Thus, all of the transcript citations in the dissent bearing upon the point (Tr. 1468, 1538-39, 1543, 1552-53, 1555) are to Dr. Brabb’s testimony.

⁶ Indeed, the trench had been dug with a backhoe and its geological features were difficult to discern at the time of their inspection (Tr. 1496, 1513).

The Licensing Board's August 16, 1982 initial decision is affirmed.⁷
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

⁷ Insofar as concerns the questions of law addressed in the initial decision (*i.e.*, the applicability to the GETR of certain Commission regulations), our affirmance does not have *stare decisis* effect. See *Arizona Public Service Co.* (Palo Verde Nuclear Generating Station, Units 1, 2 and 3), ALAB-713, 17 NRC 83, 85 (1983).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Helen F. Hoyt, Chairperson
Emmeth A. Luebke
Jerry Harbour**

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)**

March 1, 1983

The Licensing Board grants in part and denies in part Applicants' motions to compel answers to interrogatories.

RULES OF PRACTICE: DISCOVERY; INTERROGATORIES

The degree to which an answer serves the purposes of discovery — to narrow the issues by determining the real factual disputes, safeguard against surprise at trial, and permit adequate preparation for trial — must be weighed against a claim that the answer is unduly burdensome.

RULES OF PRACTICE: DISCOVERY; INTERROGATORIES

Where interrogatories address contentions that are not sponsored by the interrogee and that will not be the subject of direct testimony by the interrogee, there is little benefit derived from compelling answers.

RULES OF PRACTICE: PARTICIPATION BY AN INTERVENOR

An intervenor may not adduce affirmative evidence on another intervenor's contentions without amending its own contentions to reflect its adoption of those issues. Leave to amend its intervention petition will be granted if the Board is satisfied that the intervenor has shown good cause for its failure to have raised the issue at an earlier point and if allowance of the amendment may assist the Board in the proper resolution of the issue without occasioning unwarranted delay.

RULES OF PRACTICE: PARTICIPATION BY AN INTERESTED STATE OR LOCAL GOVERNMENT

An interested state that has elected to litigate issues as a full party under 10 CFR §2.714 is accorded the rights of an "interested state" under §2.715(c) as to all other issues.

RULES OF PRACTICE: PARTICIPATION BY AN INTERESTED STATE

10 CFR §2.715(c) authorizes an "interested state" to introduce evidence with respect to those issues that it has not taken a position on. However, at the earliest possible date in advance of the hearing, an "interested state" must state with reasonable specificity those subject areas, other than its own contentions, in which it intends to participate.

MEMORANDUM AND ORDER

(Addressing Applicants' Motions to Compel Answers to Interrogatories to the State of New Hampshire and to Seacoast Anti-Pollution League)

MEMORANDUM

On December 8, 1982, Applicants filed interrogatories with the State of New Hampshire (NH) and with the Seacoast Anti-Pollution League (SAPL). NH filed answers on January 17, 1983, and SAPL filed undated answers which were received by this Board on January 21, 1983. On January 25, 1983, Applicants filed motions to compel answers to interrogatories. SAPL and NH responded to the motions on February 4, 1983 and February 9, 1983, respectively; both seek protective orders. By letter dated February 16, 1983, the NRC Staff declined to take a position.

Applicants' discovery requests comprise general and specific interrogatories. The specific interrogatories seek to determine whether NH or SAPL intends to litigate — which includes to cross-examine on — certain contentions; and if so, the interrogatories seek to specify the issues in dispute. The general interrogatories seek to determine the evidentiary basis for intervenors' position on disputed issues. The interrogatories address contentions sponsored by the interrogee, but also address contentions sponsored by other parties.

A. Interrogatories Addressing Contentions Not Sponsored and Not the Subject of Direct Testimony by Interrogee

In response to many interrogatories addressing contentions sponsored by other parties, both NH and SAPL have declined to formulate positions and have indicated they will not proffer direct testimony on those contentions. However, both seek to preserve their right to cross-examine on such contentions (*Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), CLI-75-1, 1 NRC 1 (1975)). Both intervenors assert that full responses would be unduly burdensome. Applicants' position, on the other hand, is simply that the interrogatories are relevant and should be answered.

Discovery in NRC proceedings is governed by 10 CFR §§2.740-2.744 (which generally parallel the discovery rules set forth in the Federal Rules of Civil Procedure). In particular, 10 CFR §2.740(c) provides that the presiding officer may issue a protective order to protect a party from "annoyance, embarrassment, oppression, or undue burden or expense."

All discovery requests impose some burden on a recipient. Whether that burden is "undue" depends on the contribution of an answer to the adjudicatory process. The fundamental purposes of discovery are to narrow the issues by determining the real factual disputes, safeguard against surprise at trial, and permit adequate preparation for trial.¹ Discovery expedites litigation and optimizes the adjudicatory process as a factual dispute resolution mechanism. The degree to which an answer serves these purposes must therefore be weighed against a claim that the answer is unduly burdensome.

When interrogatories such as those formulated by Applicants are addressed to a party and concern that party's contentions, the aforementioned purposes are served by and militate toward answers. This is true even if that party chooses to forego the presentation of direct testimony and to proceed by cross-examination;

¹ Statement of Policy on Conduct of Licensing Proceedings, CLI-81-8, 13 NRC 452, 455 (1981); *Pennsylvania Power and Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-613, 12 NRC 317, 334 (1980); 4 Moore's Federal Practice §26.02[1]-[2] (1982).

otherwise, an intervenor's choice of procedure would effectively abrogate discovery and the benefits accruing therefrom.²

Where, however, the interrogatories address contentions that are not sponsored by the interrogee and that will not be the subject of direct testimony proffered by the interrogee, there is far less, if any, derived benefit. The scope of the contention and issues in dispute are properly determined by the sponsoring intervenor, and a non-sponsoring intervenor's cross-examination must address the applicant's, the Staff's, or the sponsoring intervenor's direct testimony. Therefore, discovery against the non-sponsoring intervenor does not serve to narrow the issues or prevent surprise, and probably aids little in an applicant's preparation for trial.

The Board has examined Applicants' interrogatories addressing contentions not sponsored by or to be the subject of direct testimony proffered by interrogee. The Board finds that these interrogatories, by their number and complexity, do indeed impose a considerable burden on the interrogees. Because it is this Board's conclusion that there is little if any benefit in requiring answers to these particular interrogatories, the Board finds that the burden is undue. Accordingly, the Board grants a protective order with respect to the interrogatories.³

B. Interrogatories Addressing Contentions Not Sponsored by Interrogee But on Which Interrogee Wishes to Proffer Direct Testimony

NH and SAPL have indicated that they do intend to offer direct testimony with regard to certain contentions sponsored by the New England Coalition Against Nuclear Pollution (NECNP). In response to Applicants' interrogatories, NH and SAPL indicated that they had not yet "finalized" their position. Applicants view this answer as evasive.

The problem SAPL's response presents is that, at this juncture, it does not have the right to offer direct testimony on contentions other than its own. Although both NH and SAPL intervened in this proceeding pursuant to 10 CFR §2.714, their rights and obligations differ with respect to contentions sponsored by other intervenors. Both parties have the right to cross-examine on NECNP's contentions but presently only NH has the right to offer direct testimony on those contentions.

An intervenor may not adduce affirmative evidence on another intervenors' contentions without amending its own contentions to reflect its adoption of those issues. If SAPL wishes to offer direct testimony on NECNP's contentions, then it

² Of course, if an intervenor chooses to litigate its contention solely by cross-examination, the benefits of discovery may be reduced. Intervenor's cross-examination must be limited to questions addressing the applicant's or Staff's direct testimony; therefore, the contention reduces to those issues the applicant believes constitute its prima facie case and to any issues the Staff raises.

³ The interrogatories are specified in the Order, *infra*. They include Applicants' Interrogatories to SAPL Nos. I, II, and III. Interrogatories I, II, and III address NH Contentions 9, 10, and 13, which SAPL adopted in its SAPL Contention Supp. 6. However, SAPL later dropped these three contentions. NRC Staff letter to the Board dated January 6, 1983.

should seek leave of this Board to amend its intervention petition to assert the issues on its own behalf. Leave will be granted if the Board is satisfied that SAPL has shown good cause for its failure to have raised the issue at an earlier point and if allowance of the amendment may assist the Board in the proper resolution of the issue without occasioning unwarranted delay. *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-244, 8 AEC 857, 869 n.17 (1974), *reconsideration denied*, ALAB-252, 8 AEC 1175, *affirmed*, 1 NRC 1 (1975).

NH, on the other hand, is accorded the rights of an "interested state" under 10 CFR §2.715(c) as to those issues for which it did not elect to litigate as a full party under §2.714. *Project Management Corp.* (Clinch River Breeder Reactor Plant), ALAB-354, 4 NRC 383, 392-93 (1976). 10 CFR §2.715(c) authorizes an "interested state" to introduce evidence without having taken a position with respect to the issue. However, in accordance with 10 CFR §2.715(c), NH shall state with reasonable specificity those subject areas, other than its own contentions, in which it intends to participate. NH should set forth this information at the earliest possible date in advance of the hearing.

There remain Applicants' unanswered interrogatories. Applicants are rightfully suspicious of NH's and SAPL's use of the word "finalized." The term suggests that NH has some immediate opinion and position, and is unwilling at present to disclose it. If NH or SAPL desires to pursue those NECNP contentions, then it must answer the interrogatories to the extent it is presently able. If it has no position, it should so state unambiguously. Answers must be filed within ten days of service of this Memorandum and Order, unless the interrogee abandons plans to litigate the addressed contentions.⁴

NH need not answer, however, Interrogatories Nos. VII.2 and VII.3. The Board is satisfied that NH's clarification of its answer to these interrogatories moots Applicants' objection. NH's Answer to Applicants' Motion to Compel at 9. Similarly, SAPL need not answer Interrogatory XXXI-2, since SAPL has changed its answer to Interrogatory XXXI-1 to "no." SAPL's Objections to Applicants' Motion to Compel Answers to Interrogatories at 5.

C. Interrogatories Addressing Contentions Sponsored by Interrogee

1. Applicants' Interrogatory to SAPL No. XXV-4

SAPL has not objected to Applicants' motion to compel answers to this interrogatory, and indicates that it is preparing a supplemental answer. The Board

⁴ The interrogatories are specified in the Order, *infra*.

has examined the interrogatory and finds it relevant. Accordingly, SAPL is directed to answer this interrogatory within ten days from service of this order.

2. Applicants' Interrogatory to NH Nos. II-8 & II-9

Applicants' have asked NH to specify what changes should be made in the Seabrook control room design and to indicate whether such changes have been incorporated elsewhere. NH answers that it will respond once it is able to review the Control Room Design Review. This response leaves unanswered the question whether there are deficiencies in the control room design of which NH is presently aware. NH is directed to answer these interrogatories to the extent it is presently able, and shall supplement its answer after issuance of the Control Room Design Review.

The NRC Staff is directed to inform all parties of the status of the Control Room Design Review and of its expected date of issuance.

ORDER

Based on the foregoing, it is this 1st day of March, 1983,
ORDERED

1. That the following interrogatories (addressing contentions not sponsored by and not to be the subject of direct testimony by interrogee) need not be answered: Applicants' Interrogatories to NH, Nos. VIII-2 through VIII-5, IX-2 through IX-6, X-2 through X-8, XII-2 through XII-15, XIII-2 through XIII-31, XV-2 through XV-9, XVII-2 through XVII-5, XVIII-2 through XVIII-4, XIX-2 through XIX-4, XXII-2, XXIII-2, XXIV-2, and XXX-2 through XXX-25; and Applicants' Interrogatories to SAPL, Nos. I-2 through I-4, II-2 through II-13, III-2 through III-37, IV-2 through IV-5, V-2 through V-4, VI-2 through VI-9, VII-2 through VII-6, VIII-2 through VIII-6, IX-2 through IX-7, X-2 through X-9, XI-2 through XI-7, XII-2 through XII-15, XIII-2 through XIII-32, XIV-2 through XIV-9, XV-2 through XV-10, XVI-2 through XVI-8, XVII-2 through XVII-5, XVIII-2 through XVIII-4, XIX-2, XX-2 through XX-5, XXI-2 through XXI-7, XXII-2 through XXII-3, XXIII-2 through XXIII-3, XXIV-2 through XXIV-3, XXVIII-2 through XXVIII-3, and XXX-2 through XXX-26.

2. That interrogee shall answer the following interrogatories (addressing contentions not sponsored by interrogee but on which interrogee wishes to offer direct testimony), except that no answer to a particular interrogatory is required if interrogee indicates it has abandoned plans to offer direct testimony on the contention addressed by that interrogatory: Applicants' Interrogatories to NH, Nos. XI-2 through XI-6, XIV-2 through XIV-8, XVI-2 through XVI-8, XX-2 through XX-4, XXI-2 through XXI-7, XXXII-2 through XXXII-13, and XXXIII-2 through XXXIII-21; and Applicants' Interrogatories to SAPL, Nos. XXIX-3

through XXIX-25, XXXII-2 through XXXII-12 and XXXIII-2 through XXXIII-20. The answers shall be filed within ten days of service of this order.

NH need not answer Applicants' Interrogatory to NH Nos. VII.2 and VII.3; and SAPL need not answer Applicants' Interrogatory to SAPL No. XXXI-2.

3. That SAPL shall answer Applicants' Interrogatory to SAPL No. XXV-4 and NH shall answer Applicants' Interrogatory to NH Nos. II-8 and II-9. Answers shall be filed within ten days of service of this order.

4. That the NRC Staff shall inform all parties of the status of the Control Room Design Review and of its expected date of issuance.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Helen F. Hoyt, Chairperson
ADMINISTRATIVE JUDGE

Bethesda, Maryland

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Sheldon J. Wolfe, Chairman
Dr. Paul W. Purdom
Frederick J. Shon

In the Matter of

Docket Nos. STN 50-556
STN 50-557
(ASLBP No. 76-304-02-CP)

PUBLIC SERVICE COMPANY
OF OKLAHOMA
ASSOCIATED ELECTRIC
COOPERATIVE, INC.
WESTERN FARMERS ELECTRIC
COOPERATIVE, INC.
(Black Fox Station, Units 1 and 2)

March 7, 1983

The Licensing Board's Order grants, without prejudice, but subject to conditions, Applicants' motion for termination of proceeding and withdrawal of application.

CONSTRUCTION PERMIT: WITHDRAWAL OF APPLICATION

Upon consideration of the NRC Staff's assurance that it will continuously monitor the remedial actions imposed by two conditions in this Order, pursuant to 10 CFR §2.107, the Board allows the withdrawal of the application, without prejudice, and terminates the proceeding.

ORDER

(Granting, Without Prejudice, but Subject to Conditions, Applicants' Motion to Terminate and to Withdraw)

MEMORANDUM

On January 23, 1983, Applicants filed a Motion for Termination of Proceeding and Withdrawal of Application.* The NRC Staff responded on February 7, 1983, and on February 25, 1983, the State of Oklahoma, as an interested State, advised that it did not intend to file any objections to the instant motion. Intervenors did not file a response.

Applicants' Motion, supported by the affidavit of their Black Fox Station Project Manager, states in pertinent part at pages 6-8:

On November 26, 1982, Public Service Company of Oklahoma ("PSO") publicly announced plans for the construction of Inola Station, a coal-fired electric power-generating station, to be built at the site of the cancelled Black Fox Station nuclear project. Current plans provide for commercial operation of Inola Station Unit 1 at the Black Fox site during 1992 with Unit 2 to follow during 1994. . . . Tentative long-range plans ultimately provide for the construction of up to four coal-fired units at the cancelled Black Fox site.

* * * * *

The final decision on whether some or all of the construction improvements accomplished under the Black Fox Station LWA, as amended, will be utilized at the large coal-fired electric generating complex should be made during the design of the Inola Station layout and site facilities, currently expected to begin during 1984.

* * * * *

As design and construction efforts for Inola Station progress, Applicants commit to dismantle unnecessary Black Fox site improvements which will not be utilized and to return disturbed site areas to conditions consistent with the site development and environmental requirements of a coal-fired electric power-generating station. During the interim period, the Applicants will complete the soil stabilization program approved by the NRC Staff and will maintain the site so as not to adversely impact the surrounding offsite environment.

In light of the Applicants' commitments, and provided that its two recommended conditions are imposed, the Staff requests that the instant motion be granted. The Applicants have not objected to the imposition of these conditions.

*On June 18, 1982, in an unpublished Memorandum and Order, the Board denied, without prejudice, Applicants' original Motion filed on April 6, 1982.

ORDER

Upon our consideration of the Staff's assurance that it will continuously monitor the remedial action required by the two conditions, pursuant to 10 CFR §2.107, it is, this 7th day of March, 1983,

ORDERED

1. That Applicants Motion for Termination of Proceeding and Withdrawal of Application to construct the Black Fox Station, Units 1 and 2, is granted, without prejudice, subject to the two following conditions:

- a) Subject to the NRC Staff's monitoring and approval, Applicants shall implement their Black Fox Station Soil Stabilization and Erosion Control Plan, as approved by the Staff on September 24, 1982, by no later than October 1, 1983, and
- b) Subject to the NRC Staff's monitoring and approval, Applicants shall dismantle those site improvements, not to be utilized at the Inola Station, in such a manner as not to cause any onsite or offsite detrimental environmental impacts.

2. That the Licensing Board's Partial Initial Decision, LBP-78-26, 8 NRC 102 (1978), authoring the issuance of a limited work authorization for Black Fox Station, Units 1 and 2, is vacated.

3. That the Director of Nuclear Reactor Regulation (a) is authorized to revoke the outstanding limited work authorization, as amended, and (b) will cause to be published in the *Federal Register* a notice of the withdrawal of the application for a construction permit.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Sheldon J. Wolfe, Chairman
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 7th day of March, 1983.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Lawrence Brenner, Chairman
Dr. Richard F. Cole
Dr. Peter A. Morris

In the Matter of

Docket Nos. 50-352-OL
50-353-OL
(ASLBP No. 81-465-07-OL)

PHILADELPHIA ELECTRIC COMPANY
(Limerick Generating Station,
Units 1 and 2)

March 8, 1983

The Licensing Board issues a Partial Initial Decision concluding that noise impacts from operating a supplementary cooling water system may require mitigation. The Board concludes that other alleged environmental impacts of operation of the supplementary cooling water system will not be significant.

FWPCA: EPA AUTHORITY

Section 511(c)(2) of the Clean Water Act does not preclude NRC from considering noise impacts of the cooling water system on the surrounding environment.

NEPA: MINIMIZING IMPACTS

Even if the cost/benefit balance for a plant is favorable, measures may be ordered to minimize particular impacts. Such measures may be ordered without awaiting the ultimate outcome of the cost/benefit balance.

NATIONAL HISTORIC PRESERVATION ACT: CONSIDERATION OF NOISE IMPACTS

Noises which are out of character with a historic property or which would significantly alter the property's setting may constitute adverse effects which require consideration by federal agencies involved in the projects causing them.

NEPA: EFFECT OF COMPLIANCE WITH NATIONAL HISTORIC PRESERVATION ACT

Compliance with the National Historic Preservation Act does not preclude the need to comply with NEPA with regard to impacts on historic and cultural aspects of the environment.

TECHNICAL ISSUES DISCUSSED

- Cooling water intake system
- Endangered species (Shortnose sturgeon)
- Impingement and entrainment of fish
- Determination of noise impacts

APPEARANCES

Troy B. Conner, Jr., Esq., Mark J. Wetterhahn, Esq., Robert M. Rader, Esq., and Ingrid M. Olson, Esq., of Conner & Wetterhahn, P.C., Washington, D.C., for Philadelphia Electric Company.

Joseph Rutberg, Esq., Ann P. Hodgdon, Esq., and Elaine I. Chan, Esq., Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C., for the Nuclear Regulatory Commission Staff.

Robert J. Sugarman, Esq., of Sugarman and Denworth, Philadelphia, Pennsylvania, for Del-Aware Unlimited, Inc.

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**PARTIAL INITIAL DECISION
(ON SUPPLEMENTARY COOLING WATER SYSTEM
CONTENTIONS)**

I. OPINION

A. Summary of Conclusions

On the basis of the record before it, the Board finds contrary to the contention of the intervenor, that there would be no significant adverse impact on the populations of American shad and shortnose sturgeon in the Delaware River as a result of operation of the presently proposed Point Pleasant intake. The Board also finds that there is no evidence that the proposed intake would have an adverse impact on recreational activities in the Delaware River.

The Board finds that noise from operation of the intake as it is presently proposed could have a significantly adverse impact on the Point Pleasant proposed historic district. The Board, in its order, is imposing a condition which requires that a determination be made, if the intake is built, as to whether there are such significant noise impacts and, if so, requires that such impact be minimized. The Board concludes that after any necessary noise mitigation measures have been undertaken, operation of and maintenance for the proposed intake and pumping station would not have a significantly adverse effect on the proposed historic district.

B. Background

On March 17, 1981, the Philadelphia Electric Company (PECo or the Applicant) filed with the Nuclear Regulatory Commission (NRC or Commission) an application for licenses to operate Units 1 and 2 of its Limerick Generating Station. The application was docketed by the NRC on July 27, 1981.

The facility for which the licenses are sought is located in Limerick Township of Montgomery County, Pennsylvania. It is on the east bank of the Schuylkill River, approximately four miles downriver from Pottstown. Licenses are sought to operate two boiling water nuclear reactors, each with a rated core power level of 3,293 megawatts thermal and a net electrical output of 1,055 megawatts electric. Final Safety Analysis Report (FSAR) at 1.1-1.

On August 21, 1981, the Commission published in the *Federal Register* a notice of "Receipt of Application for Facility Operating Licenses; Consideration of Issuance of Facility Operating Licenses; Availability of Applicant's Environmental Report; and Opportunity for Hearing." 46 Fed. Reg. 42,557 (1981). On September 14, 1981, this Atomic Safety and Licensing Board (Licensing Board or Board) was established to preside in this proceeding. 46 Fed. Reg. 45,715 (1981).

Requests for a hearing and petitions to intervene were received from thirteen individuals and groups. A special prehearing conference was held on January 6-8, 1982 to consider these petitions and requests. On June 1, 1982, the Board issued a Special Prehearing Conference Order (SPCO) which admitted some of the petitioners as intervenors and admitted some of their proposed contentions for litigation. LBP-82-43A, 15 NRC 1423 (1982).

Del-Aware Unlimited, Inc. (Del-Aware) was among the groups admitted as intervenors. Four of Del-Aware's proposed contentions were admitted. The Board subsequently reconsidered and denied admission of one of these contentions. Memorandum and Order, slip op. at 5 (July 14, 1982) (unpublished). Three additional contentions were proposed by Del-Aware in September 1982, and were denied admission by this Board. Memorandum and Order (January 24, 1983) (unpublished). Petitions to reconsider this denial and to file a late contention were filed by Del-Aware in February 1983. These petitions are denied in a separate order being issued today.

Del-Aware's three admitted contentions concern environmental impacts from operation of a supplementary cooling water system which would furnish water to Limerick from the Delaware River and would also provide water to the Neshaminy Water Resources Authority (NWRA) for municipal use. (Finding 4). The supplementary cooling water system requires construction of an intake and a pumping station at Point Pleasant, Pennsylvania. Water will be carried from Point Pleasant through a transmission main to the proposed Bradshaw Reservoir. From the Bradshaw Reservoir, some of the water will be pumped into another transmission main and carried to the East Branch of the Perkiomen Creek.¹ After flowing for some distance in the Perkiomen Creek, this portion of the water will be pumped into a third transmission main which will carry it to the Limerick plant site, some thirty miles from Point Pleasant. See SPCO, LBP-82-43A, 15 NRC at 1462-63.

Del-Aware's three admitted contentions allege that there will be significant impacts from operation of this system which were not anticipated at the time the construction permits were authorized, since they are attributable to changes in the proposed system since that time. The Board determined that, because the system had not yet been constructed and because mitigation of operational impacts can often best be achieved by design and location decisions made before construction, it would make every effort to reach a decision on these contentions before the supplementary cooling water system was constructed. See SPCO, LBP-82-43A, 15 NRC at 1479-80; Memorandum and Order, slip op. at 3-4, 15-18 (July 14, 1982); Confirmatory Memorandum and Order, LBP-82-92A, 16 NRC 1387 (1982). To that end, twelve days of hearing were held on these three contentions October 4-8, 18-22, and 25-26, 1982.

¹ Water for use by the NWRA will be carried from the Bradshaw Reservoir by a different route.

One of the contentions which was the subject of this hearing concerned the allegedly adverse effect a changed intake location would have on American shad, shortnose sturgeon and recreation. (Finding 6). Another contention concerned the impact of noise from operation of the intake pump station and the impact of dredging maintenance of the intake on the Point Pleasant proposed historic district (Finding 133). A third contention, concerning impacts of the Bradshaw Reservoir, was withdrawn by Del-Aware pursuant to a stipulation reached among Del-Aware, the Applicant, and the NRC Staff (Staff). (Finding 5).

C. Scope of Decision

The Board's role in considering impacts of the supplementary cooling water system is complicated by the fact that several other federal agencies and parts of the NRC have a role in reviewing this water diversion. These reviews have, in general, been ongoing as this hearing has progressed. We have previously discussed at some length the effect that the conclusions reached as part of these other reviews, particularly those reached by the DRBC, should have on our decision-making. See SPCO, *supra*, 15 NRC at 1423, 1458-70; Memorandum and Order Concerning Objections to the [SPCO], slip op. at 9-10 (July 14, 1982); Memorandum and Order (Denying Del-Aware's Request for Reconsideration of DRBC Preclusion on Water Allocation Issues), LBP-82-72, 16 NRC 968 (1982).

Since the hearing on these issues was completed, the Army Corps of Engineers has issued a "dredge and fill" permit to the NWRA, pursuant to Section 404 of the Clean Water Act, 33 U.S.C. §1344 (1976 & Supp). The Applicant and the Staff have argued in their proposed findings that we are consequently confronted with a preclusion, pursuant to Section 511 (c)(2) of the Clean Water Act, on the matters considered by the Corps in issuing its permits. Section 511(c)(2) states:

(2) Nothing in the National Environmental Policy Act of 1969 (83 Stat. 852) shall be deemed to —

- (A) authorize any Federal agency authorized to license or permit the conduct of any activity which may result in the discharge of a pollutant into the navigable waters to review any effluent limitation or other requirement established pursuant to this Act or the adequacy of any certification under section 401 of this Act; or
- (B) authorize any such agency to impose, as a condition precedent to the issuance of any license or permit, any effluent limitation other than any such limitation established pursuant to this Act.

33 U.S.C. §1371 (1976 & Supp.)

Having conducted a full evidentiary hearing on these matters and considered them in greater detail than it appears to us that the Corps has, we would set forth our findings even if we concluded that the preclusion prevented us from ordering action we believed desirable. Because we have concluded, based on the merits of

the record before us, that there will be no significant impact on the river from operation of the intake, we need not reach the question of whether §511(c)(2) would have barred us from ordering mitigation measures relative to such impacts.

We note, however, that one of the contentions which was the subject of this hearing concerned noise impacts on the surrounding environment. Actions we are ordering relating to this contention are not barred by the Clean Water Act preclusion. This Commission has consistently interpreted §511(c)(2) to apply only to aquatic impacts. See *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-78-1, 7 NRC 1, 25, 26, 27, *aff'd sub nom. New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d 87 (1st Cir. 1978); *Tennessee Valley Authority* (Yellow Creek Nuclear Plant, Units 1 and 2), ALAB-515, 8 NRC 702, 715 (1978). Indeed, this is the logical scope of the preclusion when one considers that the objective of the act from which the preclusion comes is "to restore, and maintain the chemical, physical, and biological integrity of the Nation's waters." Clean Water Act §101, 33 U.S.C. §1252.

In addition, the Staff argues that because the Final Environmental Statement (FES) on the operation of Limerick has not been issued and the overall cost/benefit analysis has not been done, we may not impose conditions in this order which require mitigation of particular impacts. We disagree. Although the overall cost/benefit balance for a plant may be favorable, the National Environmental Policy Act (NEPA), 42 U.S.C. §§4332 *et seq.* (1976), authorizes the Commission, and licensing boards in particular, to impose license conditions to minimize particular impacts. *Detroit Edison Co. v. NRC*, 630 F.2d 450 (6th Cir. 1980); *Kansas Gas and Electric Co.* (Wolf Creek Nuclear Generating Station, Unit No. 1), CLI-77-1, 5 NRC 1, 8-9 (1977); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 82-84 (1977), *aff'd sub nom. Public Service Co. v. NRC*, 582 F.2d 77 (1st Cir. 1978); *Detroit Edison Co.* (Greenwood Energy Center, Units 2 and 3), ALAB-247, 8 AEC 936, 944-45 (1974). Accordingly, we can order actions to minimize the particular impacts we have considered without awaiting the ultimate outcome of the cost/benefit balance.

Having thoroughly considered these particular impacts, however, we will not readdress them once the FES is issued. Our conclusions on the impacts contained in this Partial Initial Decision may be incorporated into the FES and may be considered in the cost/benefit balance. The fact that these issues will be covered in the FES will not, however, mean they can be relitigated in the context of that document. It would be senseless to repeat the full hearing on these issues. Indeed, *res judicata* should prevent any party from once again litigating them.

D. The Proposed Intake

In July 1980, PECO and the NWRA changed their plans for the intake in the Delaware River which was to be a part of the proposed Point Pleasant diversion.

Prior to 1980, the proposal had been to utilize a shoreline location in Point Pleasant and an intake with a vertical traveling screen. The new plans called for the intake to be located approximately 200 feet into the river from the Pennsylvania shore, off Point Pleasant, and to use a passive wedge-wire screen. In January 1982, it was decided to put the intake an additional 45 feet into the river along essentially the same alignment as had been proposed in July 1980. (Findings 7, 8, 10).

This last location is the one that is presently proposed. It would place the intake at river mile 157.2. This would be about 800 feet downriver of the confluence of the Delaware River and the Tohickon Creek. The intake would be about a mile and a half upstream from the Lumberville wing dam, in the pool formed by that dam. (Finding 9).

The proposed design for the intake calls for two rows of cylindrical screen sections, parallel and seven feet apart. Each row would consist of six 44-inch-diameter cylinders placed end to end. The cylinders would each have two 40-inch screen sections separated by a 44-inch solid section. The ends of each row would have protective conical end pieces. (Finding 10). Water would be able to flow into the screens around their total circumference, with the through-slot velocity remaining nearly uniform over the entire screen. (Finding 13).

The screens themselves would be made of wedge-wire wound helically around supports located at approximately six-inch intervals. The screen openings would be slots 2 mm in width. (Finding 11). This type of screen utilizes state-of-the-art technology and is superior to the vertical traveling screen which was originally planned. (Finding 12).

The bottom of the intake screens would be two feet above the river bottom. The intake would extend upwards about four feet from that point. However, even at the comparatively low flow of 3000 cubic feet per second (cfs), the top of the intake would be approximately four feet under the water surface. (Finding 15).

The river bottom below the intake screen would be covered with rip-rap. In placing the rip-rap the Applicant and NWRA would restore the contours of the river bottom to approximately what they are presently (before the intake is constructed). (Finding 18).

The maximum withdrawal by the intake would be 95 million gallons per day (MGD), which is the equivalent of 147 cfs. This would constitute 4.9% of the flow by Point Pleasant at a river flow of 3000 cfs. At the lowest anticipated flow of 2500 cfs, it would be 5.9% of the flow. Therefore, while at the lowest flows ever recorded, 95 MGD would constitute more than 10% of the water in the river at that point, it is unlikely to ever actually take that large a percentage of the river flow. (Findings 17, 71).

There would be a negligible drop in the water level of the river at the intake site as a result of the intake. At a comparatively low flow of 3000 cfs, the change in water level would be less than an inch. (Finding 16).

E. Impact of the Intake on Shortnose Sturgeon and American Shad

Del-Aware alleged that the proposed intake would have a serious impact on two fish species, American shad and shortnose sturgeon. In an effort to demonstrate this impact, Del-Aware presented evidence not only as to the characteristics and possible presence of those species, but also to show why the intake in its proposed location would be particularly likely to affect them.

Del-Aware sought to show that the intake would be located in an eddy. An eddy is a current of water which runs contrary to the main flow in the river and may actually move circularly. Del-Aware contended that if the intake were located where it would draw water from an eddy, juvenile fish, which might tend to congregate in the eddy, would be more seriously impacted than they would be if the intake drew water from the main flow of the river. In addition, Del-Aware argued that the circular flow of an eddy would cause fish eggs and larvae, which would be at the mercy of the current, to be exposed to the intake repeatedly and would increase the risk that they would be harmed. (Findings 19, 24).

At flows below 5000 to 6000 cfs there is an eddy adjacent to the Pennsylvania shore of the Delaware River at Point Pleasant. The eddy forms as a result of a rocky bar immediately downstream of the mouth of the Tohickon Creek. This bar plays a major role in determining the size of the eddy. As water flows increase over the bar, the eddy recedes towards the Pennsylvania shore and may cease to exist. The eddy's size is at its maximum when flows are below 3000 to 4000 cfs and no water flows over the rocky bar. Even at this time, however, the intake would be located approximately 85 to 90 feet further out into the river than the far edge of the eddy. Therefore, the eddy should not increase the impact the intake would have on fish. (Findings 20, 21, 22, 23, 25).

Del-Aware also sought to show that the Applicant had not accurately presented the velocity² at which water would be drawn to and through the intake screens. The Applicant's evidence showed that the maximum velocity through the intake screens would be 0.5 feet per second (fps) and the average velocity would be 0.35 fps. The velocity toward the intake screen would decrease dramatically at very small distances from the screen. For example, at one foot from the screen surface, the average velocity toward the screen would be only 0.071 fps. (Findings 26, 27).

Del-Aware's witnesses alleged that the screen could become clogged, either through biofouling or fishing hooks, and this would cause higher intake velocities. (Finding 28). It is true that clogging would cause higher intake velocities. As a Del-Aware witness testified, however, wedge-wire screen intakes are less susceptible to clogging than are most intakes. The fact that this intake would be some distance into the river and completely below the surface would further reduce the

² Technically, velocity is a measure of both speed and direction. During the hearing and in this decision, "velocity" has been used interchangeably with "speed."

likelihood that it would become clogged. The intake is equipped with an air backflush system which should prevent or minimize the buildup of potentially clogging material. Other material could be removed by a diver. (Findings 14, 29). It, therefore, seems unlikely that significant clogging of the intake screens would occur. The Applicant's intake velocity figures should be realistic.

Bypass velocity is the velocity of the river water flowing past the screens parallel to the long axis of the intake. There was some testimony that a high ratio of bypass velocity to intake velocity helps to protect aquatic life from impingement and entrainment. Some witnesses advocated a minimum velocity ratio of 2 to 1; others indicated that the 2 to 1 ratio was not important and that with a 1 to 1 ratio, or even in the absence of any bypass velocity, wedge-wire screen intakes are effective in protecting aquatic life. (Findings 30, 31, 32, 33).

The type of fish for which protection is sought is a factor in determining the significance of the velocity ratio. Witnesses concluded, and, based upon the extensive testimony which was presented on the characteristics of American shad and shortnose sturgeon, we agree, that the velocity ratio would not be a significant factor in protecting these species. (Finding 34).

In spite of the evidence that a 2 to 1 ratio of bypass velocity to intake velocity is not a significant factor in protecting these fish, the Applicant sought to show that a 2 to 1 ratio would, in fact, be achieved, even at flows as low as 2500 cfs. Del-Aware conducted extensive cross-examination and presented some evidence to show that the Applicant's measurements of bypass velocity were in error.

Del-Aware succeeded in demonstrating that the Applicant's data on river flows, flow distributions and river stages at the intake site were less definitive than would be desirable. The Board, in consideration of the relevance of all of the factors affecting the resolution of this matter, has no hesitancy in reaching its ultimate conclusions. However, the Board's task would have been facilitated considerably and the hearing undoubtedly would have been simplified if the Applicant's data had been more certain. This is the first stage of a proceeding in which there are likely to be hearings on many contested issues. The Board hopes that in future hearings the Applicant, as the party with the burden of proof, will present more definitive data and these problems can be avoided.

The Applicant made velocity measurements in the river at Point Pleasant on November 7, 1980, when the river flow was approximately 3000 cfs and the water surface elevation was about 70.8 feet. The measurements indicated that the velocity ratio was approximately 2 to 1 for an intake velocity of 0.5 fps. (Finding 35).

A Del-Aware witness criticized the velocity measurements because they did not include an indication of the direction of the flow. (Finding 38). It is true that maximum velocities were recorded and that flow direction was not indicated. However, the maximum amount that the flow could have varied from parallel to the long axis of the intake would have been about 25 degrees and angling toward

the Pennsylvania shore. A velocity measurement taken in this direction could be converted to bypass velocity by multiplying it by the cosine of the intersection angle. For a 25 degree angle the cosine would be 0.906. Hence, the bypass velocity would have been over 90 percent of what was measured even if the flow were at a 25 degree angle to the intake. (Findings 37, 39, 40, 41, 46).

Del-Aware also questioned the distances into the river at which the Applicant indicated that velocity measurements were made. The Staff made three checks on the Applicant's data and, as a result of those checks concluded that the distance measurements were probably accurate. (Findings 42, 43, 44, 45, 47). The Staff's witness acknowledged that an error of up to 25 feet could have escaped detection by these checks. For any error to be that large and escape detection, it would have to have been such that the measurements were actually made further out in the river than the Applicant's data indicate. There is no real evidence that such an error occurred. Even if it did, however, the velocity at the intake would be about 75 percent of the velocity measured a hypothetical 25 feet further out. Thus, at the 7-foot depth the velocity would be over 0.80 fps, more than twice the average intake velocity and considerably more than the maximum intake velocity. (Findings 26, 48, 49).

The Applicant also made velocity measurements on July 23, 1981, when the flow was estimated at 4500 cfs. At this time velocities past the intake were measured at over 2 fps. (Finding 36). The Staff's witness on hydrology criticized this data. His concern, however, appeared to relate to only one velocity measurement which he believed was unrealistic because it was too low. (Finding 50). This single inaccuracy could easily result from a mistake in recording the data and does not strike us as a reason to totally discount the data. In any case, the July 1981 measurements are less important than the November 1980 ones, since those from November 1980 more nearly represent velocities at the low flows which have caused concern in this proceeding.

Del-Aware also questioned the method used by the Applicant to determine the flow passing Point Pleasant. The Applicant calculated that the drainage area tributary to the river at Point Pleasant is 97 percent of the drainage area tributary to the river at Trenton, where the nearest downstream gaging station is located. (Finding 51). Therefore, the flow at Point Pleasant would average approximately 97 percent of that measured at Trenton.

Using this percentage and flow measurements at Trenton, the Applicant developed a rating curve which purported to show the relationship between water surface elevation and river flow at Point Pleasant. (Finding 52). Del-Aware was critical of the rating curve, arguing that it failed to reflect hydraulic control exercised by the Lumberville wing dam. (Finding 53).

The wing dam is located approximately 1.5 miles downstream of Point Pleasant. It has a slot approximately 100 feet wide. The slot has a minimum elevation of 64.5 feet. The wings, on each side of the slot, have an elevation of 70.7 feet. Del-Aware

alleges that at different elevations different segments of the dam provide hydraulic control. Del-Aware argues that the Applicant's rating curve is inaccurate at flows under 3500 cfs because it fails to reflect the changing hydraulic control below that point. (Findings 54, 55). To illustrate this, a Del-Aware witness took the data points used to construct the Applicant's rating curve and drew two essentially parallel lines through them. One of these lines went through the points above the 71.5-foot elevation; the other went through the points below the 71.5-foot elevation and was shifted over approximately 600 or 700 cfs from the first line. (Finding 56).

The part of the rating curve which is of concern is the part which reflects low flows. Del-Aware itself has indicated that the rating curve would essentially be a straight line at river elevations below 71.5 feet. (Finding 56). Applicant confirmed the accuracy of that portion of the rating curve through use of measurements at Point Pleasant on September 12, 1981, when the flow was 3640 cfs and the river elevation was 71.27 feet. (Finding 60). Therefore, although the Lumberville wing dam may act as a hydraulic control for flows in the Point Pleasant area, this fact does not render the rating curve inaccurate at low flows.

Del-Aware was also critical of the manner in which flows in the Delaware and Raritan Canal were treated in developing the rating curve. The maximum diversion from the Delaware River through that canal is 150 cfs. (Findings 57, 58). This is a small amount of water compared to the total flow in the Delaware. A discrepancy of this entire amount would probably be a smaller error than one would accept in terms of determining flow. Therefore, it would not have a significantly detrimental effect on the accuracy of the rating curve.

In determining that the Applicant's rating curve is probably reasonably accurate, the Board has also considered certain other factors. As a Del-Aware witness testified, the Applicant used common techniques in developing the rating curve. (Finding 59).

In addition, the Board has kept in mind the use to which the rating curve has been put, that is, determination of river flow on the days when velocity measurements were made. (Finding 52). While there was some doubt about the accuracy of the determination of the 4500 cfs flow on July 23, 1981 (Findings 61, 63), the 3000 cfs flow for November 7, 1980 was believed by both the Staff and the Applicant, after performing checks on the value, to be within 100 cfs of the actual flow on that date. In fact, a Del-Aware witness indicated that, if anything, the 3000 cfs figure overstated the flow. (Finding 62).

Since the 3000 cfs flow is the one measured in the low flow range, it is more important that bypass velocities at that flow be substantial. If, in fact, the flow was even less than 3000 cfs and the bypass velocities still appeared substantial, that would indicate that there would be beneficial bypass velocities at even lower flows.

After considering Del-Aware's arguments concerning the Applicant's measurements of velocities and flows, the Board concludes that, at least insofar as the measurements made on November 7, 1980 are concerned, the Applicant's data are reasonably accurate and show that the river would flow by the intake with substantial bypass velocities at flows around 3000 cfs. The Board is also convinced that the data from November 7, 1980 are sufficiently accurate that they can be used to calculate approximate bypass velocities which would be expected at even lower flows.

Velocities at 3000 cfs may be used to calculate velocities at lower flows if the distribution of velocities across the river at 3000 cfs is known and if one may reasonably assume that the velocity distribution across the river will be similar at the lower flow. (Finding 64). The Applicant's data from November 7, 1980 provide reasonable definition of the velocity distribution across the river at that flow. (Finding 65).

The velocity profile at 2500 cfs should be sufficiently similar to that at 3000 cfs to allow the bypass velocity at 2500 cfs to be calculated with reasonable accuracy. Even at 3000 cfs, the river flow is low and would be concentrated in the main channel. The flow at 2500 cfs would also primarily be in the main channel. Thus, the cross-sectional area of the water flowing in the river would not be significantly different at 2500 cfs than at 3000 cfs. (The Lumberville wing dam, if it does provide hydraulic control, would not provide a different control at 2500 cfs than at 3000 cfs. Even Del-Aware agreed that the control would be provided by the same part of the dam at flows of 3000 cfs or less. *See* Finding 55.) Since, if the cross-sectional area remains essentially the same, flow and river velocity will vary proportionally, the similar cross-sectional areas at 2500 cfs and 3000 cfs mean that the velocity distribution should be similar at flows of 2500 cfs and 3000 cfs. The ratio of average cross-sectional velocity to screen bypass velocity would be the same at the two flows. The bypass velocity at a flow of 2500 cfs can be calculated utilizing this ratio.

The Applicant and the Staff used the velocity measurements from November 7, 1980 to calculate what the bypass velocity of the river by the intake screens would be at 2500 cfs and concluded that the bypass velocity would be 0.8 fps. (Finding 66). Thus, even at 2500 cfs, the ratio of bypass velocity to the average intake velocity would be greater than 2 to 1 and the bypass velocity would be significantly higher than the maximum intake velocity (although not twice as high). Had we concluded that the ratio of bypass to intake velocity would be a significant factor in providing protection from the proposed intake, the calculated bypass velocity of 0.8 fps at 2500 cfs convinces us that the ratio would be adequate even at low flows.

We recognize that the bypass velocity at 2500 cfs could be somewhat lower than that calculated by the Applicant if the velocity measurement at 3000 cfs actually fails to reflect the flow passing the intake at an angle or any inaccuracy in

horizontal measurements. However, even adjusting for these possible inaccuracies in the velocity measurements at 3000 cfs, we conclude the bypass velocity at 2500 cfs as calculated by this method would be close to the Applicant's 0.8 fps figure and would also provide an acceptable bypass to intake velocity ratio, even directly at the screens. Moreover, as noted, there is an extremely rapid decrease in intake velocity at very small distances from the screens. (Finding 27). Accordingly, at a distance of one foot from the screens, the ratio of bypass velocity (0.8 fps) to average intake velocity (0.071 fps) is very high — over 11 to 1.

If there were a problem in maintaining an adequate ratio of bypass velocity to intake velocity, it would occur only at low flows since it is at low flows that the river velocity drops. The relative infrequency of low flows, particularly at those times of the year when vulnerable developmental stages of American shad and shortnose sturgeon could be present, further convinces us that there would not be a problem with maintaining an adequate velocity ratio.

Between 1913 and 1980, flows at Trenton have exceeded 2900 cfs 90 percent of the time. During that period, several storage projects and reservoirs have been built which should decrease the frequency of low flows. (Finding 67).

The lowest flow which the DRBC, the agency charged with allocating water in the Delaware River valley, anticipates will occur at Trenton in the future is 2500 cfs. (Finding 71). It is unlikely, however, that a flow this low would occur in April, May or June when shad and sturgeon eggs and larvae could be present. Historical data indicate that flows below 3000 cfs have rarely occurred during these months. In fact, in the past 20 years, such flows have occurred only about 1 percent of the time. (Findings 68, 69).

Juvenile shad and sturgeon could be present in the Point Pleasant area in July, and the historical record indicates that flows have been less than 3000 cfs a larger proportion of the time in July as compared with April through June. (Finding 70). Even during July, however, flows will be above 3000 cfs most of the time. Moreover, juvenile fish would be less dependent on the bypass velocity to assist them by the intake than eggs and larvae would be since juveniles are more mobile. Hence, low flows and a low bypass to intake velocity measurement would be of less concern at this time of year.

Because of a condition imposed by the DRBC which does not permit PECO to withdraw water from the Delaware River for use in cooling Limerick when flows at Trenton are under 3000 cfs unless PECO provides offstream storage from which it releases an amount of water equal to that it withdraws (Finding 72), the intake might never operate at flows below 3000 cfs. Even if PECO provides the offsite storage and withdraws water when flows at Trenton are less than 3000 cfs, this should be an infrequent occurrence. (Finding 67). Even at such times, the bypass velocity will be substantially higher than the intake velocity, probably more than twice the average intake velocity. (Finding 66. *See also* p. 425, *supra*). This should be more than adequate to protect shad and sturgeon.

Del-Aware also questioned whether the orientation of the intake screens relative to the river flow would be optimal for protecting the fish species in question. The slots of the screens at Point Pleasant would be roughly perpendicular to the flow; *i.e.*, the length of the cylinders would be roughly parallel to the flow. (Finding 74). Based on the evidence presented, we conclude that the orientation of the screen slots is not an important factor contributing to the protection of fish. (Finding 73). Thus, we see no reason to consider other possible screen slot orientations.

In addition to the protective characteristics of the proposed intake, the characteristics of the two species of fish with which this hearing was concerned convince us that the intake would not have an adverse impact on these species. At all life stages of both species, the intake should have a minimal impact on the fish populations in the Delaware River.

One of the species in question is the shortnose sturgeon. The shortnose sturgeon is listed as an endangered species pursuant to the Endangered Species Act, as amended, 16 U.S.C. §§1531-43 (1976 & Supp.). In compliance with that Act, the National Marine Fisheries Service prepared a Biological Opinion which evaluated the impact of the proposed pumping station on shortnose sturgeon. This Opinion concluded that, in compliance with the Act, the intake "is not likely to jeopardize the continued existence" of shortnose sturgeon in the Delaware River. *See* 16 U.S.C. §1536(a)(2). (Finding 75).

Although shortnose sturgeon occur in the Delaware River, there is no hard evidence that they occur at or upstream of Point Pleasant. Sampling for fish over a number of years in the stretch of the river in which the intake would be located has not found shortnose sturgeon. Nor did a study conducted between November 1981 and March 1982 which was designed specifically to sample for sturgeon in the vicinity of the proposed intake site. (Findings 76, 78, 79).

The 1981 to 1982 study used techniques appropriate for sampling for sturgeon although it was somewhat limited in terms of the number of samples taken. The study did not cover the entire period during which shortnose sturgeon could be migrating upriver to spawn. It did, however, include some sampling in late March, the time when the upriver migration begins. (Findings 79, 80).

The closest to Point Pleasant that shortnose sturgeon have actually been found is Lambertville, New Jersey. This is eight miles downstream from Point Pleasant. (Finding 77).

Sturgeon spawn over rubble, cobble or gravel bottoms in high velocity fresh water in or above the tidal reaches of the river. Spawning takes place in the main river channel near the river bottom. (Finding 82). In the Delaware River, sturgeon probably spawn in fresh water just below the Trenton fall line or in nontidal water immediately above those falls. (Finding 83). Although Point Pleasant is some distance upstream from Trenton, it does have a river bottom of the type over which sturgeon might spawn. (Finding 84).

Based on the lack of evidence of sturgeon at Point Pleasant despite sampling programs, the Board believes that it is unlikely that shortnose sturgeon spawn near Point Pleasant. On the other hand, sturgeon are difficult to sample for (Finding 80) and there has been no study at Point Pleasant specifically aimed at determining whether sturgeon spawn there. However, the Board concludes, for reasons explained below, that, even if sturgeon were to spawn near Point Pleasant, the intake would not have a substantial impact on the species.

Adult sturgeon, coming upriver to spawn should not, if healthy, be impacted by the proposed intake at all. Their size, swimming ability, and preference for the river bottom should ensure they would not be impinged or entrained. (Finding 81).

An adult female sturgeon lays approximately 140,000 eggs. The eggs are 3.0 to 3.2 mm in diameter. The eggs are dense and sink rapidly to the bottom, where they become affixed to the substrate on which they land. (Findings 82, 85).

The eggs, if present, would not be entrained or impinged by the intake in significant numbers. Because they sink rapidly, they would risk exposure to the intake for only the very short time it would take for them to sink from their spawning point near the river bottom to a depth not more than two feet off the river bottom. At that point, they would be below the intake screens and could not be affected. The few eggs that might be drawn to the intake during the short period required for them to sink would be too large to be entrained through the intake slots unless crushed. While crushing is possible, studies using wedge-wire screen intakes have shown that the eggs would be more likely to roll along the intake surface. Eventually, they would roll off the intake and could continue their descent to the river bottom. (Finding 86).

Nor would the intake have a serious impact on larval sturgeon. While there is some evidence that larvae less than about 21 mm in length or 19 days of age could be entrained if they came into contact with the intake, such contact with the intake is unlikely. The larvae have a very strong benthic orientation and, hence, remain extremely close to the river bottom for up to approximately 40 days. Since the bottom of the intake screens would be two feet above the river bottom, young larvae would be unlikely to move high enough in the water column to encounter the screens. In addition, sturgeon larvae demonstrate strong swimming ability. This swimming ability, which gets stronger as the larvae get older, should be sufficient to enable larvae which have outgrown their benthic orientation to escape from the pull of the proposed intake since the intake velocity would not exceed 0.5 fps. Therefore, sturgeon larvae should not suffer significant amounts of impingement or entrainment by the proposed intake even if they occur at Point Pleasant. (Findings 26, 27, 87, 88, 89, 90, 91, 92, 93).

Juvenile sturgeon are even larger and better swimmers than are sturgeon larvae. If they were present at Point Pleasant, it is even less likely that they would be adversely impacted by the intake than it is that larvae could be so impacted. (Finding 94).

In summary, the Board doubts that shortnose sturgeon spawn at Point Pleasant. Even if they do, however, there would be no significant impact from the intake at any life stage of sturgeon.

Insofar as American shad are concerned, there is no doubt that they occur in the Delaware River. Adults pass through the Point Pleasant area during their migration upstream to spawn; juveniles pass through Point Pleasant when migrating out to sea. Juveniles, in fact, use the pool formed by the Lumberville wing dam as a nursery area. (Findings 95, 96).

Witnesses for all the parties including Del-Aware agreed that the intake would not impinge or entrain adult shad. (Finding 95). There was more concern about the intake affecting juveniles.

In assessing the potential for impacts on juvenile shad, the Board first had to determine exactly when the juvenile stage begins for shad since the witnesses appeared to use the term in different ways. In this opinion, we are defining the juvenile stage as beginning approximately 30 days after the eggs hatch, when transformation occurs and the fish take on adult characteristics. At this time the fish would be approximately 28 to 30 mm long. (Finding 97). This is the definition of the juvenile stage which was given by Joseph Miller, a fishery biologist with the U.S. Fish and Wildlife Service, and we have adopted it because, of all the witnesses who appeared before us, Mr. Miller had done the most extensive work on American shad in the Delaware River. We believe that Mr. Miller is the best source we had on characteristics of shad in the Delaware. We appreciate the efforts of Del-Aware in presenting him and other Federal and Pennsylvania fisheries experts as witnesses in this proceeding.

Juvenile shad would be protected from entrainment by the intake because of their size. (Finding 98). The potential problems for juvenile shad were impingement and descaling. It was conceded, however, that impingement would not be a problem if the intake velocity would not exceed 0.5 fps since the juveniles would have a strong enough swimming ability to escape the intake's pull. (Finding 99). As we have previously explained in this Opinion, we expect that the intake velocity would not exceed 0.5 fps. Therefore, we conclude the intake should not cause impingement of healthy juvenile shad.

The descaling problem which was alleged would occur if shad between 25 and 40 mm long were drawn against the intake and then used their swimming ability to escape. Some witnesses were concerned that this would cause the fish to lose scales and would eventually kill them. (Finding 100).

There are a number of factors which we believe render the potential for such descaling inconsequential. We note that the potential for descaling has not in any way been connected with this particular intake. The witnesses who raised this concern did not indicate that the problem would be worse if the intake were placed as proposed than it would be if the intake were placed elsewhere. These witnesses admitted that the same type of descaling could occur if a shad brushed against a

rock. (Finding 100). This concern would, therefore, not appear to be connected in any way with the changes in the intake proposal which led to this contention being admitted.

We are also not certain how valid the concern would be. If shad can be killed by brushing against rocks, let alone against existing intakes in the river, we would expect to be presented evidence that large numbers of shad have died in this way. Yet we were presented no such evidence.

Even if such descaling would result from contact with the intake, however, we conclude that it would not cause a serious impact on the shad population in the river. The zone of influence of this intake relative to the total cross section of the river at Point Pleasant is very small. One witness indicated that eggs and larvae, both less mobile than juveniles, would be in danger only if they passed within 2 inches of the intake screen. (Findings 27, 101). Thus, unless the juvenile shad population were concentrated extremely near the intake screens when passing Point Pleasant (and we have been presented no evidence in support of that unlikely circumstance), the percentage of the juvenile shad population which could be affected in this way would be exceedingly small. Even if all juvenile shad which passed within two inches of the intake were lost due to descaling, this would be a very small proportion of the total shad population. Particularly when we consider that we have no evidence of large kills due to descaling occurring elsewhere, we simply cannot envision that there would be a detectable change in the shad population attributable to descaling caused by the proposed intake.

There was some controversy about whether shad presently spawn at Point Pleasant or are likely to spawn there in the future. It appears that shad once spawned in the Delaware River from Philadelphia to the headwaters of the river in New York. By the 1970's, however, the shad's spawning range had shrunk and spawning only occurred above the Delaware Water Gap. In the 1980's the shad's spawning range had once again begun to expand. There was conflicting testimony on the question of whether this reexpansion meant that spawning has been occurring as far downstream as Point Pleasant. In any event, if the spawning range were to expand to its total historic length, it would include Point Pleasant. The Applicant assumed in evaluating the impact of the intake that spawning would occur at Point Pleasant in the future if it does not occur there now. (Findings 102, 104). We agree that this is an appropriate assumption.³

Because shad spawning normally occurs in the downstream third of a pool and the intake would be located in the upstream portion of the Lumberville pool, spawning probably would not occur in the immediate vicinity of the intake. However, Del-Aware was concerned that eggs and larvae spawned in the pool just

³ The Applicant collected objects at the Point Pleasant site which could have been shad eggs, but had not analyzed them to determine whether they were in fact shad eggs. (Finding 103). In the circumstances, we are willing to assume they are shad eggs and that spawning occurs at Point Pleasant.

above the Lumberville pool would drift into the Lumberville pool and be adversely affected by the intake. (Finding 105). Since eggs and larvae are, to a certain extent, at the mercy of the flow, this concern deserves consideration.

Shad eggs apparently have a size range between 1.1 and 3.8 mm in diameter with a mean diameter of 2.83 mm.⁴ Although most shad eggs would be larger than the 2 mm width of the intake slots, they could be crushed and forced into the intake. Witnesses for all parties agreed that eggs which passed sufficiently close to the proposed intake could be entrained. (Findings 106, 107).

The number of eggs passing sufficiently close to the intake slots to be entrained would, however, be limited. Shad eggs are demersal, normally sinking to the ocean bottom within 5 to 35 meters of where they are spawned. (Finding 108). Once the eggs have sunk to within 2 feet of the river bottom, they would be below the intake screens and not susceptible to entrainment. Moreover, eggs which spend the longest time in the water column and, hence, are most likely to encounter the intake are less likely to produce larvae even if not entrained. (Finding 110). The average egg has a less than one percent chance of hatching even if it is not affected by the intake. (Finding 109). This would tend to limit the effect that egg entrainment would have on the shad population.

Shad larvae could also be subjected to entrainment and impingement. The larvae are approximately 6 to 10 mm long when hatched and reach 20 mm at 17 or 18 days of age. They would be approximately 30 mm long at the time transformation occurs and they become juveniles. (Findings 97, 111). Until they reach 20 mm in length, the danger would be entrainment. After that time, it would be impingement. (Findings 116, 117).

Shad larvae display a behavior pattern of repeatedly rising to the river surface and then sinking to the river bottom. This means they can be found relatively uniformly throughout the water column. (Findings 112, 113). Therefore, unlike for eggs, it cannot be assumed that the potential exposure time for the larvae is limited. At worst, however, with the larvae distributed uniformly through the water column, the percentage of the larvae passing Point Pleasant which would be adversely affected would equal the percentage of the flow withdrawn. (Finding 118). At the lowest flow anticipated in the future, 2500 cfs, the intake operating at its maximum capacity would withdraw less than 6 percent of the flow. (Findings 17, 71). Actually, however, during the months when larvae could be present at Point Pleasant, flows this low are rather uncommon. (Findings 68, 69, 70, 119). Therefore, the percent of the flow which would be withdrawn would be less. For average flow conditions, less than 2 percent of the water passing the site would be removed by the intake. Therefore, less than 2 percent of the larvae passing Point Pleasant would be adversely affected by the intake. (Finding 120).

⁴ The Staff gave a size range between 2.1 and 3.8 mm. To be conservative, we are utilizing the Applicant's figures which provide for smaller eggs.

Avoidance behavior by the larvae could further reduce the percent impacted. Although larvae shorter than 20 to 25 mm are largely at the mercy of the current, even recently hatched larvae are capable of some mobility and avoidance response. Studies on larvae of other species of fish, some closely related to shad, have shown that larvae have some ability to resist intakes beginning when they are 10 to 15 mm long. (Findings 114, 115). This means that some larvae subjected to the intake's pull would be able to resist it and avoid becoming impinged or entrained. The fact that the intake's pull drops dramatically a very small distance from the intake screen (Finding 27) should facilitate escape by larvae located a short distance from the screens even if those larvae have not yet developed strong swimming ability. Indeed, a witness for Del-Aware indicated his concern was limited to larvae within two inches of the intake screens. (Finding 101).

Although the percent of shad eggs and larvae affected by the intake would be small, the fact remains that some impingement and entrainment is foreseeable. This does not mean that the intake's impact would be significant.

There are hundreds of pools in the Delaware River which serve as spawning grounds for shad. (Finding 121). The percentage of the total Delaware River eggs and larvae population which would be affected would be considerably lower than the already low percentages of eggs and larvae affected at Point Pleasant.

Although Del-Aware was concerned that the loss of any shad eggs or larvae would have a detrimental effect on the ability of the shad to repopulate their historic spawning grounds (Finding 122), we cannot agree. Shad populations are currently expanding although spawning at Point Pleasant, if it occurs, is limited. Given the fact that of the 100,000 to 500,000 eggs laid by a female shad (Finding 109), only three eggs need to reach adulthood to continue population gains, the loss of something less than 2 percent of those eggs and the resulting larvae at Point Pleasant could not reasonably be expected to prevent further population expansion. Rather, we find that the intake will not have a significantly adverse effect on the shad population in the Delaware River or the ability of that population to expand. (Finding 123).

We conclude that the intake, as relocated, would have no significant adverse effect on the Delaware River populations of either American shad or shortnose sturgeon. Therefore, there would be no benefit to these species from moving the intake further from the west shore of the river or from placing the intake upstream or downstream of the presently proposed location. (Finding 124). The insignificant impact of the presently proposed location would certainly be no greater than that of the shoreline location evaluated at the construction permit stage, and would very probably be less.

F. Impacts of the Intake on Recreation

1. *Effects on Boating, Rafting, and Tubing*⁵

Contentions V-15 and V-16a (in part) included an allegation that the intake would adversely affect a major boating and recreation area. (Finding 6). Some of Del-Aware's witnesses indicated that they were concerned that the intake would be a hazard to people utilizing the area for boating, rafting, or tubing. (Finding 125). The purported danger was apparently that they would be injured either by direct contact with the intake or by becoming hooked on fishing lures which may have been caught on the intake.

The intake would be covered by four feet of water even at a comparatively low flow of 3000 cfs (Finding 15). This should be sufficient depth to prevent the intake from being a hazard. Tubers may float through areas where the water is no deeper than a foot or eighteen inches. (Finding 127). They are more likely to contact the river bottom in such shallow water than they are to hit the intake. The river in the vicinity of Point Pleasant contains rocks. (Finding 126).⁶ Therefore, people in boats or rafts would be no more likely to contact the intake than they would be to contact rocks.

There would be no serious danger of injury from fishing hooks caught on the intake. Although fishing lures have been lost because they have become entangled with objects in the river, no witness was aware of any incident in which someone had been injured by these lures. (Finding 126). Lures caught on the intake would not be any more likely to cause injury than would those which have been caught on other objects, apparently without causing injuries.

In summary, the intake would not increase the risk of injury to boaters, rafters or tubers beyond that they already experience.

2. *Effects on Fishing*

Del-Aware witnesses were concerned that the intake would have an adverse impact on fishing at what they described as one of the six best shore fishing sites on the Pennsylvania side of the Delaware River between Trenton and Easton. Point Pleasant, these witnesses testified, is the second best spot for shore fishing for shad in that reach of the river. (Finding 128). The reason for Point Pleasant's superiority as a fishing spot for shad is believed to be that shad, which travel in a relatively

⁵ "Tubing" involves floating down the river while sitting in or holding onto an inner tube.

⁶ Although no testimony specifically addressed the fact, the Board during its site visit observed that some of the rocks out toward the middle of the river were within four feet of the surface even though the river flow was not particularly low.

narrow section of the river during their upstream migration, are closer to the Pennsylvania shore and within casting distance at that point. (Finding 129).

The concern was that shad would shy away from the intake and would alter their migratory path in such a way that it would no longer be possible to reach them when casting from shore. The intake screens would begin two feet above the river bottom while the shad travel within one foot of the bottom. Therefore, the intake array should not directly impede the shad's route. The witnesses were concerned, however, that the shad, which they described as "spooky," would avoid passing beneath the intake. (Finding 130).

The Board concludes that there is no evidence that the intake would have a detrimental effect on the Pennsylvania shad fishery. No evidence was presented that the intake will actually be located in a normal pathway of the migrating shad, since no particular pathway was known. As the witnesses conceded, an intake located elsewhere in the river could have a more serious impact on shad fishing. While a shoreline location for the intake would be least likely to cause the shad to modify their migratory path, such a location has other drawbacks which would outweigh its possible benefits in terms of possibly not scaring fish beyond casting distance from the Pennsylvania shore. (Finding 131).

If, in fact, the intake were to be located in the path of the shad and they were to change their pathway to avoid it, it is equally possible that they would move towards the Pennsylvania shore as that they would move away from it. (Finding 132). Thus, the intake could actually improve the Pennsylvania shore shad fishing rather than harming it.

G. Impacts on the Proposed Historic District

Contention V-16a concerns the impacts of noise and maintenance related to operation of the intake on the Point Pleasant proposed historic district. (Finding 133). Although the Point Pleasant district has not, as yet, been listed on the National Register of Historic Places, it has been declared eligible for such listing by the keeper of the National Register. The district's significance is related to its preservation of the atmosphere and environment of a nineteenth century canal town. (Finding 134).

Under the National Historic Preservation Act, 16 U.S.C. §§470-470(n) (1976 & Supp.), as interpreted by the Advisory Council on Historic Preservation in its regulations, noises which are out of character with a historic property or which would significantly alter the property's setting may constitute adverse effects which require consideration by federal agencies involved in the projects causing them. (Finding 135). Therefore, adverse noise effects on the proposed historic district resulting from operation of the intake must be considered.

In compliance with the Act, the Pennsylvania State Historic Preservation Officer and the Advisory Council on Historic Preservation have been consulted

concerning the Point Pleasant diversion. Neither has identified noise from the proposed intake and pumping station as an adverse impact on the proposed historic district. (Finding 136).

Although the National Historic Preservation Act has been complied with, that does not preclude the need to comply with NEPA with regard to impacts on historic and cultural aspects of the environment. See *Preservation Coalition, Inc. v. Pierce*, 667 F.2d 851, 858-59 (9th Cir. 1982). Therefore, noise impacts on the proposed historic district must be evaluated and, if necessary, mitigation measures undertaken.

A survey to determine ambient noise levels was done on the pumping station property during 1981. The noise level was measured at one point on the site (a point 30 feet from the southern property line and 100 feet east of the road). This measurement was considered representative of the ambient noise level at any point on the property since the ambient noise level would not be expected to vary greatly over a small distance. (Findings 137, 139).

Ambient noise measurements are made by taking sound readings which exclude nearby transient noise sources. Generally the low background noise level is defined as the lowest noise level measured over a fifteen minute period. (Finding 138).

The Applicant evaluated the impact of the anticipated noise from the proposed pumping station by comparing it to a background noise level which would be exceeded ninety percent of the time (L_{90} sound level). In effect, PECO used for comparison a value which included noise levels at all frequencies. However, PECO's value was an A-weighted noise level, meaning that it was measured by an instrument which was most sensitive to those frequencies to which the human ear is most sensitive. Hence, the value, while accurate, deemphasized noise levels at particular frequencies higher or lower than those best perceived by the human ear. (Findings 140, 141).

The Staff's witness on noise presented a convincing case why the A-weighted L_{90} sound level is not appropriate for determining the noise impacts from the pumping station. (Finding 142). People may perceive and be annoyed by noises which exceed the background noise level at particular frequencies, yet the L_{90} sound level may mask that effect by deemphasizing those frequencies. Indeed, the noise impact of the transformers associated with the pumping station would be deemphasized in just such a manner if the A-weighted L_{90} sound level were used for comparison. (Finding 142).

The Staff's witness suggested a different method of determining noise impacts which would avoid the problems of deemphasizing particular, possibly annoying, noises. He advocated determining the masking level of the ambient noise at each frequency which is a component of the noise whose impacts are being evaluated. The masking level is calculated from the sound level at the particular frequency

and at frequencies within approximately 20 hertz (Hz) of the frequency in question. (Finding 143). The noise being evaluated is then compared to the masking level at each of its frequency components. Studies have shown that if the noise being evaluated is 3 decibels (dB) above the masking level at a particular frequency, most people will be able to perceive it. If, at any frequency, it is 5 dB above the masking level, people will complain of acoustical discomfort and annoyance. (Finding 144).

In order to calculate masking levels, one must know the background noise levels at particular frequencies, *i.e.*, have ambient octave band sound pressure levels. The Applicant had daytime octave band sound pressure levels. However, the Staff's witness indicated that ambient noise levels are ordinarily measured at night, between midnight and 4:00 a.m. He indicated he would expect nighttime noise levels to be somewhat less than those measured during the day, and therefore, for his evaluation he estimated that ambient nighttime noise levels would be 3 dB lower than the measured daytime ones. (Finding 139).

Noise sources associated with the proposed intake would be the pumps and other equipment within the pumping station and the transformers immediately outside of it. Although emergency generators were once planned, they have been deleted and, therefore, are not a potential noise source. (Findings 145, 146, 147, 153).

The pumphouse would contain four pumps driven by electrical motors, the fourth of which would not be installed until between the years 1990 and 2000. The pumps would have a sound level rating of no more than 86 dB. (Finding 145). Ventilating equipment and small air compressors would also be within the pumphouse, but their noise level would be approximately 10 dB less than that contributed by the pumps. (Finding 146).

To help contain the noise, the pumphouse would be insulated and without windows. Sound attenuating designs would be used for all ventilating systems. (Finding 148).⁷ The pumphouse structure should sufficiently attenuate any pump and motor noise from inside it so that any noise outside it should be much lower than the ambient sound level. (Finding 150). The noise would be further attenuated at greater distances from the noise source. (Finding 151). As a result of attenuation by the pumphouse structure and as a result of distance from the pumphouse, the noise from equipment within the pumphouse should be at or below ambient noise levels at the closest site property line. (Finding 152).

Two transformers would be located *outside* the pumphouse, immediately adjacent to it on the river side. They would be 15 to 20 feet apart and separated by a

⁷ At the time he testified, the Staff's witness was uncertain about the air intake location and sound specifications for the pumphouse doors. He testified, however, that it would be well within the state-of-the-art to remedy any problem of noise transmission to the outside by these pathways. (Finding 149).

firewall. (Finding 153). The transformers would be rated as producing 57 dB (A-weighted). (Finding 154). Noise from the transformers would be composed of discrete frequencies with fundamentals occurring at 120 Hz and multiples thereof. The fact that the transformer noise consists of discrete frequencies increases the likelihood that it will change the character of noise in the area and annoy people even if its level does not exceed the overall ambient level. (Finding 155).

No comparison has been made of the noise which would be generated by the transformers at 120, 240, 360 and 480 Hz with the masking levels at those frequencies. The Staff's witness, who advocated the technique, had not at the time of the hearing received sufficient information on the transformers selected to make this comparison. Nor were we presented with such a comparison by the Applicant. The Staff's witness indicated, however, that based on the information he did have, he believed the transformer noise would be audible beyond the boundaries of the pumphouse site at those frequencies at which it has fundamentals. (Findings 156, 157).

The Staff's witness focused his concern on the four residences near the pumphouse property. Specifically, he felt the noise would be audible at what were designated Residences 1 and 4. Of these two, Residence 4 is apparently closer to the transformers, and therefore would suffer a greater noise impact. (Finding 158).

Technology exists, basically in the form of sound barriers or sound walls, which could be used to eliminate any audible offsite noise. This technology could be utilized at the pumping station if the station were built and operational and noise reduction proved necessary. However, for economic reasons, there is no plan to install sound walls unless they prove necessary. (Findings 159, 160).

The Board is imposing a condition which will require that, if the pumping station is constructed and operated, tests shall be performed to ascertain whether the transformers will cause audible noise away from the pumping station property. The methodology recommended by the Staff's witness is to be used in making this determination. If these tests show that noise is audible offsite, mitigation measures are required to minimize the noise impact. Specifically, the Board requires that within one month after the pumping station begins operation, the Applicant shall carry out the following noise measurements and calculations. Measurements shall be made between 12:00 a.m. and 4:00 a.m. at the site boundary at a point on the straight line between the transformers and Residence 4 (as shown in Policastro Testimony, ff. Tr. 1118, at Attachment 1) or at that point on the site boundary line where the maximum noise impact occurs (if that point is different). Measurements shall be obtained by reading the lowest level on the sound level meter (set on fast response) which is repeated several times (*i.e.*, the mean minimum). At the specified location or locations the following measurements shall be made:

- A. Measurement of the octave band sound pressure levels. From these measurements, the masking level shall be computed for transformer fundamental frequencies of 120, 240, 360, and 480 Hz.

B. Measurements at the 1/3 octave bands for those four bands containing the fundamental frequencies.

The results of these measurements and computations shall be reported to the Staff. The noise will be considered audible if the measured sound pressure level and the 1/3 octave band containing the fundamental frequency (from measurement B) is greater than the masking level computed (from measurement A) for that frequency. If any of the four transformer fundamentals is found to be audible, measures shall be taken which render that fundamental (those fundamentals) inaudible.

In the event such measures are necessary, they shall be undertaken promptly. If such measures are necessary or if additional equipment which could increase the noise level is added, the measurements and computations described above shall be repeated and the results reported to the Staff.

These measures should assure that there will be no adverse impact on the proposed historic district from noise impacts related to operation of the intake.

In addition to noise directly related to operation of the intake, Contention V-16a concerns the impacts resulting from dredging maintenance for the intake. (Finding 133). Although the contention was, on its face limited to dredging, the testimony presented primarily concerned other maintenance work. We have also evaluated the impacts associated with that work.

Insofar as dredging is concerned, the evidence suggests that none would be necessary. Essentially the velocity of the river passing the intake should keep material from building up beneath the intake. Comparison of river bottom measurements made fourteen years apart indicates that in the past the river velocity has prevented any substantial deposition of material. The rip-rap which would be placed under the intake should assure that this lack of deposition would continue. (Findings 161, 162).

Del-Aware's witnesses suggested that the intake would be damaged if debris and ice were swept against it and that this would require substantial noisy repair work. (Finding 163). We conclude that such damage would be unlikely and that, if it were to occur, it could be repaired without causing any substantial adverse impacts on the proposed historic district.

Del-Aware's own witness indicated that ice and/or debris are found in the river after rains. Rain, of course, increases the flow in the river. McNutt's testimony about the river's level when he has seen ice and debris floating in it confirms that this occurs at relatively high flows. (Finding 164). Since the top of the intake would be under four feet of water even at a comparatively low flow of 3000 cfs (Finding 15), the clearance provided at even higher flows should be sufficient to ensure that the ice and debris, floating on the river's surface, would not come into contact with the intake.

The Applicant also plans to provide guard posts at the upstream end of the intake structure. These should deflect ice and debris and would assist in preventing the intake from being damaged in the manner hypothesized. (Finding 165).

The Applicant also indicated means by which the intake could be repaired with a minimum of noise in the unlikely event it was damaged. Debris accumulated against the intake could be removed from a boat or by a diver. (Finding 166). Neither of these should cause intrusive noise. Damage to an intake screen could be repaired underwater or by removing and replacing the screen in question. Removal of a screen might require a barge and, perhaps, a crane. (Findings 167, 168). While a crane might entail some noise, it appears that it would be a repair method of last resort for damage which is unlikely to occur. Any such noise would be a remote possibility and of short duration if it were necessary.

We conclude that maintenance, either dredging or to repair damage caused by ice or debris is unlikely to be necessary. If such maintenance should occasionally prove necessary, it would not cause noise impacts adversely affecting the Point Pleasant proposed historic district.

The matters examined during the evidentiary hearing which are not discussed in this Opinion were considered by the Board and found either to be without merit or not to affect our decision herein. Findings of Fact and Conclusions of Law which are annexed hereto are incorporated in the Opinion by reference as if set forth at length. In preparing its Findings of Fact and Conclusions of Law, the Board reviewed and considered the entire record and the Findings of Fact and Conclusions of Law proposed by the parties. Those proposed findings not incorporated directly or inferentially in this Initial Decision are rejected as being unsupported by the record of the case or as being unnecessary to the rendering of this decision.

II. FINDINGS OF FACT

A. Background

1. This partial initial decision concerns alleged operational impacts of the supplementary cooling water system which is proposed to convey water from the Delaware River for use at the Philadelphia Electric Company's Limerick Generating Station. 47 Fed. Reg. 38,657 (1982).

2. The parties who participated in the hearing are the Philadelphia Electric Company (PECo or Applicant), Del-Aware Unlimited, Inc. (Del-Aware), and the Staff of the United States Nuclear Regulatory Commission (Staff). Tr. 741-42. Although other intervenors and governmental agencies are participating in the adjudication concerning issuance of operating licenses for Limerick, they have not been involved in the proceedings which are the subject of this partial initial decision.

3. This Licensing Board has jurisdiction over the issues decided in this partial initial decision pursuant to the Atomic Energy Act of 1954, as amended,

§191, 42 U.S.C. §2241 (1976); the National Environmental Policy Act, §102, 42 U.S.C. §4332 (1976); 10 CFR §2.721 (1982); Notice of Evidentiary Hearing on Supplementary Cooling Water System Issues, 47 Fed. Reg. 38,657 (1982); Establishment of Atomic Safety and Licensing Board to Preside in Proceeding, 46 Fed. Reg. 45,715 (1981); Notice of Opportunity for Hearing, 46 Fed. Reg. 42,557 (1981).

4. The Applicant proposes to supply supplementary cooling water to Limerick by means of the Point Pleasant diversion. The diversion project, involving several components, would withdraw a maximum of 95 million gallons of water per day (MGD) from the Delaware River. Of this, up to 46 MGD would be used as cooling water for Limerick. The remainder would be utilized by the Neshaminy Water Resources Authority (NWRA) to supply water for Bucks and Montgomery counties in Pennsylvania. Special Prehearing Conference Order, LBP-82-43A, 15 NRC 1423, 1461-63 (1982) (SPCO); Applicant's Testimony on "Water Issues," ff. Tr. 949, at 5; Applicant's Ex. 1A at Response to Question E291.4.

5. The two contentions which are addressed in this partial initial decision concern the potential operational impacts of the intake structure in the Delaware River and its associated pumping station. A third contention, relating to impacts of a reservoir which would be a part of the diversion, was withdrawn by Del-Aware pursuant to a stipulation among the parties during the course of the hearing. Tr. 2370-71; Stipulation Concerning Contention V-16b, ff. Tr. 2371. The remaining components of the Point Pleasant diversion, insofar as they would be used to convey supplemental cooling water to Limerick, were not at issue in this adjudication.

6. Contentions V-15 and V-16a (in part), as litigated in this proceeding, state:

The intake will be relocated such that it will have significant adverse impact on American shad and short-nosed sturgeon. The relocation will adversely affect a major fish resource and boating and recreation area due to draw-down of the pool.

See SPCO, 15 NRC at 1479.

B. Location and Description of Proposed Intake

7. In July 1980, the proposed location for the intake in the Delaware River was changed from a position along the Pennsylvania shoreline at Point Pleasant to one located out in the river approximately 200 feet from the west, Pennsylvania, shoreline. Applicant's Testimony, ff. Tr. 949, at 2-3; Applicant's Ex. 2 at 1.

8. In January 1982, the proposed position for the intake was moved an additional 45 feet from the west shoreline, without changing the alignment of the intake pipes appreciably. The reason for moving the screen was to take advantage

of the higher river velocities farther out into the river. Applicant's Testimony, ff. Tr. 949, at 2-3; Bourquard at Tr. 1421-22.

9. The intake has been described as being located in the "pool" of the Delaware River formed by the Lumberville wing dam. The length of the "pool," as understood in this proceeding, extends upriver from the Lumberville wing dam to the riffle or rapids near the mouth of the Tohickon Creek. The intake would be located in the Delaware River at river mile 157.2 near the upstream limit of the Lumberville pool in the lower section of the swift water passing the mouth of the Tohickon Creek. The intake would be about 800 feet downriver of the confluence of Tohickon Creek and the Delaware River and approximately 1.5 miles upriver of the Lumberville wing dam. Applicant's Testimony, ff. Tr. 949, at 6; Testimony of Dr. Michael T. Masnik, ff. Tr. 3504, at 4; Applicant's Ex. 4.

10. The type of intake screen planned was also changed. When the shoreline location was proposed, the intake was planned with a vertical traveling screen. Applicant's Testimony, ff. Tr. 949, at 2-3; Applicant's Ex. 2 at 1. The present design calls for a passive wedge-wire screen structure. There would be two parallel rows of screens located seven feet apart. Each row would consist of six cylindrical screen sections placed end-to-end with space between the cylinders, aligned generally parallel to the river. The cylinders would be 10 feet 4 inches long and have a 40 inch diameter. Each cylinder would have two 40 inch long sections of screen with a 44 inch solid piece between them. The lead and trailing screens would be protected by conical end pieces. Each row would be about 75 feet in total length. Applicant's Testimony, ff. Tr. 949, at 3-4 and Page 2 of Exhibit A; Masnik Testimony, ff. Tr. 3504, at 4-5.

11. The screening on the intake would be made of helically welded wedge-wire wound circumferentially around internal supports spaced about 6 inches apart. The narrow portion of the wedge-wire would face inward so that the exterior screen surface would be relatively smooth and flat. The screen openings would be slots 2 mm in width. Applicant's Testimony, ff. Tr. 949, at 4; Masnik Testimony, ff. Tr. 3504, at 4-5.

12. A passive wedge-wire screen intake utilizes state-of-the-art technology. Witnesses for all of the parties, including Del-Aware, agreed that the presently proposed intake location and design is preferable to the originally contemplated shoreline intake with a vertical traveling screen. Applicant's Testimony, ff. Tr. 949, at 3, 6; Boyer at Tr. 1350; Brundage at Tr. 2996; Miller at Tr. 3156-57; McCoy at Tr. 3302; Masnik at Tr. 3982.

13. The intake design is such that water would flow into the screens around their entire circumference. Applicant's Testimony, ff. Tr. 949, at 4. The design would be such that through-slot water velocities would be nearly uniform over the entire screen surface. Masnik Testimony, ff. Tr. 3504, at 5.

14. The intake would be provided with an air backflush system to assist in keeping the screens free from debris. The Applicant anticipates that the system

would be operated about once a week except during the relatively short period when fallen leaves are in the river. During that period it is anticipated that the system would be operated once or twice a day. Applicant's Testimony, ff. Tr. 949, at 4-5; Bourquard at Tr. 2435-36, 2557-8, 2561; Boyer at 2561.

15. The intake would be located with the lowest part of its screens two feet above the river bottom. At river flows of about 3,000 cubic feet per second (cfs), the intake would be in water approximately ten feet deep. Under those conditions, the water surface would be approximately four feet above the top of the intake. Applicant's Testimony, ff. Tr. 949, at 4, 13; Masnik Testimony, following Tr. 3504, at 4-5; Applicant's Ex. 2 at 4-5.

16. For a river flow of 3000 cfs, even with the proposed intake operating at its maximum pumping rate, the water level at Point Pleasant would drop by less than an inch. Testimony of Rex. G. Wescott, ff. Tr. 3490, at 3; Applicant's Testimony, ff. Tr. 949, at 13. *See also*, Phillippe at Tr. 3807-08. This amount of drawdown would be barely perceptible to the human eye and would have a totally negligible effect on the overall water level in the pool. Masnik Testimony, ff. Tr. 3504, at 25. The changes in the intake's proposed location would not affect the amount of drawdown since the intake would still be in the same pool. Wescott Testimony at 2.

17. If water were being withdrawn at the maximum rate of 95 MGD, at a river flow of 3000 cfs, 4.9% of the flow would be withdrawn. At a flow of 2500 cfs, the withdrawal of 95 MGD (147 cfs) would represent a withdrawal of 5.9% of the flow. Masnik Testimony, ff. Tr. 3504, at 15; Masnik at Tr. 3557; Harmon at Tr. 8398. Emery at Tr. 2064. At the lowest flow historically recorded, which occurred in October 1963, the intake operating at its maximum capacity would have withdrawn 12% of the 1180 cfs flow. Direct Testimony of Richard W. McCoy, ff. Tr. 3046, at Table 1; McCoy at 3211-12.

18. Riprap would be placed on the river bottom beneath the intake over an area approximately 24 × 90 feet. The riprap would be approximately two feet thick and would be composed of large stones (about 12 inches on a side). The contours of the bottom where the riprap would be placed would be restored to roughly what they were before the intake was constructed. Applicant's Testimony, ff. Tr. 949, at 16; Bourquard at Tr. 2551-54, 2556.

C. The Point Pleasant Eddy

19. An eddy is a current of water, running contrary to the main current (especially a current moving circularly). Applicant's Testimony, ff. Tr. 949, at 6; Bourquard at Tr. 2524.

20. During periods of relatively low flow (below 5000-6000 cfs) the Delaware River at River Mile 157.2 (the proposed intake location) can be described as consisting of two parts: (1) a main channel or portion of relatively high flow

velocity and (2) a slack water portion, to the Pennsylvania shore side of the main channel, containing a clockwise moving body of water referred to as an eddy. Applicant's Testimony, ff. Tr. 949, at 6.

21. The eddy forms as a result of a rocky bar immediately downstream of the Tohickon Creek which causes a slack water area downriver of the bar on the Pennsylvania side of the river. Depending upon the river flow, water may or may not pass over the bar, and the amount of water flowing over the bar controls the size and location of the eddy. Harmon at Tr. 1406; Boyer at Tr. 1404, 1425, 1427; Plevyak at Tr. 1936.

22. With increasing river flows, the bar is covered by more and more water, and the eddy is forced downstream and shrinks in width away from the middle of the river. At particularly high flows, the eddy may cease to exist. Harmon at Tr. 1406; Boyer at Tr. 1404, 2766-67; Bourquard at Tr. 2614; Wescott at Tr. 3938. As the water flow drops below 5000 to 6000 cfs, the bar gradually starts to become exposed and the eddy expands upstream and widens out from the Pennsylvania shore. When the full length of the bar is exposed (at flows of approximately 3000 to 4000 cfs), the eddy achieves its maximum width in terms of the distance it extends from the Pennsylvania shore. Bourquard at 2614-15; McCoy at Tr. 3262; Kaufmann at 2098-99; Harmon at Tr. 1406, 1410; Boyer at Tr. 1413.

23. At its maximum width the eddy does not appear to extend past a point designated by the Applicant as Station 7 + 75. Bourquard at Tr. 1405. Essentially, this designation signifies a distance of 775 feet from a point along the river road selected by the Applicant to be used as a point of reference in determining locations. This "station" system of designating locations is designed to avoid describing distances into the river in relation to the shore since the shoreline will change with changing flows. Bourquard at Tr. 2193; Applicant's Ex. 4.

24. Del-Aware alleged that the intake would be located in or would draw water from the eddy and that this would increase the risk of harm to developmental stages of American shad and shortnose sturgeon. Del-Aware theorized that the slow clockwise circulation in the eddy would cause them to be exposed to the intake repeatedly and for a longer period of time. Kaufmann at Tr. 1959, 2068-70; Emery at Tr. 2067, Miller at Tr. 3054.

25. The center of the proposed intake would be located at Station 8 + 62, or about 87 feet further out into the river than the estimated edge of the fully developed eddy. Harmon at Tr. 1410; Boyer at Tr. 1413, 1424. Witnesses for all the parties agreed that the proposed intake would not be in the eddy. Applicant's Testimony, ff. Tr. 949, at 6; Plevyak at Tr. 1940; Wescott at Tr. 3937, 3941, 3965; Harmon at Tr. 2573, Bourquard at Tr. 2574; Phillippe at Tr. 3756.

D. Intake Velocity

26. The maximum velocity through the intake screens would be 0.5 feet per second (fps), with an average velocity of 0.35 fps. Applicant's Testimony, ff. Tr. 949, at 5; Applicant's Ex. 2 at 1; Boyer at Tr. 1351; Emery at Tr. 1768, 1774.

27. The design of the intake is such that the speed at which water would be drawn toward the intake would decrease very rapidly as the distance from the screen surface increases. At a distance of one foot from the screen, the average velocity toward the screen would fall to 0.071 fps. At five feet, the Applicant calculated that the average velocity toward the screen would have decreased to 0.011 fps. The velocity at ten feet was calculated to be 0.0037 fps. Applicant's Testimony, ff. Tr. 949, at 5; Masnik Testimony, ff. Tr. 3504, at 5; Boyer at Tr. 1363; Harmon at Tr. 2899.

28. Del-Aware's witnesses expressed concern that the screens could become clogged, causing the velocity through the slots to increase. The witnesses suggested that biofouling or fishing hooks could cause clogging. Direct Testimony of Charles Emery, ff. Tr. 1736, at 19; Kaufmann at Tr. 1879-80; McCoy at Tr. 3165-66, 3292-93; Miller at Tr. 3291-92.

29. Del-Aware's witness, Charles Emery, testified that a wedge-wire screen is less susceptible to clogging than most others and that the intake's proposed position in the river would make the screens less susceptible to clogging. Applicant's witnesses testified that they considered biofouling, other than by leaves, unlikely to occur because of the absence of biofouling organisms in the Delaware River. If leaves or frazil ice were to accumulate on the screens, the Applicant indicated that they would be removed by the air backflush system. The intake location is such that contact with fishing hooks would be minimized. Embedded hooks, if any, could be removed by a diver. Emery at Tr. 1770-71, 1815, 1884; Harmon at Tr. 2585-86; Boyer at Tr. 2537-38, 2557-58; Bourquard at Tr. 2436-37, 2557-61, 2820-21; Dickinson at Tr. 2854-55.

E. Ratio of Bypass Velocity to Intake Velocity

30. Bypass velocity is the speed of the river water passing directly in front of and parallel to the long axis of the intake. A high ratio of the bypass velocity to the screen intake velocity is one of the factors that may enhance the protective value of an intake screen in reducing entrainment and impingement of aquatic life. Harmon at Tr. 2401, 2519, 2893; Brundage at Tr. 2932-33, 2939, 2944; McCoy at Tr. 3302; Miller at Tr. 3311; Emery at Tr. 2064.

31. Based on a study by Hanson and upon experience with vertical traveling screens, it has been said that a ratio of bypass velocity to screen intake velocity of a minimum of 2 to 1 is considered optimal with respect to minimizing impingement and entrainment problems at wedge-wire intake screens. Masnik Testimony, ff.

Tr. 3504, at 18; Brundage at Tr. 2932; McCoy at Tr. 3351; Harmon at Tr. 2580-81. This 2 to 1 ratio would exist for the proposed intake operating at full capacity if the river velocity were 1.0 fps. Brundage at Tr. 2939.

32. Some witnesses suggested that field trials have not seemed to support the theory that a 2 to 1 ratio of bypass velocity to intake velocity is important. Brundage at Tr. 2978; Masnik at Tr. 3587, 4028.

33. Passive wedge-wire screens provide considerable protection from impingement and entrainment in comparison to traveling screens even at a 1 to 1 bypass to intake velocity ratio or in the absence of any bypass velocity. Harmon at Tr. 2359, 2397, 2582, 2851; Boyer at Tr. 2672, 2804-05. There is negligible difference between the protection afforded by a passive screen with a 2 to 1 bypass ratio as compared to a passive screen with a 1 to 1 ratio. Harmon at Tr. 2399-2400, 2853.

34. The type of fish to be protected is a consideration in determining whether a higher bypass to intake velocity ratio is beneficial for a particular wedge-wire intake screen. Harmon at Tr. 2359. There would be no biologically significant impact on either shortnose sturgeon or American shad from the proposed intake even if there were no bypass velocity. Harmon at Tr. 2827; Masnik at Tr. 4025. Bypass velocity, and the ratio of bypass velocity to intake velocity are of little significance in providing protection to these two species. Harmon at 2826; Brundage at Tr. 2957-58.

F. Applicant's Velocity Measurements

35. Velocity measurements made by Applicant at the intake site on November 7, 1980, with a river flow of approximately 3000 cfs and a water surface elevation of 70.8 feet, indicated that the river velocity at the location and depth of the intake was at or in excess of the 1.0 fps required to provide a 2 to 1 bypass to intake velocity ratio at the maximum intake rate. (West screens — 0.98 to 1.2 fps; east screens — 1.1 to 1.35 fps; intake velocity in the range of 0.35 to 0.5 fps). Applicant's Ex. 1-A at Response to Question E240.27 (see Figures E 240.27-1 and -3); Applicant's Testimony, ff. Tr. 949, at 5.

36. Measurements taken at the intake site (Station 8 + 62) on July 23, 1981, when the flow was estimated at 4500 cfs and the river elevation was 71.4 feet, showed velocities of over 2 fps at the intake depth locations. Applicant's Ex. 1-A Response to Question E240.27 (see Figures E 240.27-2 and -3).

37. The instrument used by Applicant to measure river velocity should be accurate to within 5 percent. Phillippe at Tr. 3826.

38. A Del-Aware witness criticized the Applicant's velocity measurements because the Applicant had not recorded the direction of the flow for which the velocity was measured. Supplemental (Rebuttal) Testimony of Johnathan Phillippe, ff. Tr. 3658, at 9.

39. The velocities measured by Applicant were maximum velocities. Harmon at Tr. 2209. There are some uncertainties as to the direction of the water flow. Based upon the bathymetry, *i.e.*, information on the topography of the river bottom derived from measurements of water depth, the Tohickon bar and the trend toward the Pennsylvania shore (Applicant's Ex. 4), it appears that the direction of the current could intersect the intake at a direction as great as 20-25° from parallel with the long axis of the intake structure and angling toward the Pennsylvania side. Phillippe at Tr. 3735, 3850; Wescott at Tr. 3610-3611.

40. Maximum water velocities measured at an angle to the intake can be converted to bypass velocities by multiplying them by the value of the cosine of the intersection angle. Wescott at Tr. 3611; Phillippe at Tr. 3850.

41. The cosine of an intersection angle of 15° is 0.966. The cosine of 25° is 0.906. Phillippe at Tr. 3851.

42. Del-Aware's witness contended that the Applicant's determination of distances across the river at which velocity readings were made were inaccurate because the Applicant relied on an out-of-calibration split-image rangefinder on November 7, 1980. Phillippe Suppl. Testimony, ff. Tr. 3658, at 10-11; Phillippe at Tr. 3769-70.

43. In oral testimony, the Staff indicated that it had made three separate checks of the Applicant's velocity measurements of November 7, 1980. The first check involved calculating the total flow by summing the products of measured velocities and associated cross-sectional areas. The Staff calculated a flow value of 3070 cfs as compared to Applicant's calculated flow of 2950 cfs. Wescott at Tr. 3599. *See also*, Wescott at Tr. 3835.

44. The second independent check concerned the location of the measurement stations and involved plotting the depth integrated velocities versus the cross section to assure that the maximum velocities were occurring at the line of maximum depth and that the profile seemed to represent what might be expected based upon the cross section of the river at the intake. As a result of that exercise, a Staff witness concluded that the distance measurements could not have been off very much. *Id.* at Tr. 3600.

45. The Staff's third check involved using the velocity distribution in the water column to calculate a roughness coefficient for the river channel. The calculated coefficient was then compared to coefficient values commonly associated with rocky river bottom situations. The calculated coefficient (a Mannings' "n" value) was 0.46, a very reasonable value for a rocky bottom such as that which exists at the intake site. The favorable correlation of "n" values is an indication that the depth variation of velocity was probably accurate. *Id.*

46. As a result of the checks made by the Staff on Applicant's velocity and distance measurements of November 7, 1980, a Staff witness stated that he was led to believe that the velocity measurements made on November 7, 1980 are probably accurate to within a tenth of a foot per second. Wescott at Tr. 3598-99.

47. Also, as a result of these checks, the Staff witness stated he believes the distance measurements were also accurate. Wescott at Tr. 3600, 3616-17.

48. The distance measurements made on November 7, 1980 could be in error by as much as 25 feet without being apparent in the checks. Phillippe at Tr. 3835-3837; Wescott at Tr. 3925-26. In the event that an error of that magnitude occurred, it would probably have been in the direction such that the measurements were taken further out in the river than the Applicant's data indicates they were. Wescott at Tr. 3926; Phillippe at Tr. 3837.

49. Assuming *arguendo* that an error of up to 25 feet occurred, based on the Applicant's plot of velocity against distance for November 7, 1980, at the intake location (Station 8 + 62) at the 7 foot depth, the velocity at the actual intake location would be approximately 75 percent of the measured velocity value or a minimum of 0.82 fps. Applicant's Ex. 1-A at Response to Question E240.27 (*see* Figure E 240.27-1).

50. A Staff witness questioned the accuracy of the Applicant's velocity profile from July 23, 1981 because he found the Mannings' "n" value he calculated using that data would not be reasonable for a rocky bottom like that at Point Pleasant. He noted that the probable reason for this was a single unrealistically low, and probably erroneous value at the 10 foot depth. Wescott at Tr. 3921-23.

G. Determination of Flow at Point Pleasant

51. Flows at Point Pleasant may be calculated by taking the ratio of the drainage area tributary to the river at Point Pleasant and the drainage area at Trenton and multiplying the measured flow at Trenton by that ratio. The calculated drainage area ratio is 0.97. Bourquard at Tr. 2283, 2287-88; Phillippe at Tr. 3663.

52. Applicant developed a rating curve showing water surface elevation correlated to river flow at Point Pleasant. Bourquard at Tr. 2272. The rating curve was used as the basis for river flow during times when velocity measurements were made. Phillippe Suppl. Testimony, ff. Tr. 3658, at 7; Bourquard at Tr. 2272.

53. Del-Aware argues that the rating curve fails to reflect the fact that the Lumberville Wing Dam is a hydraulic control for the water level at the proposed intake site in the low flow ranges and states that the rating curve is not accurate for low flows. Phillippe Suppl. Testimony, ff. Tr. 3658, at 7, 8.

54. The Lumberville Wing Dam is a partial constriction of the river located approximately 1.5 miles downstream of Point Pleasant. Because it has a slot opening and its cross-sectional area changes, its impact is different at flows which overtop the side wings from its impact at flows which do not. The top of the wing walls is 70.7 ft. The slot section has a width of approximately 100 feet and a minimum weir elevation of 64.5 feet. Bourquard at Tr. 2592; Wescott Testimony, ff. Tr. 3490, at 2; Del-Aware Ex. 1B.

55. Del-Aware alleges that river flows under 5000 cfs are affected in various ways by the hydraulic control provided by the Lumberville wing dam. At flows below roughly 3000 cfs, the weir section controls; while at flows in the range of 3000 to 5000 cfs, control is provided by both the weir and the broad crested wing dam. Del-Aware states that somewhere between 5000 cfs and 8000 cfs the effects of the dam are dissipated. Because of this situation, the upper flow portions of the rating curve probably are realistic while significant problems exist below the 3500 cfs flow level. Phillippe Suppl. Testimony, ff. Tr. 3658, at 7; Phillippe at Tr. 3700.

56. A Del-Aware witness stated that the data points used to construct the rating curve fell into two distinct sets of data points, further stating that trend lines drawn through each of the two separate clusters resulted in essentially two parallel lines above and below the 71.5 foot elevation and displaced by 600 or 700 cfs for a given elevation. The witness attributed the displacement to the effect of the weir at different flow volumes. Phillippe at Tr. 3773-74.

57. Del-Aware questioned the treatment of flows in the Delaware and Raritan canal in developing the rating curve. Phillippe Suppl. Testimony, ff. Tr. 3658, at 8.

58. The Delaware and Raritan Canal comes off the Delaware River below Point Pleasant and above the Lumberville wing dam and flows parallel to the river to a point above Trenton. Boyer at 2833-34. The net diversion via this canal is presently limited by physical restriction to 60 MGD or 90 cfs. The authorized maximum diversion from the Delaware River is 100 MGD or 150 cfs. Boyer at Tr. 2834. Additional water flowing into the Canal is largely returned to the Delaware through overflow points at stream crossings and thus is included in flows at Trenton. Boyer at Tr. 2835-36, 2858-63, 2869.

59. Applicant's method of constructing the rating curve involved techniques commonly used for such work. Phillippe at Tr. 3698-3700.

60. One point on the Applicant's rating curve is the result of actual flow measurements made by the United States Geological Survey (USGS) on September 12, 1981. On that date the flow at Lumberville was measured at 3340 and the flow into the Delaware and Raritan Canal was measured at 300 cfs, giving a total flow of 3640 cfs at Point Pleasant. Bourquard at Tr. 2261-2265. The river elevation at the Point Pleasant intake was simultaneously measured and was found to be 71.27 feet. Boyer at Tr. 2336. The Applicant's witnesses indicated that this confirmed the accuracy of the rating curve. Bourquard at Tr. 2269.

61. A witness for the Applicant testified that at flows of approximately 4500 cfs, the elevation shown by the rating curve should be accurate to within 0.1 foot. Bourquard at Tr. 2305.

62. The Staff and the Applicant believed that the flow measurement of 3000 cfs on November 7, 1980 was accurate to within 100 cfs. Bourquard at Tr. 2273;

Wescott at Tr. 3931. Del-Aware's hydrological witness indicated that the flow on November 7, 1980 was, if anything, less than 3000 cfs. Phillippe at Tr. 3769.

63. Both the Applicant and the Staff indicated that the July 23, 1981 flow figure of 4500 cfs was less precise. Bourquard at Tr. 2272; Wescott at Tr. 3920-21.

H. Bypass Velocity at Low Flow

64. Velocity measurements taken at low flows such as 3000 cfs may be used to estimate velocities which may occur at lower flows such as 2500 cfs. Provided that there is no significant difference in water level the velocity distribution should be nearly identical, that is, the ratio of screen bypass velocity to average cross-sectional velocity at 2500 cfs is the same as it is at 3000 cfs. Wescott at Tr. 3609-3610.

65. The Applicant's velocity measurements define the cross-sectional velocity distribution in the river at low flows and are adequate to draw conclusions as to the likely velocity distribution past the screens during periods of ecological concern. Wescott Testimony, ff. Tr. 3490, at 4.

66. Using the minimum velocity measured at a screen location (west intake — 7 foot level) at 3000 cfs, the calculated ratio of screen bypass velocity to average cross-sectional velocity was 1.4. Assuming a constant bypass/average cross-sectional velocity of 1.4, the bypass velocity at a river flow of 2500 cfs was calculated to be 0.8 fps. Wescott at Tr. 3609-10; Boyer at Tr. 1350-51.

I. Occurrence of Low Flows

67. Historically, flows at the Trenton gage have exceeded 2900 cfs 90 percent of the time for the period 1913 to 1980. During this period, many presently existing storage projects or reservoirs which can increase river flow were not in operation. Since the drought of the 1960's there has been an addition of approximately 135 billion gallons of storage on the Delaware River, *i.e.*, an increase of 56 percent. Boyer at Tr. 1360-62, 2575-77.

68. During the months of April, May and June when the early life stages of fish are most likely to occur, daily flow records over the last 20 years show that flows below 3000 cfs in the Delaware River at Trenton have occurred about 1 percent of the time. Brundage at Tr. 3003; Masnik at Tr. 3558.

69. Historically, over the last twenty years flows at Trenton during April and May have never gone below 3,000 cfs. McCoy at Tr. 3212. *See also* Phillippe Testimony, ff. Tr. 3658, at 4. Four times in the past 23 years, the minimum daily flow for June has been 3000 cfs or below. This indicates that on at least one day during the month, the flow has been that low. McCoy at Tr. 3214-15. Del-Aware

presented data, however, that over the past 17 years flows have been less than 3050 cfs only 2.9% of the time in June. Phillippe Testimony at 4.

70. Flows have been somewhat lower in July when juvenile fish may be present. During twelve of the last thirty years the minimum daily flow for July has been below 3000 cfs. McCoy at Tr. 3345. Over 17 years, flows during July were below 3050 cfs 19.4% of the time. Phillippe Testimony, ff. Tr. 3658, at 4.

71. According to the Executive Director of the Delaware River Basin Commission (DRBC), the lowest anticipated flow at Trenton is 2500 cfs. This estimate is based on current hydrology and existing upstream storage. Hansler at Tr. 1261. It does not consider storage from the proposed Merrill Creek reservoir. *Id.* at Tr. 1272-74.

72. The DRBC has conditioned the withdrawal rights such that water used for Limerick can be withdrawn from the Delaware River so long as the river's flow exceeds 3000 cfs at Trenton unless PECO and other utilities provide offstream storage within the basin. In that case PECO could withdraw up to the amount they release from a storage system, up to their total allocation (46 MGD for Limerick), regardless of the flow in the Delaware. Hansler at Tr. 1227.

J. Orientation of the Intake Screens Relative to the Flow

73. Screen slot orientation is a factor to consider in determining the efficacy of the screens. Brundage at Tr. 2933-34. However, the orientation is not a major protective feature since screens of this type have been shown effective at a variety of orientations to the flow. Harmon at Tr. 2814; Masnik at Tr. 3986.

74. The screen slots of the Point Pleasant intake screen would be roughly perpendicular to the flow. Harmon at Tr. 2807. Brundage at Tr. 2969; McCoy at Tr. 3306.

K. Impact on Shortnose Sturgeon

75. The shortnose sturgeon is on the list of endangered species maintained by the Secretary of the Interior pursuant to the Endangered Species Act, as amended, 16 U.S.C. §§1531-43 (1976 & Supp.); 50 CFR §17.11 (1981). The National Marine Fisheries Service has prepared, pursuant to the requirements of that act, a Biological Opinion finding that operation of the Point Pleasant Pumping Station is not likely to jeopardize the existence of shortnose sturgeon in the Delaware River. National Marine Fisheries Service, Endangered Species Act: Section 7 Consultation — Biological Opinion.

76. Shortnose sturgeon exist in the Delaware River. However, no shortnose sturgeon have been found at or above Point Pleasant. Applicant's Testimony, ff. Tr. 949, at 7, 9.

77. Lambertville, New Jersey, at river mile 149, is the farthest upstream location where the taking of shortnose sturgeon has been recorded. Two sturgeon were taken there in 1975 and eleven were taken in 1981. Lambertville is eight miles downstream from Point Pleasant. Applicant's Testimony, ff. Tr. 949, at 10; Masnik Testimony, ff. Tr. 3504, at 7; Harmon at Tr. 2681-82.

78. State and federal agencies have sampled for fish for a number of years in the stretch of the river in which the intake will be located. No shortnose sturgeon have ever been found there. Harmon at Tr. 2681.

79. Harold M. Brundage III, a fisheries biologist who has studied shortnose sturgeon in the Delaware River estuary since 1978, conducted a sampling program for shortnose sturgeon in the vicinity of the Point Pleasant intake during the months of November, December, February and March of 1981-82. He also found no sturgeon. While Brundage's study was not conducted during the sturgeon's spawning season, sturgeon migrate upriver to spawn during March, April and early May. Therefore, the failure to find Sturgeon at Point Pleasant in late March is some indication that they do not spawn there. Harmon at Tr. 2427; Brundage at Tr. 2924, 2989-90, 3005-06; Applicant's Testimony, ff. Tr. 949, at 10-11; Professional Qualifications of Harold M. Brundage, III, following Tr. 2965.

80. Shortnose sturgeon are a comparatively difficult fish for which to sample. McCoy at Tr. 3068-69; Miller at Tr. 3071. Brundage used the appropriate methods in conducting his sampling program although his program was somewhat limited in the number of locations and frequency of samples. McCoy at Tr. 3070-71.

81. Healthy adult shortnose sturgeon, if present, would be protected from impingement by their size, swimming ability, and preference for staying at the bottom of the river. Masnik Testimony, ff. Tr. 3504, at 8-9; Masnik at Tr. 3981; Emery at Tr. 1871-72; Harmon at Tr. 2888; Brundage at Tr. 2959-60.

82. Sturgeon spawn over rubble, cobble or gravel bottoms in high velocity fresh water in the range of 9°C to 12°C. They spawn in or above the tidal reaches of the river. A single sturgeon will lay approximately 140,000 eggs. The actual spawning occurs in the channel, near the river bottom. Applicant's Testimony, ff. Tr. 949, at 10; Emery at Tr. 1803, 1814; Brundage at Tr. 2924, 2928, 2991, 3030-31.

83. Sturgeon in the Delaware River probably spawn in the tidal waters immediately below the fall line at Trenton or in the non-tidal river immediately upstream of the falls. Brundage at Tr. 2984.

84. Although the Point Pleasant area has a river bottom which would be suitable for use by spawning sturgeon, there is no evidence to indicate Sturgeon actually spawn there. Masnik Testimony, ff. Tr. 3504, at 6-7; Brundage at Tr. 2928.

85. Shortnose sturgeon eggs are 3.0 to 3.2 mm in diameter. They are dense and demersal, and accordingly sink rapidly out of the water column. It is unlikely that they would drift far with the current before sinking to the bottom. The eggs are

adhesive and become affixed to the substrate on which they land. Applicant's Testimony, ff. Tr. 949, at 11; Masnik Testimony, ff. Tr. 3504, at 7; Emery at Tr. 1798-99; Brundage at Tr. 2969.

86. If shortnose sturgeon were to spawn at Point Pleasant, it is highly unlikely that sturgeon eggs would be entrained or impinged in significant numbers. The eggs would be in the water column only a short time before adhering to the bottom. Therefore, there would be only a short time during which they could come into contact with the intake. In addition, the eggs are larger than the slots in the intake. While it would be possible for them to be crushed and extruded, work by Hanson has shown that it is more likely that they would roll along the intake surface and eventually off the intake. Applicant's Testimony, ff. Tr. 949, at 11; Masnik Testimony, ff. Tr. 3504, at 6-7; Emery at Tr. 1799-1801; Harmon at Tr. 2845; Brundage at Tr. 2969, 3028; Masnik at Tr. 3981.

87. Shortnose sturgeon larvae are very benthically oriented during their first days of life. Until they are sixteen days old they occupy interstitial spaces, essentially without moving off the bottom. After sixteen days there may be some movement off the bottom, but some benthic orientation may continue for up to 43 days. Applicant's Testimony, ff. Tr. 949, at 11; Masnik Testimony ff. Tr. 3504, at 7-8; Kaufmann at Tr. 1869; Harmon at Tr. 2516-17; Brundage at Tr. 2945-46, 2988; Masnik at Tr. 3592-96.

88. There is some evidence that shortnose sturgeon larvae which are less than 20.5 mm in total length (a size reached at approximately 18.5 days of age) may be susceptible to entrainment if they contact the intake screens. Masnik Testimony, ff. Tr. 3504, at 7; Brundage at Tr. 2942-43.

89. Given their strong bottom orientation, there is little likelihood that if larvae small enough to become entrained are present, they would encounter even the lower portion of the intake screens, located two feet off the bottom. Applicant's Testimony, ff. Tr. 949, at 11-12; Masnik Testimony, ff. Tr. 3504, at 8; Harmon at Tr. 2515-17. One of Del-Aware's witnesses stated that he didn't think that any sturgeon larvae would be entrained. Emery at Tr. 1870.

90. Shortnose sturgeon larvae show strong swimming ability even before they begin to move off the bottom. A 15.5 mm larva can sustain burst swimming for approximately 38.1 cm. A 16.5 mm larva has a burst speed of approximately 14.7 cm/sec (about 0.6 fps). Brundage at Tr. 2988, 3016.

91. Larger larvae, which might venture further up in the water column where they might encounter the intake, would be protected from impingement by their strong swimming ability and the hydrodynamics of the intake. Brundage at Tr. 2972, 3023; Masnik at Tr. 3981-82.

92. Charles Emery, an employee of the Pennsylvania Fish Commission, expressed concern that shortnose sturgeon might be susceptible to impingement within the first 25 days of life. Mr. Emery apparently based his conclusion on the

size of the larvae and did not take into account the benthic orientation and swimming ability of the larvae. Emery at Tr. 1870-71.

93. Given the design of the intake, if shortnose sturgeon larvae were present in the vicinity of the Point Pleasant intake, the effect upon them would be "infinitesimally small" (Harmon at Tr. 2845), there would be "virtually no impingement" (Brundage at Tr. 2972), and both entrainment and impingement would be "highly unlikely." Masnik at Tr. 3981.

94. It is highly unlikely that healthy juvenile sturgeon, which are both larger and stronger swimmers than larvae, would be impinged on the Point Pleasant intake. Masnik Testimony, ff. Tr. 3504, at 8; Masnik at Tr. 3981; Brundage at Tr. 2960.

L. Impact on American Shad

95. American Shad spawn in the Delaware River and pass through the Point Pleasant area during their migration. However, all the witnesses were in agreement that the intake would not cause impingement or entrainment of adult shad. Applicant's Testimony, ff. Tr. 949, at 8; Masnik Testimony, ff. Tr. 3504, at 22-23; Kaufmann at Tr. 1792, 1855, 1883, 1950; Miller at Tr. 3244.

96. Juvenile Shad pass through the Point Pleasant area during their outmigration and use the Lumberville pool, which extends from the Lumberville wing dam to a riffle near the mouth of the Tohickon Creek, as a nursery area. Applicant's Testimony, ff. Tr. 949, at 7.

97. Several witnesses gave differing ages and sizes which they felt indicated the start of the juvenile stage, *i.e.*, that the larvae had undergone transformation and become juvenile fish. *See* Masnik, Testimony, ff. Tr. 3504, at 13; Emery at Tr. 2109-10; Miller at Tr. 3169, 3219, 3239-42. These differences may not indicate disagreements, but could reflect a lack of precision in defining the beginning of the juvenile stage. For the purposes of this opinion, however, we adopt the description given by Mr. Miller, a fishery biologist who has worked extensively with American Shad in the Delaware River, that transformation occurs at approximately 28-30 mm in length. This would be approximately 30 days after hatching. Direct testimony of Joseph P. Miller on behalf of Del-Aware, Inc., ff. Tr. 3046, at 1; Miller at Tr. 3168-69.

98. There would be virtually no possibility of entrainment of juvenile shad because of their size and their stage of development. Miller at Tr. 3168-69, 3241-42.

99. Healthy juvenile shad should not be impinged by the intake. Even Del-Aware's witnesses testified that, for shad larger than 25 mm, an intake velocity of 0.5 feet per second should not cause impingement. Masnik Testimony, ff. Tr. 3504, at 22-23; Emery at Tr. 1963-64, 2066.

100. Del-Aware's witnesses were concerned that shad 25-40 mm in total length could be drawn to the intake and escape only after making contact with the screen surface. Concern was expressed that this could kill the fish by causing them to lose their scales. Emery at Tr. 1962-63, 1977, 2066. Descaling could also occur if the shad were to brush against a rock (Emery at Tr. 2143), so the problem is not unique to intakes. Moreover, the witnesses did not indicate that the problem was worse for the proposed location than for other locations. Kaufmann at Tr. 2143.

101. The small zone of influence of this intake compared to the cross section of the river at Point Pleasant (*see* Finding 27) minimizes the likelihood that descaling of juveniles as a result of contact with the intake would be a problem. The same witnesses who expressed concern that juveniles might be pulled to the intake and suffer descaling problems indicated that the zone of influence of the intake was sufficiently small that their concern was essentially limited to the area within two inches of the screens insofar as eggs and larvae were concerned. Kaufmann at Tr. 1882. Since juveniles have much greater mobility than eggs and larvae (Miller at Tr. 3168-70), the area in which they could be impacted should be even smaller.

102. Historically, American shad spawned in the Delaware River from Philadelphia to the headwaters of the river in New York. Testimony of Michael Kaufmann, ff. Tr. 1736, at 6; Miller Testimony, ff. Tr. 3046, at 1-2. During the twentieth century the spawning range in the Delaware declined, perhaps due to pollution causing low dissolved oxygen levels in the estuary beginning in late April or May each year. Thus, in the 1970's, shad spawning in the Delaware occurred only upstream of the Delaware Water Gap. Miller Testimony at 2-3; Masnik Testimony, ff. Tr. 3504, at 12; Kaufmann Testimony, at 5-8. In 1980 and 1981, however, the low dissolved oxygen levels did not occur until later in the spring. Kaufmann at Tr. 2103-04. During these years there was evidence of shad spawning downriver of the Delaware Water Gap. There is evidence that shad may have been spawning between Lambertville and Easton, much closer to Point Pleasant than where spawning occurred during the 1970's. Specifically, "running ripe" shad have been observed at Lambertville, 8 miles south of Point Pleasant. This condition occurs in shad only during or shortly prior to spawning. Kaufmann Testimony at 9; Miller Testimony at 3-4; Emery at Tr. 1762-63, 1780-81, 2002; Kaufmann at Tr. 1942-43.

103. Several months before the hearing, the Applicant collected samples of what could have been shad eggs at Point Pleasant. By the time of the hearing, the Applicant had not yet analyzed the samples to ascertain if they did, in fact, contain shad eggs. Harmon at Tr. 2363-64, 2405.

104. There was conflicting testimony as to whether spawning has occurred at Point Pleasant in the past two years. Applicant's Testimony, ff. Tr. 949, at 7; Masnik Testimony, ff. Tr. 3504, at 12; Kaufmann at Tr. 1785, 1976, 2101-03; Emery at Tr. 1785; Miller at Tr. 3049, 3129-30, 3355. Point Pleasant is within the stretch of the river in which spawning historically occurred, and spawning could

occur there in the future if it is not occurring at the present time. Kaufmann Testimony, ff. Tr. 1736, at 9-10; Miller at Tr. 3049. For purposes of evaluating the intake's potential impact on shad, the Applicant assumed that spawning will occur at Point Pleasant. Harmon at Tr. 2405, 2408.

105. Shad normally spawn in the downstream $\frac{1}{3}$ of a pool. Thus, spawning probably would not occur in the immediate vicinity of the intake. Kaufmann at Tr. 1943, 1961. Rather, concerns were raised that eggs and larvae spawned in the pool immediately upstream from the Lumberville pool in which the intake is located would drift into the Lumberville pool and be impinged or entrained. Kaufmann at Tr. 1961.

106. The Applicant's and the Staff's witnesses gave slightly different ranges for the size of shad eggs. The Applicant presented testimony that shad eggs range from 1.1 to 3.8 mm in diameter. Applicant's Testimony, ff. Tr. 949, at 8. A Staff witness testified that the eggs ranged from 2.1 to 3.8 mm in diameter. Masnik Testimony, ff. Tr. 3504, at 16.

107. Shad eggs have a mean diameter of 2.83 mm. Applicant's Testimony, ff. Tr. 949, at 8. Thus, most of the eggs would be larger than the intake slots. In addition, the eggs water-harden within a few minutes of spawning if they have been fertilized. Miller at Tr. 3153, 3348. However, even a water-hardened egg is relatively fragile and may be crushed and pulled through the intake or may be damaged by being pulled against it. Emery at Tr. 1768; Miller at Tr. 3153-58. Witnesses for all the parties agreed that eggs which were sufficiently close to the intake could be entrained. Masnik Testimony, ff. Tr. 3504, at 14; Kaufmann at Tr. 1950; Harmon at Tr. 2398-99; Miller at Tr. 3153-3195.

108. Shad eggs are demersal. They rapidly sink to the bottom within approximately 5 to 35 meters from the point of spawning although they may be carried further. Masnik Testimony, ff. Tr. 3504, at 12, 16; Emery at Tr. 1761-62, 2136; Miller at Tr. 3204, 3296. During the period of sinking, they could be exposed to the intake.

109. A single shad female lays an estimated 100,000 to 500,000 eggs. Masnik at Tr. 3564. *See also*, Emery at Tr. 1760; Miller at Tr. 3157. Less than one percent of these eggs would hatch even if they were not affected by the intake. Emery at Tr. 1761; Masnik at Tr. 3560.

110. One witness indicated that eggs which spent a longer time in the water column before sinking to the bottom, would be less likely to survive. Since a longer time spent in the water column would increase the time of potential interaction with the intake, the eggs most likely to be impacted by the intake would likely be eggs which would not have produced larvae even if they were not so impacted. Masnik at Tr. 4006-07.

111. Shad larvae are 5.7 to 10.0 mm in length when hatched. Larvae range in size from approximately 7.0 to 30.0 mm. They reach 20.0 mm at approximately 17

or 18 days of age. Masnik Testimony, ff. Tr. 3504, at 13, 17; Miller at Tr. 3218-19; Emery at Tr. 2109.

112. Shad larvae display a behavior pattern whereby they rise to the water surface and then sink to the bottom. They then rise again to the surface and repeat the pattern. Masnik Testimony, ff. Tr. 3504, at 13, 20; Miller at Tr. 3052-53.

113. Larvae can be found anywhere in the water column. Miller at Tr. 3298. It is reasonable to assume that larvae are distributed uniformly throughout the water passing an intake site. Harmon at Tr. 2897.

114. Larvae less than 20 to 25 mm in length are basically at the mercy of the current. Emery at Tr. 2109; Harmon at Tr. 2423; Miller at Tr. 3052-53, 3204. While in the larval stage, a shad may be carried 40 to 50 miles downstream. Miller at Tr. 3221-22.

115. All larvae, even those just hatched, have some mobility and some avoidance capability. Miller at Tr. 3169-70, 3223, 3331; Harmon at Tr. 2423-25, 2553-54. Although the ability to avoid the intake may be limited in small larvae (Miller at Tr. 3331), other species which, like shad, are members of the *alosa* genus have shown resistance to intakes when 10 to 15 mm in length. Applicant's Testimony, ff. Tr. 949, at 9; Harmon at Tr. 2421-22. In addition, studies on species other than shad have shown that larvae are entrained by intakes with wedge-wire screens at a lesser rate than would be expected on the basis of physical exclusion alone. Masnik Testimony, ff. Tr. 3504, at 17-18.

116. Shad larvae which are 20 mm or less in total length and pass sufficiently close to the intake screens will be susceptible to entrainment. Miller Testimony, ff. Tr. 3046, at 4; Masnik Testimony, ff. Tr. 3504, at 14, 17; Miller at 2220; Harmon at 2853.

117. Larger larvae (20-30 mm) may be subject to impingement or bruising if they pass sufficiently close to the intake screens. Masnik Testimony, ff. Tr. 3504, at 21; Harmon at Tr. 2416; Miller at Tr. 3220, 3241-42.

118. Assuming that larvae are distributed uniformly in the water passing by the intake site, and assuming no physical exclusion or avoidance behavior, at worst the percentage of larvae lost will equal the percentage of the total flow which is withdrawn. Masnik Testimony, ff. Tr. 3504, at 15; Emery at Tr. 2063-65; Harmon at Tr. 2397-98.

119. Shad spawn in April, May, and early June. Emery at Tr. 2061-62. The larvae hatch within two weeks after the eggs are fertilized (Emery at Tr. 2108), and transformation to the juvenile stage occurs about a month later (*see* Finding 97). Eggs and larvae could be in the Point Pleasant vicinity during the months of April, May, June, and July.

120. For average flow conditions, the percentage of water volume removed at the maximal pumping rate, and thus, the percentage of larvae impacted (assuming uniform distribution, no avoidance, and no physical exclusion) would be less than two percent of those passing the site. Masnik Testimony, ff. Tr. 3504, at 15.

121. The Lumberville pool and the Point Pleasant vicinity have no unique value as a spawning site for shad. Masnik at Tr. 3577. There are hundreds of other pools in the Delaware River which are spawning grounds for shad. Kaufmann at Tr. 1943-44. *See* Finding 102.

122. One of Del-Aware's witnesses expressed concern that the loss of any shad eggs or larvae would have a detrimental effect on the ability of shad to expand their total historic spawning range. Miller at Tr. 3201, 3274, 3330.

123. A Staff witness testified that the intake "will not jeopardize the continued existence or anticipated future gains in population" of American shad in the Delaware River. Masnik Testimony, ff. Tr. 3504, at 11, 21-23. *See also* Masnik at 3550-52, 3561, 3987-3993. The Applicant's biological witness agreed. Harmon at Tr. 2846, 2885.

124. In view of the insignificant effect the intake will have on American shad and shortnose sturgeon populations, there is no significant benefit to be gained from locating the intake further from the west bank of the river. Masnik at Tr. 3548-49, 4032; Brundage at Tr. 2959.

M. Impacts on Recreation

125. Some of Del-Aware's witnesses expressed concern that the intake could be a danger to boaters, rafters, and tubers (*i.e.*, people floating down the river sitting in or holding onto an innertube). Emery Testimony, ff. Tr. 1736, at 14;⁸ Direct Testimony of Stanley Plevyak, ff. Tr. 1930, at 2; Plevyak at Tr. 2021.

126. Although the witnesses testified that there are rocks in the river and that fishing lures and hooks have been lost on items already in the river (Emery at Tr. 1814; Plevyak at Tr. 1967-70), they could not detail any incidents of the type about which they were concerned, with regard to the intake. Emery at Tr. 1816, 1888; Kaufmann at Tr. 1887-88; Plevyak at Tr. 2013.

127. The intake would be covered by approximately four feet of water at flows of 3,000 cfs. (*See* Finding 15). Tubers sometimes float through areas where the water is only a foot to 18 inches deep. Kaufmann at Tr. 1887; Plevyak at Tr. 2012. These areas may contain rocks. Kaufmann at Tr. 1887.

128. Del-Aware presented evidence that Point Pleasant is one of the six best shore fishing spots on the Pennsylvania side of the Delaware between Trenton and Easton and the second best spot for shore fishing for shad in that area. Kaufmann Testimony, following Tr. 1736, at 10-11; Plevyak at Tr. 1951.

129. Shad migrating upriver to spawn are believed to travel in a relatively narrow section of the river where they find an appropriate velocity. At Point

⁸ Although in the bound-in testimony this is indicated to be Michael Kaufmann's testimony, Mr. Emery indicated that actually his testimony began on page fourteen of the prefiled material. Tr. 1736.

Pleasant this migratory path is sufficiently close to shore that fishermen can cast into it from the Pennsylvania shore. Kaufmann Testimony, ff. Tr. 1736, at 13-14; Kaufmann at Tr. 1788, 1793.

130. Although shad travel within one foot of the bottom during their migration (Kaufmann at Tr. 1862) and the intake screens will be two feet above the bottom (see Finding 15), the shad, which are "spooky" (Miller at Tr. 3245, 3348-49), might change their migratory path if they were to encounter the intake and move beyond the range of fishermen casting from the Pennsylvania shore. Kaufmann Testimony, ff. Tr. 1736, at 13-14; Kaufmann at 1792, 1951.

131. The witnesses did not indicate whether the intake, as proposed, would be in the migratory path of the shad. Thus, it could be that a different location for the intake would have a more serious impact on shad fishing. Kaufmann at Tr. 1957. Although a shoreline location would be least likely to divert migrating shad, the witnesses did not favor it because of its other drawbacks. Kaufmann at Tr. 1956-58.

132. If the intake were located so that it caused diversion of migrating shad, the witnesses were not certain whether the fish would move towards Pennsylvania and the fishermen or towards New Jersey and away from the fishermen. Kaufmann at Tr. 1793-94, 2129-30.

N. Noise from Intake Operation

133. Contention V-16a states:

Noise effects and constant dredging maintenance connected with operations of the intake and its associated pump station will adversely affect the peace and tranquility of the Point Pleasant proposed historic district.

See SPCO, LBP-82-43A, 15 NRC at 1479.

134. The Point Pleasant Historic District has been declared eligible for listing on the National Register of Historic Places by the keeper of the National Register. NRC Staff Testimony of Brian J. Richter on Limerick Contention V-16a, ff. Tr. 1118, at 3 n.1. The District is significant because it preserves the atmosphere and environment of a canal town in the nineteenth century. Direct Testimony of Professor Pierce Lewis at 2-4;⁹ Richter Testimony, at attachment 1.

135. Noises which would be out of character with a property or would alter its setting may constitute adverse effects on National Register sites which must be

⁹ Professor Lewis' Testimony is bound into the record in an earlier form following Tr. 4036. By agreement of the parties (Tr. 3950-51), Professor Lewis' testimony was submitted with minor changes on November 4, 1982, accompanied by his affidavit that he adopted it as his testimony in the proceeding.

considered by federal agencies. Richter, Testimony, ff. Tr. 1118, at 4; 36 CFR §800.3(b).

136. Although the Pennsylvania State Historic Preservation Officer and the Federal Advisory Council on Historic Preservation, which are responsible for providing expert advice on the impacts of federally licensed projects, have been consulted about the Point Pleasant diversion project, neither has identified noise from the intake and pumping station as an adverse impact on the proposed historical district. Richter Testimony, ff. Tr. 1118, at 4-5.

137. A site noise survey was done in 1981 to determine ambient noise levels. Applicant's Testimony, ff. Tr. 949, at 13. The ambient noise level was measured at a site 30 feet from the southern property line of the pumping station and 100 feet east of the road. Moiseev at Tr. 1058-59. Because ambient noise levels do not generally vary much over a short distance, this may reasonably be considered representative of the ambient noise level for the entire pumphouse property. Moiseev at Tr. 1059.

138. Ambient noise levels are measured by excluding transient noise sources such as the sound of a car passing nearby. Moiseev at Tr. 1041-42. To get a low background reading, one generally takes the lowest noise level measured over a fifteen minute period. Policastro at Tr. 1143, 1145.

139. The Applicant's data on ambient noise were collected during October. Moiseev at Tr. 1069. The Applicant measured low noise levels for a full day and measured daytime octave band sound pressure levels. Applicant's Testimony, ff. Tr. 949, at 13; NRC Staff Testimony of Anthony Policastro in Response to Contention V-16a, ff. Tr. 1118, at Ex. 2. It is standard practice to measure ambient noise levels between midnight and 4:00 a.m. Policastro at Tr. 1147. Applicant does not have nighttime ambient octave band sound pressure levels, but one would expect nighttime noise levels to be somewhat lower than those during the day. Policastro at Tr. 1143-1146. The Staff's expert on noise estimated that nighttime levels would be three decibels (dB) below the measured daytime levels. Policastro at Tr. 1175.

140. The Applicant evaluated the noise impact of the pumping station and the intake by comparing it to an overall A-weighted ambient sound level which is exceeded 90 percent of the time (L_{90}). Moiseev at Tr. 999, 1036-37; Policastro at Tr. 1141.

141. An A-weighted noise level is one which is measured on a filtered instrument system which biases the meter to respond as would an average human ear. Thus, it is less sensitive to noises at low or high frequencies than it is to frequencies in the middle range. Applicant's Testimony, ff. Tr. 949, at n.14.

142. The L_{90} sound level is not an appropriate figure to use for planning purposes because, being A-weighted, it deemphasizes the lower frequency range. That lower frequency range is the area in which transformer noise may be annoying. Policastro at Tr. 1141-42.

143. To determine whether a noise will be annoying to people, it should be compared with the masking level of the ambient noise at each tone at which it has a component. The masking level is calculated from the sound level at a particular tone and at nearby frequencies (within about 20 hertz). Policastro at Tr. 1129-31.

144. Generally, people are able to perceive a noise that is 3 dB above the masking level at any particular tone. People begin to complain of acoustical discomfort or annoyance when tones are 5 dB above the masking levels. Policastro at Tr. 1157-58, 1181. The 5 dB level for annoyance apparently applies at any frequency. Policastro at Tr. 1180.

145. The pumphouse would contain four vertical multistage centrifugal pumps driven by electric motors. The fourth pump is proposed to be installed between the years 1990 and 2000. Applicant's Testimony, ff. Tr. 949, at 14. The technical specifications call for pumps to have a sound level rating of no more than 86 dB as measured by IEEE Standard 85. Bourquard at Tr. 987-88.

146. The other noise sources within the pumphouse would be ventilating equipment and small air compressors. The noise they contribute would be about 10 dB less than that of the pumps. Boyer at Tr. 1062; Moiseev at Tr. 1062-63.

147. The plans no longer call for emergency generators, and the Applicant's witness indicated that no such machinery would be added in the future. Boyer at Tr. 1021-23.

148. The pumphouse walls would be insulated. The floors would be concrete. The roof would be insulated concrete plank. There would be no windows. Sound attenuating designs would be used for all ventilating systems. Applicant's Testimony, ff. Tr. 949, at 14-15.

149. The Staff's witness on noise had not ascertained at the time he testified what the sound specifications were for the doors of the pumphouse or exactly where the air intake would be located. Policastro at Tr. 1122-23. He did not seem to consider this lack of information to affect seriously his ability to draw conclusions, and he testified that it was well within state-of-the-art technology to remedy any problems which might exist concerning noise transmission to the outside of the building by these pathways. Policastro at Tr. 1166-69.

150. The pumphouse structure would attenuate the noise generated inside it sufficiently that there would be very little noise outside it and what noise there is would be well below the ambient sound level. Policastro at 1121-22, 1124-25.

151. Further noise attenuation would occur at greater distances from the noise source (*e.g.*, the pump). The 86 dB rating for the pumps is at a distance of one meter. Moiseev at Tr. 1009. The rule of thumb is that noise attenuates 6 dB with doubling of the distance from the source. Moiseev at Tr. 1005.

152. As a result of attenuation due to the pumphouse structure and distance, the noise from equipment inside the pumphouse would be at or below ambient noise levels at the closest site property line. Applicant's Testimony, ff. Tr. 949, at 15; Moiseev at Tr. 979-80, 984-86, 1001, 1004, and 1026.

153. There would be two transformers outside the building. Applicant's Testimony, ff. Tr. 949, at 14-15. The transformers would be immediately adjacent to the side of the building facing the river (the east side). They would be approximately 100 feet from the Delaware Canal. Boyer at 990. The transformers would be 15 to 20 feet apart and there would be a firewall between them. Boyer at 990-91.

154. Although the specifications had not yet been changed to reflect it, the Applicant's Senior Vice President — Nuclear Power testified that a decision had been made to use low noise level transformers. These transformers are rated at 57 dB using A-weighted measurements, or 10 dB below standard transformers. The Applicant is committed to modifying the specifications to reflect that these "quieted" transformers would be required. Boyer at Tr. 1030-31; Moiseev at Tr. 1030.

155. Transformers produce a steady state noise consisting of noise at discrete frequencies. The noise has a fundamental frequency at 120 hertz (Hz) and harmonic frequencies at multiples thereof. Moiseev at Tr. 1066, 1068. These discrete frequencies may render the noise bothersome even though it is only a low pitched hum. Moiseev at Tr. 1088-89. The discrete frequencies also mean that transformer noise may change the character of the noise in an area even if the overall background noise level is not exceeded. Policastro at Tr. 1129-1131.

156. To determine whether the transformer noise would be annoying to people, the noise level must be compared to the masking level at each of the discrete frequencies at which the transformer has a fundamental frequency or harmonic frequency (*i.e.*, 120, 240, 360, and 480 Hz). This has not been done. Policastro at Tr. 1126, 1130-31.

157. Although the Staff's witness had not received information on the final design of the transformers so that he could make this comparison (Policastro at Tr. 1125-26), he believed, on the basis of the information that he did have, that the transformers would cause audible noise beyond the pumphouse property site at those tones at which it has fundamentals. Policastro at Tr. 1132.

158. The Staff's witness was concerned that the transformers would produce objectionable noise at nearby residences which he referred to as Residences 1 and 4. Testimony of Anthony Policastro, ff. Tr. 1118, at 5; Policastro at Tr. 1138-39. Residence 4 would be closer to the transformers than would Residence 1. Policastro Testimony at Ex. 1.

159. Technology exists (*e.g.*, sound barriers) which could be used to eliminate any noise off the pumphouse site which would be annoying. Moiseev at Tr. 1046, 1055; Policastro at Tr. 1132-33, 1153, 1158-59. If further quieting is necessary, this technology may be utilized at the Point Pleasant pumphouse site. Cost, however, weighs against requiring use of such technology unless it proves necessary to further reduce noise. Moiseev at Tr. 1046-47; Bourquard at Tr. 1047; Policastro at Tr. 1132.

160. The Applicant estimated that sound barriers would cost approximately \$35,000 to \$40,000 to install. Bourquard at Tr. 1048.

O. Impacts from Dredging and Maintenance

161. Although Contention V-16a alleges adverse impacts from dredging maintenance, no evidence was presented that any maintenance dredging would be required once construction is complete. Rather, the evidence indicated that the riprap placed beneath the intake should aid in keeping the bottom there swept clean. Bourquard at Tr. 2662. Essentially, the flow velocity should be sufficient to prevent material from accumulating under the intake. Applicant's Testimony, ff. Tr. 949, at 15; Bourquard at Tr. 2823.

162. Comparison of ground surface elevation measurements made in connection with the taking of core borings at Point Pleasant in 1981 with contours established by a survey made fourteen years earlier indicate that the bottom grade had not changed significantly as a result of material deposited during that period. Applicant's Testimony, ff. Tr. 949, at 15-16; Bourquard at Tr. 2176-77, 2607-09.

163. Del-Aware's witnesses were also concerned that the intake would be damaged by ice and debris in the river being swept against it, and that this would necessitate complicated and noisy repair work. Testimony of Richard McNutt, ff. Tr. 3382, at 2, 4, 5, 8; Phillippe at Tr. 3793-95.

164. Del-Aware's chief witness on the question of damage to the intake testified that ice blocks and debris floating down the river occurred after rains. McNutt at Tr. 3401, 3403-04, 3409-10, 3442-43. He testified that he was concerned with a six inch flow over the bar of rocks at the mouth of Tohickon Creek at the time ice blocks would exist. McNutt at Tr. 3435. He also discussed a 20 foot by 20 foot block of ice going over the Lumberville wing dam. McNutt at Tr. 3449. This confirms the view that ice and debris would be floating in the river primarily when there are relatively high flows covering the intake. *See also* Applicant's Testimony, ff. Tr. 949, at 16; Boyer at 2537.

165. Additional protection from damage by ice or debris would be provided by three 12-inch diameter vertical steel guard posts at the upstream end of the intake structure. Applicant's Testimony, ff. Tr. 949, at 16; Boyer at Tr. 2541.

166. Should debris accumulate against the intake structure, it would be removed from a boat or by a diver. Applicant's Testimony, ff. Tr. 949, at 16. The Applicant anticipates the need to clear away debris perhaps once a year. Boyer at Tr. 2538.

167. If the intake were damaged, repair work could be performed under water. Boyer at Tr. 2546; McNutt at Tr. 3439-40.

168. If necessary, an intake screen section could be removed for repair and replaced. Divers could accomplish this without difficulty. Boyer at Tr. 2539-40.

This might require a barge in the river and, perhaps, a crane. McNutt at Tr. 3446-47.

III. CONCLUSIONS OF LAW

Based upon the foregoing Opinion and Findings of Fact which are supported by reliable, probative and substantial evidence as required by the Administrative Procedure Act and the Commission's Rules of Practice, and upon consideration of the entire evidentiary record in this proceeding, the Board reaches the following conclusions pursuant to 10 CFR §2.760a:

1. With respect to Contentions V-15 and V-16a (in part), there will be no adverse impact on American shad, shortnose sturgeon, boating, or recreation which would render invalid the favorable cost-benefit analysis from the construction permit stage, and there will be no impacts requiring mitigation measures for compliance with Section 102 of the National Environmental Policy Act of 1969, 42 U.S.C. §4332 (1976).

2. With respect to Contention V-16a, the Board is imposing a condition in its Order, *infra*, which will require mitigation measures to be taken if operation of the intake creates annoying noise levels off the pumping station site. Once this condition is complied with, operation and maintenance of the intake and its associated pumping station will not cause impacts which render invalid the favorable cost-benefit analysis performed at the construction permit stage or require further mitigation measures for compliance with Section 102 of the National Environmental Policy Act of 1969, 42 U.S.C. §4332 (1976).

IV. ORDER

WHEREFORE, in accordance with the Atomic Energy Act of 1954, as amended, and the Rules of Practice of the Commission, and based on the foregoing Findings of Fact and Conclusions of Law, IT IS ORDERED that:

1) Within one month after the proposed pumping station begins operation, the Applicant shall carry out the following noise measurements and calculations. Measurements shall be made between 12:00 a.m. and 4:00 a.m. at the site boundary at a point on the straight line between the transformers and Residence 4 (as shown in Policastro Testimony, ff. Tr. 1118, at Attachment 1) or at that point on the site boundary line where the maximum noise impact occurs (if that point is different). Measurements shall be obtained by reading the lowest level on the sound level meter (set on fast response) which is repeated several times (*i.e.*, the mean minimum).

At the specified location the following measurements shall be made:

A. Measurement of the octave band sound pressure levels. From those measurements, the masking level shall be computed for the transformer fundamental frequencies at 120, 240, 360 and 480 Hz.

B. Measurements at the $\frac{1}{3}$ octave bands for those four bands containing the fundamental frequencies.

The results of these measurements and computations shall be reported to the Staff.

The noise will be considered audible if the measured sound pressure level and the $\frac{1}{3}$ octave band containing the fundamental frequency (from measurement B) is greater than the masking level computed (from measurement A) for that frequency. If any of the four transformer fundamentals is found to be audible, measures shall be taken promptly which render that fundamental (those fundamentals) inaudible.

If such measures are necessary or if any additional equipment which could affect the noise level is added, the measurements and computations described above shall be repeated and the results reported to the Staff.

2) In accordance with 10 CFR §§2.760, 2.762, 2.764, 2.785, and 2.786, this Partial Initial Decision shall become effective and shall constitute, with respect to matters resolved herein, the final decision of the Commission thirty (30) days after issuance hereof, subject to any review pursuant to the above cited Rules of Practice. Applying the rationale of *Boston Edison Co.* (Pilgrim Nuclear Power Station, Unit 2), ALAB-632, 13 NRC 91, 93 n.2 (1981); *Duke Power Co.* (Perkins Nuclear Station, Units 1, 2 and 3), ALAB-597, 11 NRC 870 (1980); and *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Units 1 and 2), ALAB-301, 2 NRC 853 (1975), this partial initial decision is appealable at this time. Exceptions to this decision may be filed with the Atomic Safety and Licensing Appeal Board within ten (10) days after service of this Partial Initial Decision. A brief in support of such exceptions may be filed within thirty (30) days thereafter, forty (40) days in the case of the Staff. Within thirty (30) days after

service of the brief of appellant, forty (40) days in the case of the Staff, any other party may file a brief in support of, or in opposition to such exceptions.

It is so ORDERED.

THE ATOMIC SAFETY AND
LICENSING BOARD

Lawrence Brenner, Chairman
ADMINISTRATIVE JUDGE

Dr. Richard F. Cole
ADMINISTRATIVE JUDGE

Dr. Peter A. Morris
ADMINISTRATIVE JUDGE

Bethesda, Maryland
March 8, 1983

Appendix A, an index of exhibits and witness qualifications, has been deleted from this publication but can be found in the NRC Public Document Room, 1717 H Street, NW, Washington, D.C. 20555.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

John H Frye, III, Chairman
Dr. M. Stanley Livingston
Dr. Frank F. Hooper

In the Matter of

Docket No. 50-358-OL

THE CINCINNATI GAS & ELECTRIC
COMPANY, *et al.*
(Wm. H. Zimmer Nuclear Power
Station, Unit 1)

March 10, 1983

Licensing Board asserts jurisdiction to rule on the admissibility of five new contentions filed by a non-party to the proceeding after rendition of the Board's initial decision but prior to completion of proceedings before the Board.

RULES OF PRACTICE: JURISDICTION OF BOARDS

Where a licensing board has retained jurisdiction following issuance of initial decision to conduct further proceedings, it has jurisdiction to consider the admissibility of new contentions which are not related to any matter previously litigated.

MEMORANDUM AND ORDER

On March 4, 1983, Counsel for NRC Staff forwarded to this Board and the Appeal Board for this proceeding a copy of five contentions ". . . submitted to the United States Nuclear Regulatory Commission . . . regarding the Zimmer Power Station — Unit 1 . . ." by Doug Gillman of Cincinnati, Ohio.

In his letter, Staff counsel noted that the Commission's regulations do not directly address the question of when jurisdiction passes from a hearing to an appeal board for purposes of considering a new intervention petition. Counsel noted that a hearing board has the inherent right and duty to determine its own jurisdiction in the first instance, citing *Duke Power Co.* (Perkins Nuclear Station, Units 1, 2, and 3) ALAB-591, 11 NRC 741, 742 n.3 (1980); ALAB-597, 11 NRC 870, 873-74 (1980). Counsel indicated his intent to submit a response to these contentions to this Board.

We agree that we possess the right and duty to determine our jurisdiction in the first instance, and hold that we have jurisdiction over the five contentions submitted by Mr. Gillman.

In this proceeding, we rendered an Initial Decision on all outstanding issues on June 21, 1982 (LBP-82-48, 15 NRC 1549). In that decision in addition to certain license conditions, we held that further proceedings with respect to certain emergency planning issues are necessary prior to the authorization of an operating license and retained jurisdiction to conduct those proceedings. That holding was appealed and is currently pending before the Appeal Board for this proceeding.

Because none of the five contentions submitted by Mr. Gillman appear to be related to any matter pending before the Appeal Board, the holding in *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-699, 16 NRC 1324 (1982) is distinguishable. There, a party sought to reopen the record with respect to a matter pending before an appeal board. Consequently that board, on referral from the Board (LBP-82-86, 16 NRC 1190 (1982)) took jurisdiction of the matter.

In contrast, Mr. Gillman's contentions appear to raise totally new matters, not previously considered in this proceeding. In these circumstances, it is appropriate that their admissibility in this proceeding should be decided by this Board. As noted in ALAB-699, we are ". . . empowered to reopen a proceeding at least until the issuance of [an] initial decision, but no later than either the filing of exceptions or the expiration of the period during which the Commission of an appeal board can exercise its right to review the record." (16 NRC 1326-27) Because of our familiarity with the record of this proceeding developed to this point (*cf. Perkins, supra*, ALAB-591, 11 NRC at 874) we are in the best position to judge whether any of Mr. Gillman's contentions should be taken up. And, should any of Mr. Gillman's contentions require further proceedings, those proceedings should be conducted by the hearing board designated by the Commission. This conclusion, of course, is dependent upon the fact that these contentions raise new matters not heretofore considered in this proceeding, and upon the fact of our continuing jurisdiction pursuant to 10 CFR §2.717(a).

ORDER

In consideration of the foregoing, it is this 10th day of March, 1983, ORDERED

1. Responses to the five contentions should be submitted to this board in accord with the time limits stated in 10 CFR §2.714 for responses to petitions to intervene; and
2. The aforesaid time limits shall commence to run as of the date of service of this Memorandum and Order.

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**John H Frye, III, Chairman
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland
March 10, 1983**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Lawrence Brenner, Chairman
Dr. James H. Carpenter
Dr. Peter A. Morris**

In the Matter of

**Docket No. 50-322-OL
(Emergency Planning)**

**LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station,
Unit 1)**

March 10, 1983

The Board grants the late-filed petition of an interested municipality to participate pursuant to 10 CFR §2.715(c), but concludes that the municipality must "take the proceeding as it finds it," and limits the scope of its participation accordingly.

**RULES OF PRACTICE: LATE PARTICIPATION BY INTERESTED
STATE OR MUNICIPALITY**

There is no explicit time requirement regarding a filing by an interested state or municipality to participate pursuant to 10 CFR §2.715(c). This section abrogates some of the technical requirements applicable to other types of intervention and has been construed to avoid limiting a municipality's access to a proceeding. *Cincinnati Gas and Electric Co.* (Wm. H. Zimmer Nuclear Station), LBP-80-6, 11 NRC 148, 149 (1980).

RULES OF PRACTICE: LATE PARTICIPATION BY INTERESTED STATE OR MUNICIPALITY

Allowance of a belated intervention by an interested state or municipality pursuant to 10 CFR §2.715(c) need not disrupt established schedules and procedures in a proceeding. A tardy petitioner with no good excuse may be required to take the proceeding as it finds it, for any disadvantage which it may suffer in terms of the opportunity for trial preparation would be entirely of its own making. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-600, 12 NRC 3, 8 (1980).

MEMORANDUM AND ORDER RULING ON TOWN OF SOUTHAMPTON'S NOTICE OF INTENT TO PARTICIPATE AS AN INTERESTED MUNICIPALITY PURSUANT TO 10 CFR §2.715(c)

On February 23, 1983, the Town of Southampton, New York (Southampton) filed a notice of intent to participate in this proceeding as an interested municipality pursuant to 10 CFR §2.715(c). This notice states, at 1, that Southampton's interest in this proceeding

pertains specifically to matters involving off-site emergency planning for the Shoreham Nuclear Power Plant as well as matters pertaining to any low-power, interim or full-power license which may be sought by the Long Island Lighting Company for the Shoreham facility.

As clarified on the record by Southampton's Counsel, the reference in Southampton's notice to "matters pertaining to any low-power, interim or full-power license" relates solely to the effects of the current status of off-site emergency planning on such matters; it was not intended to raise any new matters with respect to these subjects. Tr. 20,239-40. At the request of Counsel for the Long Island Lighting Company (LILCO) and the NRC Staff (Staff), the parties were given the opportunity to respond in writing to Southampton's filing by March 4, 1983.

The Staff response, dated March 2, 1983, does not oppose the participation of Southampton in this proceeding as an interested municipality. While it acknowledges that Southampton's decision to participate is late, the Staff states that it would not object to Southampton's participation in matters concerning off-site emergency planning. The Staff asserts that Southampton's participation, even though under section 2.715(c), must be limited by the principle that a late petitioner must take the proceeding as he finds it. *See Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-600, 12 NRC 3, 8 (1980).

LILCO's March 4, 1983 response does not expressly state whether LILCO supports or opposes Southampton's admission to this proceeding as an interested municipality. LILCO notes that section 2.715(c) "[abrogates] some of the technical requirements applicable to other types of intervention," and "has been construed to avoid limiting a municipality's access to a proceeding." However, it argues that Southampton's petition "is grossly out of time," that the Town "should have evinced its interest in participating in the proceeding some time ago" and that "the Suffolk County Legislature's decision to reject its draft emergency plan does not appear in and of itself to create 'unique considerations' sufficient" to explain the alleged untimeliness of Southampton's petition for admission. As the relief sought by LILCO's response seeks only limitations on Southampton's participation in this proceeding, we presume LILCO to concede that its arguments about the timeliness of Southampton's petition do not warrant denying admission of Southampton as an interested municipality.

As is discussed in *Cincinnati Gas and Electric Co.* (William H. Zimmer Nuclear Station), LBP-80-6, 11 NRC 148, 149 (1980), a case cited in LILCO's response, "there is no explicit time requirement regarding a filing to participate pursuant to 10 CFR §2.715(c)." We do not speculate whether an intervenor required to meet the five-factor balancing test for late intervention under 10 CFR §2.714(a)(1) could gain admittance at the present stage of this proceeding. However, we rule that the timing of Southampton's petition, in the present circumstances of the consideration of off-site emergency planning issues does not bar its admittance at this time. Southampton is therefore admitted to this proceeding as an interested municipality.

As we ruled on the record, however, Tr. 20,239-40, Southampton will be required to "take the proceeding as it finds it." See *Pacific Gas and Electric Co.*, *supra*. Its participation will therefore be limited to off-site emergency planning matters.

LILCO has also asked that we:

- (1) Require Southampton to articulate precisely the off-site issues on which it desires to participate within ten days of any Board decision allowing the parties to begin litigating off-site emergency planning; and
- (2) limit Southampton's participation in any future discovery to receipt of those documents that have been generated since the close of the previous discovery period, given the massive document production that has already occurred.

An important part of "taking the proceeding as it finds it" for Southampton will be its compliance with procedures of long standing in this hearing requiring close coordination among private and governmental parties as a prerequisite for participation in prehearing, hearing and post-hearing matters. This includes discovery, the filing of contentions, presentation of testimony, cross-examination, and the filing of proposed findings.

The Board does not believe it to be appropriate at this time, prior to our ruling on Suffolk County's motion to terminate this proceeding, to establish a schedule for Southampton to file its off-site emergency planning contentions. Any schedule for the filing of off-site emergency planning contentions will require that the intervenors and participants pursuant to §2.715(c) jointly submit one filing listing all of their contentions. As was the case for Intervenors' Consolidated Phase I (on-site) Emergency Planning Contentions, this filing will specify which parties are sponsoring or otherwise wish to participate on particular contentions.

Consistent with the concept of Southampton taking the proceeding as it finds it, and with the required close coordination among intervenors and §2.715(c) participants, Southampton's participation in any future discovery is limited to those documents which have been generated since the previous discovery period on emergency planning issues. As the Appeal Board observed in allowing belated participation of a state pursuant to section 2.715(c) in *Pacific Gas and Electric, supra*, 12 NRC at 8:

[A]llowance of a late intervention need not disrupt established discovery schedules and other preparations for hearing. A tardy petitioner with no good excuse may be required to take the proceeding as it finds it. For . . . "any disadvantage which it might suffer in terms of the opportunity for trial preparation would be entirely of its own making." [Quoting] *Nuclear Fuel Services, Inc.* (West Valley Reprocessing Plant), CLI-75-4, 1 NRC 273, 276 (1975) [late intervention of a County pursuant to 10 CFR §2.714(a)(1)].

It is so ORDERED.

FOR THE ATOMIC SAFETY
AND LICENSING BOARD

Lawrence Brenner, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland
March 10, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Lawrence Brenner, Chairman
Dr. Richard F. Cole
Dr. Peter A. Morris**

In the Matter of

**Docket Nos. 50-352-OL
50-353-OL**

**PHILADELPHIA ELECTRIC COMPANY
(Limerick Generating Station,
Units 1 and 2)**

March 10, 1983

The Licensing Board denies a motion to reconsider an order denying the admission of some of intervenor's contentions because the motion was not filed within the five day time period of either 10 CFR §2.751a(d) or §2.752(c). In addition, because intervenor is not represented by counsel, the Board considered the substance of the motion to reconsider and found no reason to depart from the previous rulings.

RULES OF PRACTICE: TIME APPLICABLE TO MOTIONS TO RECONSIDER

The time periods for motions to reconsider in 10 CFR §2.751a(d), or the same time periods in §2.752(c), are applicable to orders which are in the nature of special prehearing or prehearing conference orders, even if not so titled.

LICENSING BOARD: AUTHORITY TO REGULATE THE PROCEEDING

To eliminate any doubt on the time periods for motions to reconsider, under its authority to regulate the proceeding (10 CFR §2.718), the Licensing Board orders that the time periods for motions to reconsider in 10 CFR §§2.751a(d) and 2.752(c) are applicable to all orders issued by the Board in this proceeding. The more lenient time period of 10 CFR §2.771 will be applied to partial initial decisions or initial decisions.

ORDER DENYING FOE MOTION TO RECONSIDER

On November 22, 1982, the Board ruled on the admission of ten contentions advanced by Friends of the Earth in the Delaware Valley (FOE) alleging that hazards from nearby industrial activities would affect safe operation of the proposed Limerick plant. We admitted two of the contentions as specified in the order, redesignated as Contentions V-3a and 3b, and rejected the other eight proposed contentions. The November order was an extension of rulings on the admissibility of contentions made in the Special Prehearing Conference Order (SPCO), LBP-82-43A, 15 NRC 1423 (1982). In the SPCO we gave FOE the opportunity to supply the bases and specificity for its original rejected Contention V-3 on industrial hazards. *Id.* at 1513-14. In response, FOE filed the ten contentions ruled on in the November order.

By motion dated December 19, 1982, FOE seeks reconsideration of the denial of five of the contentions (1, 2, 6, 8 and 9) in the November 22, 1982 order (unpublished). FOE's motion is denied because it is late. As we have previously ruled, with respect to a prior motion to reconsider by FOE as well as to such motions by others, such motions must be timely filed. Memorandum and Order (Denying Request of FOE to Admit Contention V-1 Based on New Matter), LBP-82-71, 16 NRC 965, 967 (1982); Memorandum and Order (Denying Delaware's Request for Reconsideration of DRBC Preclusion on Water Allocation Issues), LBP-82-72, 16 NRC 968, 971 (1982). We noted that we would deem the time period of 10 CFR §2.751a applicable to requests for reconsideration of an order which is in the nature of a special prehearing conference order, even if not so titled. LBP-82-72, *supra*, at 971 n.2. An order ruling on the admissibility of contentions, particularly as a follow-up to the June 1 SPCO, clearly is such an order.

To eliminate any lingering doubt, under our authority to regulate the proceeding (10 CFR §2.718), we order that unless otherwise specified in a particular order, the time periods in 10 CFR §2.751a(d) (or the same time periods in §2.752(c)) for the

filing of motions to reconsider are applicable to all orders issued by this Board. This does not include partial initial decisions or initial decisions on the merits. The more lenient ten day time period of 10 CFR §2.771 will be applied to initial decisions.

Accordingly, applying the five day time period (plus five days for regular mail pursuant to 10 CFR §2.710) to the November 23, 1982 date of service of the subject order, FOE's motion for reconsideration was due to be filed on December 3, 1982. Even assuming FOE mistakenly believed the ten day time period applied, its motion would have been untimely.

We recognize that FOE is not represented by counsel. Even allowing for this, our above cited prior rulings on timeliness of motions to reconsider were very clear. However, there is the possibility, albeit unjustified, that FOE's representative failed to perceive the direct applicability of our prior rulings on timeliness to its motion now before us. Therefore, out of an abundance of procedural fairness, we have re-examined our rulings in the November 22, 1982 order in light of FOE's motion to reconsider. We find no reason presented by FOE to depart from them. Those of FOE's contentions which were concerned with effects of industrial hazards on non-safety equipment (such as the switchyard) or on toxic fumes affecting general nuclear power plant employees as distinguished from control room operators, were properly rejected for the reasons set forth in the November 22, 1982 order. In addition, we have admitted contentions alleging deficiencies in the analysis of the worst case explosion and fire (from the ARCO pipeline). There is no basis to assume the occurrence of an independent explosion of explosives in the rock quarry, with lesser potential effect (rejected Contention 9), in combination with the occurrence of the worst case postulated ARCO pipeline explosion as urged on reconsideration.

For the reasons stated, FOE's motion to reconsider is denied.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Lawrence Brenner, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland
March 10, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Lawrence Brenner, Chairman
Dr. Jerry Harbour
Dr. Peter A. Morris**

In the Matter of

Docket No. 50-201-OLA

**NUCLEAR FUEL SERVICES, INC.,
and
NEW YORK STATE ENERGY
RESEARCH AND DEVELOPMENT
AUTHORITY
(Western New York Nuclear
Service Center)**

March 14, 1983

The Licensing Board confirms that by taking no action on a "motion for clarification" of its decision which disposed of all matters before it, it effectively denied that motion and did not retain jurisdiction otherwise normally lost.

LICENSING BOARD: JURISDICTION

Unless a licensing board takes action on a motion seeking reconsideration of a decision disposing of all matters before it, the board does not retain jurisdiction normally lost and the motion is effectively denied.

**RULES OF PRACTICE: RECONSIDERATION OF FINAL
LICENSING BOARD DECISION**

Normally a licensing board will not consider motions which seek clarification of points in its decision disposing of all matters before it when the request for

clarification comes from a party who is not adversely affected by the decision. This is analogous to the prohibition against appeals by a party not adversely affected by a result, and similarly eliminates the need to render purely academic decisions.

ORDER CONFIRMING TERMINATION OF PROCEEDING

On April 30, 1982, the Board issued an order (LBP-82-36, 15 NRC 1075) fully disposing of all requests pending before us for a hearing in this operating license amendment proceeding, thereby concluding all matters before us. Although seeking neither formal reconsideration before us nor any appellate relief, apparently because the result reached by us was the one it advocated, the NRC Staff, on May 10, 1982, filed a "Motion for Clarification" of the Board's order.

Apparently out of an abundance of caution, by letter to the Board of February 18, 1983, Staff counsel has continued the practice required while the proceeding was before us of providing possibly pertinent information. The letter states that the information, in this instance a copy of an amendment to the indemnity agreement, is being provided "inasmuch as the Board retains jurisdiction to rule on the pending 'NRC Staff Motion for Clarification . . . '".

The Board took no action on the Staff's motion for clarification which would have enabled it to retain jurisdiction otherwise normally lost. While in retrospect it would have been better practice to have done so expressly, we deemed this to be an effective denial of the Staff's motion. We certainly would not have remained silent, intending at some future time to exercise jurisdiction in this proceeding, while the Appeal Board considered and ruled on intervenor's appeal (ALAB-679, 16 NRC 121 (1982)), and the Commission thereafter as of October 1, 1982, permitted the Appeal Board decision to become the final agency action. Moreover, normally we would not have considered granting the Staff's motion without inviting responses from the other parties.

The Staff's motion for clarification was denied for reasons which do not relate to the merits of the points raised in its motion. It would be unusual for an adjudicatory body to "clarify" points in its final decision at the request of a party, as distinguished from the possibility of reconsideration of a holding adverse to a party. This is analogous to and supported by the same rationale as the prohibition against appeals from decisions by a party not adversely affected by the result. *Rochester Gas and Electric Corp.* (Sterling Power Project, Nuclear Unit No. 1), ALAB-502, 8 NRC 383, 393 n.21 (1978); *Duke Power Co.* (Cherokee Nuclear Station, Units 1, 2 and 3), ALAB-482, 7 NRC 979, 980 (1978); *Toledo Edison Co.* (Davis-Besse Nuclear Power Station), ALAB-157, 6 AEC 858 (1973). This general prohibition "eliminates the need to render purely academic decisions." *Public Service Co. of*

Indiana (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-459, 7 NRC 179, 202 (1978).

Accordingly, this order confirms that the NRC Staff's motion for clarification was denied and that this proceeding had been terminated before us.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Lawrence Brenner, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland
March 14, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Herbert Grossman, Chairman
Glenn O. Bright
Dr. Jerry Harbour**

In the Matter of

**Docket No. 50-460-OL
(ASLBP No. 82-479-06-OL)**

**WASHINGTON PUBLIC POWER
SUPPLY SYSTEM, *et al.*
(WPPSS Nuclear Project No. 1)**

March 15, 1983

The licensing board issues a protective order to permit petitioner organization to disclose to applicant and NRC staff the names of the member or members on whom organizational standing is based while preventing a public disclosure of the name or names.

RULES OF PRACTICE: STANDING TO INTERVENE

Where the petitioner organization's membership solicitation brochure demonstrates that the organization's sole purpose is to oppose nuclear power in general and the construction and operation of nuclear plants in the northwest in particular, mere membership by a person with geographic standing to intervene, without specific representational authority, is sufficient to confer standing.

RULES OF PRACTICE: STANDING TO INTERVENE

A petitioner organization cannot amend its petition to satisfy the timeliness requirements for filing without leave of the board to include an affidavit executed by someone who became a member after the due date for filing a timely petition.

RULES OF PRACTICE: STANDING TO INTERVENE

It is not necessary for the individual on whom organizational standing is based to be conversant with, and able to defend, each and every contention raised by the organization in pursuing his interest. Litigation strategy and the technical details of the complex prosecution of a nuclear power intervention are best left to the resources of the organizational petitioner.

RULES OF PRACTICE: PROTECTIVE ORDER

Where a demonstration has been made that the rights of association of a member of an intervenor group in the area have been threatened in the form of a threat of compulsory legal process to defend contentions, the employment situation in the area is dependent on the nuclear industry, and there is no detriment to applicant's interests by not having the identity of individual members of petitioner publicly disclosed, the licensing board will issue a protective order to prevent the public disclosure of the names of members of organizational petitioner.

MEMORANDUM AND ORDER

(Reciting Actions Taken at Special Prehearing Conference and Issuing Protective Order)

MEMORANDUM

On January 26 and 27, 1983, a special prehearing conference was held in the above-captioned proceeding. Present at the conference were the Coalition for Safe Power (CSP or Petitioner), the Washington Public Power Supply System (WPPSS or Applicant), and NRC Staff (Staff).

On September 10, 1982, CSP had filed a timely request for hearing and petition for leave to intervene, but had failed to disclose a name and address of at least one member with an interest in the proceeding. Instead, it attached the affidavit of Eugene Rosolie, the Director of Coalition for Safe Power which indicated that CSP had members who lived within a 50-mile radius of the nuclear facility, as close as 20 miles away, and that certain of these members had authorized CSP to file the petition to intervene on their behalf.

On October 13, 1982, the Licensing Board issued a Memorandum and Order requiring, *inter alia*, that the name and address of at least one member with standing to intervene must be supplied. On November 2, 1982, CSP filed an amendment to its request for hearing and petition for leave to intervene, attaching thereto an affidavit of Larry L. Caldwell, dated October 11, 1982, which indicated

that he is a member of the Coalition for Safe Power, resides approximately 10 air-miles from the construction site, and authorizes CSP to represent his interest in the operating license proceeding. The date on which the affidavit was signed, October 11, 1982, was no longer a timely date for filing a petition to intervene. Under the Notice of Opportunity for Hearing issued on August 16, 1982 (47 Fed. Reg. 35567), a timely petition could be filed by September 15, 1982.

A. Positions of the Parties on Protective Order

At the prehearing conference, CSP disclosed that Mr. Caldwell had become a member of the Coalition only at the time he signed the affidavit. However, CSP claimed that it had two other members within a 50-mile radius of the plant who had authorized CSP to represent their interests in this proceeding at the time CSP filed the original petition, and that the Rosolie affidavit referred to them. Tr. 90-91. CSP submits that the Rosolie affidavit is sufficient to establish that the organization has members who reside within the geographical zone of interest. It distinguishes *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-535, 9 NRC 377 (1979), which required a specific identification of the member or members upon whose interests the representational standing was bottomed, from this case on the grounds that in *Allens Creek* mere membership of a person residing within close proximity would not have been sufficient to confer standing. There, the organization had broad, general non-nuclear objectives. Here, CSP contends that its purpose is more narrowly focused against nuclear power. CSP's Position on Prot. Order, Feb. 7, 1983, 2-4.

CSP further contends that the Caldwell affidavit as a timely amendment cures a deficiency in its previously-filed timely petition, notwithstanding that Mr. Caldwell was not a member at the time of the filing of the timely petition. CSP claims that 10 CFR §§2.714(a)(3) and 2.714(b) permit amendments without prior approval of the presiding officer at any time up to 15 days prior to the holding of the special prehearing. CSP's Memo on 5-Factor Test, Feb. 11, 1983, 2-4.

If the Board does not consider the Rosolie and/or the Caldwell affidavits as satisfying the requirements of standing, CSP requests the Board to issue a protective order under which CSP could supply the names to the Board and designated representatives of other parties of the members of CSP at the time of the filing of the petition who resided in close proximity to the nuclear facility. The protective order should prohibit the dissemination of this information to the public or any other parties or representatives of parties. Tr. 91-92, 98-99; CSP's Memo on Prot. Order, *supra*, 6-7.

Finally, CSP urges that, even if the Board cannot accept the Rosolie and Caldwell affidavits as timely satisfying the requirements of standing and does not issue a protective order, it should accept the Caldwell affidavit and petition under

the 5-factor test of 10 CFR §2.714(a)(1) for non-timely petitions. CSP's Memo on 5-Factor Test, *supra*, 6-10.

Applicant relies upon *Allens Creek*, ALAB-535, *supra*, and *Duke Power Co.* (Oconee Nuclear Station and McGuire Nuclear Station), LBP-79-2, 9 NRC 90, 98-99 (1979), to oppose the Board's issuance of a protective order. Applicant insists that Petitioner must allege and demonstrate that public revelation of those names will cause an identifiable harm of a specific nature in order for the Board to issue a protective order. Absent such a showing, it contends that Petitioner must disclose the identity of those individuals on the public record or decline to rely upon them. Applicant's Oppos. to Prot. Order, Feb. 7, 1983, 9. Applicant also opposes accepting the Caldwell affidavit under the 5-factor test for untimely petitions. Applicant's Memo on 5-Factor Test, Feb. 11, 1983.

Applying the guidance of *Allens Creek*, ALAB-535, *supra*, Staff opposes the Board's imposing a protective order on the parties on the ground that CSP has not provided a concrete demonstration of harassment to warrant it. Staff, however, would not object to an agreement between Petitioner, Staff and Applicant to the issuance of a protective order under which CSP could agree to disclose the names and addresses of those members upon whom it relies to the Licensing Board, Staff counsel, and counsel for the Applicant, all of whom would agree not to disclose the names. Staff would not object to the issuance of an order based upon such agreement of the parties. Staff Memo on Public Disclosure, Feb. 7, 1983. In the absence of a disclosure of those names by Board order or otherwise, Staff would oppose accepting the petition based upon the Caldwell affidavit as not satisfying the 5-factor test of 10 CFR §2.714(a)(1). Staff Position on Late Intervention, Feb. 23, 1983.

B. Opinion on Protective Order

The Board cannot accept the Rosolie and/or Caldwell affidavits as demonstrating the requisite standing of a member of CSP to intervene in the proceeding. We agree with Petitioner that membership by a person with geographic standing to intervene, without any specific authorization to intervene in this proceeding, is sufficient to confer standing upon CSP in light of the specific goals of CSP. From the membership solicitation brochure attached to CSP's Position on Protective Order, it is clear that CSP's sole purpose is to oppose nuclear power, in general, and the construction and operation of nuclear plants in the northwest region (including the WPPSS plants), in particular. As indicated in *Allens Creek*, ALAB-535, *supra*, at 396, there is no need for a specific representational authority for organizations whose sole or primary purpose is to oppose nuclear power in general or the facility at bar in particular. In this type of situation, it can reasonably be inferred that by joining the organization the members were implicitly authorizing CSP to represent their personal interests that might be affected by the proceeding.

However, the Rosolie affidavit, by itself, isn't sufficient to demonstrate those interests. Under *Allens Creek* (*id.* at 393), the Board and parties are entitled to sufficient information to determine for themselves by independent inquiry if a basis exists for a formal challenge to the truthfulness of the intervention petition. According to the Appeal Board, it would run counter to fundamental concepts of procedural due process for the Board to accept an affidavit of an officer of the organization that makes assertions not susceptible of verification by the other parties or the adjudicatory tribunal. Consequently, without even the names of the individual members, the organizational petition must fail.

Nor does the Caldwell affidavit, executed by someone who became a member after the due date for filing a timely petition, satisfy the timeliness requirements for filing without leave of the Board. Petitioner's argument that 10 CFR §§2.714(a)(3) and 2.714(b) permit an amendment such as this, to include an after-acquired member upon whom to base standing, has no foundation. Only a person who has filed a petition for leave to intervene may amend his petition (§2.714(a)(3)), and only a person "whose interests may be affected by a proceeding" may file a petition in the first instance (§2.714(a)(1)). If CSP relies upon only Mr. Caldwell as having an interest that might be affected by the proceeding and Mr. Caldwell was not a member at the time of the original filing, CSP would have no standing to file in the first place, and therefore would not be covered by the sections permitting an amendment. Furthermore, Petitioner confuses an amendment of its pleading, as permitted by §2.714(a)(3), with a supplement to its petition in the form of the Caldwell affidavit, that is not authorized under the regulations. An *amendment* relates to an existing fact that was omitted or erroneously described; it is a *supplement* to the petition that relates to subsequent facts. Since Mr. Caldwell was not a member at the time the petition was filed, no amendment of the petition can serve to utilize his membership for that time period. Section 2.714(b) upon which Petitioner also relies, and which does permit the filing of a supplement to the petition, relates only to a listing of contentions and does not permit the curing of a jurisdictional defect that existed at the time the original petition was filed.

Although the Rosolie and Caldwell affidavits are insufficient to demonstrate standing in this proceeding, the Board agrees with Petitioner that the circumstances are appropriate for the issuance of a protective order. We base our decision on the guidance offered in *Allens Creek*, ALAB-535, *supra*, upon which all of the parties rely. In that proceeding, the Appeal Board denied intervention to the Houston Chapter of the National Lawyers Guild, which had failed to identify any member upon whose interest the representational standing was based. Although the Guild had not asked for a protective order, it is doubtful that the Appeal Board would have granted one since it found that there was an insufficient factual foundation on which to base a finding that enforcement of the disclosure requirement would invade the right of association of Guild members. *Id.* at 9 NRC 400. The Appeal Board had taken official notice that the overwhelming majority of

organizations petitioning to intervene in NRC cases have manifested no reluctance to disclose names of members, and was unaware of any of those members who have paid any price because of the disclosure. Nor did the Appeal Board consider that there was any apparent reason to think that an unusual situation in that regard might obtain in the vicinity since, in two other proceedings involving Texas reactors, intervention petitions had recently been filed accompanied by affidavits which disclosed names and addresses of rank-and-file members. *Id.* at 399-400.

The Appeal Board stated, however, that:

Upon a determination that an adequate showing has been made that public revelation of the identity of a member of the petitioner organization might threaten rights of association, the licensing board should place a protective order upon that information. The order should provide that the information need be supplied only to the members of the Board and one or more designated representatives of the other parties to the proceeding. Additionally, it should prohibit further dissemination of the information to anyone (other than a member of a reviewing tribunal).

Id. at 400.

The facts of this case are distinguishable from *Allens Creek*. To begin with, the general situation officially noticed by the Appeal Board in *Allens Creek*, an absence of retaliation against critics of nuclear plant construction, is no longer valid. *See, for example, Texas Utilities Generating Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), Licensing Board's unpublished Notice of Resumed Evidentiary Hearing dated March 4, 1983, which refers to employees of a nuclear plant who were found by representatives of the Department of Labor to have been wrongly discharged because of "whistleblowing." Similar charges have been made by intervenors in *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), Docket Nos. 50-498 and 50-499, and *Consumers Power Co.* (Midland Plant, Units 1 and 2), Docket Nos. 50-329 and 50-330.

More importantly, the Board finds here that CSP has sufficiently demonstrated a threat to the rights of association of its members to warrant the Board's placing a protective order upon membership information. One member of CSP, M. Terry Dana, who was a member at the time the petition was filed and lives within the requisite 50-mile radius of the plant, had authorized CSP to represent his interests in construction permit extension proceedings involving WPPSS 1 and 2 and in a construction permit proceeding involving Skagit/Hanford. According to CSP, Mr. Dana did not sponsor this intervention because of harassment in the Skagit/Hanford Nuclear Project proceeding which left him unwilling to sign any more papers for any future licensing proceedings. Tr. 44. From the transcript of that proceeding (Applicant's Supplemental Memo, Skagit/Hanford Nuclear Projects, Units 1 and 2, Tr. at 36-37), it appears that Applicant's counsel in that case questioned Mr. Dana on his familiarity with the 70 contentions filed on his behalf, whether he'd be willing to withdraw any of those contentions, and whether he

realized the expense and difficulty those contentions caused. Counsel had requested leave to take that member's deposition, but after the interview with him, had withdrawn that request.

In our view, we do not consider it necessary for the individual on whom the organizational standing is based to be conversant with, and able to defend, each and every contention raised by the organization in pursuing his interest. Litigation strategy and the technical details of the complex prosecution of a nuclear power intervention are best left to the resources of the organizational petitioner, and need not be mastered by the individual member. *Cf. Allens Creek, ALAB-535, supra*, at 395. It is not surprising, after the conversation with counsel for applicant in Skagit/Hanford, which made it appear that the individual member might be forced to defend the organization's contentions, that Mr. Dana was not willing to sign papers for future licensing proceedings, including the instant one. Tr. 44.

Whether or not the Applicant in this proceeding participated in that conversation is not relevant to the matter of the protective order. It is sufficient that a demonstration has been made that the rights of association of a member of an intervenor group in this area have been threatened in the form of a threat of compulsory legal process to defend contentions. Furthermore, Applicant in this proceeding has contributed to the climate of apprehension among members of the intervenor groups in this area by contacting that same member of the intervenor group in Skagit/Hanford Nuclear Project because of his sponsorship of an intervention against WPPSS, and raised similar concerns in his mind. According to the affidavit of the WPPSS representative, he called Mr. Dana with regard to CSP's petition in construction permit extension proceedings involving WNP-1 and 2; attempted to solicit his views after being told that the member would prefer not to talk with him; noted that a hearing would be time-consuming and costly; and offered that, even if the member "felt uncomfortable in speaking with" the WPPSS representative, the WPPSS representative "would have an opportunity to hear his concerns if a hearing were granted." Applicant's Motion to Suppl. Memo, Sorenson Affid., 2.

Whether intended or not, Mr. Dana (and perhaps other current or prospective members) was put on notice (unwarranted in our opinion) that a sponsorship of this intervention could result in his being compelled to attend the hearing and support his concerns (*i.e.*, CSP's contentions) about the issues raised.

Furthermore, CSP indicates that Mr. Dana's employer was informed of his role in sponsoring the Skagit/Hanford Nuclear Project intervention, severely reprimanded him for it, counselled him not to repeat his acts, and generally put him on notice that such behavior threatened his very employment. CSP's Position on Prot. Order, *supra*, at 5. Petitioner points out that employment concerns for intervenors in this Hanford area (and the Federal Reservation at Savannah River, South Carolina) are unique in that all employment is either for, or dependent on, the nuclear industry. A person who loses his job because of association with intervenor groups is not likely to find future employment in the area. *Id.* at 6.

We do not consider that an evidentiary hearing is necessary to validate Petitioner's concerns with regard to the effects of a public exposure of the names of individual petitioners. We find that the statements by the representatives of Skagit/Hanford Nuclear Project and WPPSS corroborate Petitioner's position that the rights of association of intervenor group members have already been threatened in this area. We also take official notice that the employment situation in the area is dependent on the nuclear industry, as described by Petitioner, and would further threaten those rights of association.

Furthermore, while we are wary of setting a precedent for other proceedings, we see little threat to Applicant's interests from issuing a carefully worded protective order that would enable Applicant to verify the existence at the time of the filing of the petition of a member of the petitioning organization with geographic standing, whose membership authorized the filing of the petition. We see no detriment to Applicant's interests by not having the identity of the individual member publicly disclosed.

C. Briefing Schedules Set at Conference

At the prehearing conference, the Board requested a further briefing by the parties on the question of issuing a protective order. The parties were given 10 days from the conclusion of the prehearing conference to simultaneously submit their memoranda. They each timely filed their memoranda on February 7, 1983. On February 17, 1983, Applicant also filed a motion for leave to supplement its memorandum, with the attached affidavit of an employee of WPPSS concerning his contact with a member of Petitioner organization and a few pages of the Skagit/Hanford transcript, which were alluded to, above. In response thereto, CSP sent the Board a letter dated February 22, 1983, concerning the Skagit/Hanford transcript. The Board has considered the Board-requested memoranda and the supplemental submittals in issuing this memorandum and order.

The Board also requested that the parties brief the question of whether the CSP petition with the accompanying Caldwell affidavit meets the five-factor balancing test of §2.714(a)(1). Petitioner was given 15 days after the conclusion of the prehearing conference to submit its position on the five-factor test. Staff and Applicant were given 7 days after service (12 days) to respond to CSP's submittal. Tr. 123-124. The parties met their respective time schedules. The Board will not rule on that issue at this juncture. It will first await the results of its issuance of the protective order before deciding whether it is desirable to consider the petition as an untimely filing.

The remainder of the prehearing conference was taken up by a discussion of the specific contentions raised by CSP. The Board will not rule on these contentions until after it determines whether CSP has standing to intervene.

Finally, the Board requested that the parties submit their positions on the posture of the case and further scheduling, taking into account Applicant's intention of delaying construction 2 to 5 years, including their positions on a re-noticing of the opportunity for hearing. The parties were given 30 days, or until February 28, 1983, to submit their respective positions. Tr. 225-232. The parties have timely complied. The Board will take into account the submittals in its subsequent issuances after the matters involving the protective order and standing have been resolved.

ORDER

For all of the foregoing reasons and based upon a consideration of the entire record in this matter, it is, this 15th day of March, 1983,

ORDERED

(1) That the briefing schedules established at the prehearing conference are confirmed and all of the parties' submittals pursuant thereto are accepted as timely filed;

(2) That Applicant's motion for leave to supplement memorandum, dated February 17, 1983, is granted. The materials submitted with that motion to supplement and Petitioner's letter of February 22, 1983 responding to those materials are accepted as filed;

(3) That, with regard to the protective order,

(a) Petitioner will disclose to the Board and lead counsel for the Applicant and NRC the name and address of at least one of those individuals upon whom it based its representational standing, to whom Petitioner's requests for hearing and petition for leave to intervene referred but did not identify. Counsel for the Applicant and Staff may each in his/her sole discretion disclose such information to two other individuals: in the case of Applicant's counsel, individuals associated in any capacity with his law firm (but in no event anyone employed by Applicant itself); and in the case of NRC counsel, only individuals in OELD;

(b) When disclosing the name(s) and address(es) of the individual(s) referred in paragraph "(3)(a)," above, Petitioner will provide evidence to the satisfaction of Applicant's and Staff's counsel that at least one of the disclosed individuals was, as of September 15, 1982, a member of Petitioner organization, sufficient to satisfy Applicant's and Staff's counsel. If Petitioner is unable to satisfy Applicant's counsel or Staff's counsel, Petitioner may request that the Board hold a conference call with all the parties to resolve the matter. In lieu of providing sufficient evidence to establish the individual's membership at that time in Petitioner organization, Petitioner may have the option either of (i) providing affidavits from at least one such individual affirming his/her mem-

bership in Petitioner organization of as September 15, 1982, or (ii) agreeing to allow Applicant's counsel to contact said member or members to determine the fact of membership. In any such contact, Applicant's counsel or representative will be restricted to questioning the member only on the fact of membership at the appropriate date, and whether said members understood that Petitioner organization was devoted towards opposing nuclear power, especially in the northwest. In no event is Applicant's counsel to discuss the contentions raised, any hardships on Applicant arising from the litigation, or the possibility that the member would in any way be required to further participate in the proceeding;

- (c) Information subject to this protective order shall not be disclosed to any other individual or organization, except upon prior approval of the Board;
 - (d) If this information is disclosed to any person other than in the manner authorized by this protective order, the person responsible for the disclosure must immediately bring all pertinent facts relating to such disclosure to the attention of Petitioner and the presiding officer, and make every effort to prevent further disclosure; and
- (4) That the parties shall have 10 days from the date of service of this Order to object to, or request modifications of, this Order. If any objection or request for modifications is received, the Board will attempt to resolve the matters through conference call. If no objections or requests for modifications are filed, Petitioner shall have 16 days from the date of service of this Order to comply with its terms and conditions, or Petitioner shall be foreclosed from relying on any individuals referred to in its request for hearing and petition for leave to intervene and not

identified on the public record to establish its representational standing to participate in this proceedings.

**THE ATOMIC SAFETY AND
LICENSING BOARD**

**Jerry Harbour
ADMINISTRATIVE JUDGE**

**Glenn. O. Bright
ADMINISTRATIVE JUDGE**

**Herbert Grossman, Chairman
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland,
March 15, 1983.**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Helen F. Hoyt, Chairperson
Emmeth A. Luebke
Jerry Harbour**

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)**

March 24, 1983

The Licensing Board rules on various discovery disputes, including claims of attorney work product privilege and discovery of non-witness experts.

RULES OF PRACTICE: DISCOVERY; INTERROGATORIES

An interrogatory is proper that inquires about a study, calculation or analysis upon which an answer to a specific interrogatory is based, particularly where it relates to the interrogee's own contention. Interrogatories that inquire into the basis of a contention serve the dual purposes of narrowing the issues and preventing surprise at trial.

RULES OF PRACTICE: DISCOVERY

Under 10 CFR §2.740(b)(1) discovery is liberally granted in order to enable the parties to ascertain necessary facts, refine and narrow the issues, and adequately prepare for complex litigation.

RULES OF PRACTICE: DISCOVERY

Discovery of the foundation upon which a contention is based is not only clearly within the realm of proper discovery, but also is necessary for an applicant's preparation for hearing.

RULES OF PRACTICE: DISCOVERY; GUIDANCE FROM JUDICIAL PROCEEDINGS

Where an NRC rule of practice is based on a federal rule of civil procedure, judicial interpretations of that federal rule will serve as guidance for the interpretation of the analogous NRC rule.

RULES OF PRACTICE: DISCOVERY; PRIVILEGED MATTER

Where a party asserts a privilege in objecting to a discovery request, the burden is upon the objecting party to establish the existence of the privilege.

RULES OF PRACTICE: DISCOVERY; PRIVILEGED MATTER

An objecting party's mere assertion that the material it is withholding constitutes attorney work product is insufficient to meet its burden of establishing the existence of attorney work product privilege.

RULES OF PRACTICE: DISCOVERY; ATTORNEY WORK PRODUCT PRIVILEGE

A party objecting to a discovery request on the grounds that the material is protected by the attorney work product privilege has the burden of establishing that the material is protected by 10 CFR §2.740(b)(2); *i.e.*, that the material is (1) "documents and tangible things"; (2) prepared in anticipation of litigation or for trial; and (3) by or for another party or for that party's representative.

RULES OF PRACTICE: DISCOVERY; GUIDANCE FROM JUDICIAL PROCEEDINGS

The guidance provided by the Federal Rules of Civil Procedure will be applied to resolve a discovery dispute even though no analogous rule of practice has been adopted by the Commission. In determining whether to follow the guidance, the

licensing board will inquire into whether the situation before it is analogous to the situation the federal rule seeks to govern.

RULES OF PRACTICE: DISCOVERY; NON-WITNESS EXPERTS

In accordance with Federal Rule of Civil Procedure 26(b)(4), the identity of non-witness experts who have been retained or specifically employed by the party in preparation for trial and the content of their advice are privileged from discovery. Rule 26(b)(4) differentiates between experts whom the party expects to call as witnesses and those who have been retained or specifically employed by the party in preparation for trial. As the Notes of Advisory Committee on Rules explain, discovery of expert witnesses is necessary, particularly in a complex case, to narrow the issues and eliminate surprise, but that purpose is not furthered by discovery of non-witness experts.

MEMORANDUM AND ORDER

(Ruling on Applicants' Motion to Compel Answers to Interrogatories by NECNP and NECNP's Request for Protective Order)

On January 28, 1983, Applicants filed "Applicants' Motion to Compel Answers to Interrogatories by New England Coalition on Nuclear Pollution" (hereinafter Applicants' Motion), requesting the Board to order NECNP to answer interrogatories submitted to NECNP by Applicants on December 8, 1983. NECNP had objected to two of Applicants' general interrogatories and certain specific ones in its response to Applicants' interrogatories, filed January 21, 1983 ("NECNP Response to Applicants' Interrogatories and Request for the Production of Documents," hereinafter NECNP Response). Applicants requested in their motion that the Board order NECNP to respond to those unanswered interrogatories, and to respond more fully to several other interrogatories, or risk having its related contentions stricken. NECNP opposed Applicants' motion and requested a protective order on February 16, 1983 ("NECNP Opposition to Applicants' Motion to Compel and Request for Protective Order," hereinafter NECNP Motion). For the reasons set forth herein, the Board grants Applicants' motion to compel in part and denies it in part. Accordingly, the Board grants NECNP's request for a protective order in part and denies it in part.

A. Applicants' General Interrogatories

Applicants prefaced their specific interrogatories with three general interrogatories. NECNP was instructed to answer these interrogatories with respect to each answer it gave to the specific interrogatories (other than those relating to expert witnesses).

Interrogatory G-2

Interrogatory G-2 inquires about any "study, calculation or analysis," on which an answer to a specific interrogatory is based.¹

NECNP objects to Interrogatory G-2 on the grounds that it is overly broad and encompasses mental and analytical processes of its consultants, expert members, and attorneys, protected by the attorney work product privilege. NECNP states in its motion that it has "identified all mathematical calculations or written analyses or studies upon which it relies, *which have not been prepared in anticipation of hearing . . .*" (emphasis added, NECNP Motion at 4). NECNP alleges that the materials it is withholding are "trial preparation materials" governed by 10 CFR §2.740(b)(2) and that Applicants have not made the showing required by that section of a "substantial need of the materials" and "undue hardship to obtain the substantial equivalent of the materials by other means."

Applicants argue that the interrogatories inquire into matters that NECNP has put into controversy and upon which NECNP intends to offer evidence and argument. They assert that they are fundamentally entitled to the calculations and studies upon which the theories supporting NECNP's contentions are based and against which they will have to defend at the hearing.

The Board rejects NECNP's argument that this interrogatory is overly broad. When read in the context of each specific interrogatory, the general interrogatory is limited in scope by its relevancy to the specific interrogatory and contention at issue. To the extent the interrogatory seeks to uncover and examine the foundation upon which an answer to a specific interrogatory is based, it is proper, particularly where, as here, it relates to the interrogee's own contention. Interrogatories which

¹ The full text of Interrogatory G-2 is as follows:

With respect to your answers to each of the specific interrogatories that follow (other than the last interrogatory in each series, relating to expert witnesses), is your answer based upon any type of study, calculation, or analysis? If so, please:

- (a) Describe the nature of the study, calculation or analysis and identify any documents that discuss or describe the study, calculation or analysis.
- (b) Identify the persons who performed the study, calculation or analysis.
- (c) State when and where the study, calculation or analysis was performed.
- (d) Describe in detail the information or data that was studied, calculated or analyzed.
- (e) Describe the results of the study, calculation or analysis.
- (f) Explain how such study, calculation or analysis provides a basis for your answer.

inquire into the basis of a contention serve the dual purposes of narrowing the issues and preventing surprise at trial.

The Board does not interpret the interrogatory as inquiring about "all conversations and thought processes conducted by NECNP's attorneys and consultants," as NECNP asserts (NECNP Motion at 3). NECNP should respond to the specific questions unless it shows that the material is privileged.

NECNP's other objection is based on the attorney work product privilege. Therefore, the resolution of this discovery dispute turns on whether the materials Interrogatory G-2 solicits and NECNP seeks to protect are "trial preparation materials," governed by 10 CFR §2.740(b)(2), or general discovery materials, governed by 10 CFR §2.740(b)(1).

10 CFR §2.740(b)(1) states in relevant part:

(1) *In general.* Parties may obtain discovery regarding any matter, *not privileged*, which is relevant to the subject matter involved in the proceeding, whether it relates to the claim or defense of the party seeking discovery or to the claim or defense of any other party, including the existence, description, nature, custody, condition, and location of any books, documents, or other tangible things and the identity and location of persons having knowledge of any discoverable matter. . . . It is not ground for objection that the information sought will be inadmissible at the hearing if the information sought appears reasonably calculated to lead to the discovery of admissible evidence. [emphasis added]

10 CFR §2.740(b)(2) states in relevant part:

(2) *Trial preparation materials.* A party may obtain discovery of documents and tangible things otherwise discoverable under paragraph (b)(1) of this section and prepared in anticipation of or for the hearing by or for another party's representative (including his attorney, consultant, surety, indemnitor, insurer or agent) only upon a showing that the party seeking discovery has substantial need of the materials in the preparation of this case and that he is unable without undue hardship to obtain the substantial equivalent of the materials by other means.

Under 10 CFR §2.740(b)(1), discovery is liberally granted in order to enable the parties to ascertain necessary facts, refine and narrow the issues, and adequately prepare for complex litigation. Discovery of the foundation upon which a contention is based is not only clearly within the realm of proper discovery, but also is necessary for an applicant's preparation for hearing. *Boston Edison Co.* (Pilgrim Nuclear Generating Station, Unit 2), LBP-75-30, 1 NRC 579, 582 (1975). Under 10 CFR §2.740(b)(2), materials prepared in anticipation of trial are privileged and require a higher showing for discovery.

The relevant sections of 10 CFR §2.740(b)(1) and (b)(2) were taken verbatim from the Federal Rules of Civil Procedure, Rule 26(b)(1) and Rule 26(b)(3), respectively. Where an NRC rule of practice is based on a federal rule of civil

procedure, judicial interpretations of that federal rule can serve as guidance for the interpretation of the analogous NRC rule. *Toledo Edison Co.* (Davis-Besse Nuclear Power Station), ALAB-300, 2 NRC 752; 760 (1975).

Judicial interpretations of Rule 26(b) indicate that where a party asserts a privilege in objecting to a discovery request the burden is upon the objecting party to establish the existence of the privilege. See *In re Fischel*, 557 F.2d 209 (9th Cir. 1977), 8 Wright and Miller, *Federal Practice and Procedure: Civil* §§2016, n.68 at 126 (1970); *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-82-82, 16 NRC 1144, 1153 (1982). Intervenors' mere assertion that the material it is withholding constitutes attorney work product is insufficient to meet that burden. See *Rekeweg v. Federal Mutual Insurance Co.*, 27 F.R.D. 431 (N.D. Ind. 1961); *Camco, Inc. v. Baker Tools, Inc.*, 45 F.R.D. 384 (S.D. Tex 1968).

As Wright and Miller have noted:

The courts have consistently held that the work product concept furnishes no shield against discovery, by interrogatories or by deposition, of facts that the adverse party's lawyer has learned, or the persons from whom he has learned such facts, or the existence or non-existence of documents, even though the documents themselves may not be subject to discovery.

8 Wright and Miller, *supra*, §§2023, at 194.

In order for material to fall within the realm of the work product doctrine incorporated in Rule 26(b)(3) and 10 CFR 2.740(b)(2), the material must be:

- (1) documents and tangible things,
- (2) prepared in anticipation of litigation or for trial and
- (3) by or for another party or for that other party's representative

The objecting party has the burden of establishing that the material meets those tests and thus is protected by the rule. If the court finds that the material is protected under the rule, then the party seeking discovery has the burden of showing "substantial need" and "undue hardship." See *Feldman v. Pioneer Petroleum Inc.*, 87 F.R.D. 86 (W.D. Okla. 1980).

NECNP has failed to meet its burden of showing that the material it is seeking to withhold is protected under 10 CFR §2.740(b)(2). Therefore, Applicants' motion to compel discovery with respect to Interrogatory G-2 is *granted*. NECNP's motion for protective order with respect to Interrogatory G-2 is *denied*.

Interrogatory G-3

Interrogatory G-3 inquires about any "conversations, consultations, correspondence or any other type of communication with one or more individuals" upon

which an answer to a specific interrogatory is based.² NECNP objects to disclosing both the *identity* of non-witness experts it has consulted in preparation for the litigation of its contentions as well as the *content* of their advice. NECNP bases its objection on Federal Rule of Civil Procedure 26(b)(4) and judicial interpretations of that rule. Rule 26(b)(4) provides as follows:

A party may discover facts known or opinions held by an expert who has been retained or specially employed by another party in anticipation of litigation or preparation for trial and who is not expected to be called as a witness at trial, only as provided in Rule 35(b) or upon a showing of exceptional circumstances under which it is impractical for the party seeking discovery to obtain facts or opinions on the same subject by other means.

NECNP argues that although there is no NRC rule parallel to Rule 26(b)(4), 10 CFR §2.740(b)(2) provides the same protection against disclosure of the content of advice received from non-witness consultants absent a showing of "substantial need" and "undue hardship." NECNP stated in its Response to Applicants' interrogatories that should it decide to present the testimony of any of its consultants, it would promptly supplement its answers to the interrogatories and identify the individuals. (NECNP Response at 2)

Applicants argue that Rule 26(b)(4) and judicial interpretations of the rule are not applicable to NRC proceedings because there is no analogous NRC rule of practice. Applicants cite *General Electric Co. (Vallecitos Nuclear Center, General Electric Test Reactor)*, LBP-78-33, 8 NRC 461, 465-66 (1978) in support of their position. In that case, a licensing board decided that where the Commission expressly selected to adopt some but not all of the Federal Rules of Civil Procedure, the proper inference is that the Commission intended that the unselected rules not apply. That licensing board ordered intervenors to disclose the identity of their expert consultants on the basis of its understanding that 10 CFR §2.740(b)(1), requiring disclosure of the "identity and location of persons having knowledge of any discoverable matter," was controlling.

² The full text of Interrogatory G-3 is as follows:

With respect to your answers to each of the specific interrogatories that follow (other than the last interrogatory in each series, relating to expert witnesses), is your answer based upon conversations, consultations, correspondence or any other type of communication with one or more individuals? If so, please:

- (a) Identify each such individual.
- (b) State the educational and professional background of each such individual, including occupation and institutional affiliates.
- (c) Describe the nature of each communication with each such individual, when it occurred, and identify all other individuals involved.
- (d) Describe in detail the information received from each individual and explain how it provides a basis for your answer.
- (e) Identify each letter, memorandum, tape, note or other record related to each correspondence, or other communication with such individual.

The Board notes that the Appeal Board has followed federal rules and practices where an analogous NRC rule did not exist. See *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-374, 5 NRC 417, 421 (1977) (additional views of Mr. Farrar, joined in by the entire Board). The Appeal Board has stated that "there must first be inquiry into whether the situations are truly similar." *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-379, 5 NRC 565, 588 n.13 (1977). This Board concludes, therefore, that if there is no NRC rule that parallels a Federal Rule of Civil Procedure, the Board is not restricted from applying it. We elect to follow the prudent path laid out by the Federal Rules of Civil Procedure. While the Commission may have chosen to adopt only some of the federal rules of practice to apply to *all* cases, we need not infer that the Commission intended to preclude a licensing board from following the guidance of the federal rules and decisions in a *specific case* where there is no parallel NRC rule and where that guidance results in a fair determination of an issue.

We have examined the history of Rule 26(b)(4) and find that the situation it seeks to protect is analogous to this situation. Rule 26(b)(4) differentiates between experts whom the party expects to call as witnesses and those who have been retained or specially employed by the party in preparation for trial. The Notes of Advisory Committee on Rules explain that discovery of expert witnesses is necessary, particularly in a complex case, to narrow the issues and eliminate surprise, but that purpose is not furthered by discovery of non-witness experts.

We find in this case the same concerns that Rule 26(b)(4) was intended to address. Discovery of NECNP's non-witness experts will not narrow the issues nor eliminate surprise at trial. Therefore, discovery of the content of the advice of NECNP's non-witness experts is denied.

NECNP also cites federal decisions in support of its position that the *identity* of its non-witness experts is also protected by Rule 26(b)(4) and that the policy concerns which prompted these decisions are applicable to this NRC licensing proceeding. NECNP relies on the analysis set forth in *Ager v. Jane C. Stormont Hospital and Training School for Nurses*, 622 F.2d 496 (10th Cir. 1980) that "once the identities of retained or specially employed experts are disclosed, the protective provisions of the rule concerning facts known or opinions held by such experts are subverted." *Id.* at 503.

The Board agrees with that analysis. Therefore, discovery of the *identity* of NECNP's non-witness experts is also denied.

Applicants' motion to compel answers to interrogatory G-3 is denied. Likewise, NECNP's request for a protective order with respect to Interrogatory G-3 is *granted*.

B. Applicants' Specific Interrogatories

1. Interrogatories No Longer in Dispute

The following interrogatories address contentions that NECNP has indicated it has dropped: *Interrogatory IX-5*, addressing Contention I.C (see NECNP Motion at 12); *Interrogatories XIII-2* through *XIII-32*, addressing Contention I.D.4 (see letter of March 4, 1983 from NRC Staff to NECNP confirming its understanding of the contentions NECNP had agreed to withdraw); and *Interrogatories XX-2* through *XX-4*, addressing Contention I.U (see NRC letter, *supra*).

NECNP answered *Interrogatories XV-8* and *XV-9* responsively in its motion. Therefore, the motions with respect to these interrogatories are *moot*.

2. Interrogatories to Which NECNP Responded That It Is Awaiting an Applicant Document

NECNP responded to *Interrogatories VI-2* and *VI-3* that it is "currently unable to evaluate the status of the qualification of the electric valve operators" because Applicants' environmental qualification report had not yet been submitted. (NECNP Response at 2). NECNP responded to *Interrogatories X-2* through *X-5* that it was unable to answer the questions because Applicants' "Reactor Vessel Examination Plan" had not been made available yet. (NECNP Response at 7). In its motion, NECNP further explained that it is unable to fully answer the questions until it has examined Applicants' Preservice Inspection Program (PSI) for reactor vessel welds at Seabrook. In both instances, NECNP stated that it would supplement its responses when the documents are issued.

The Board finds NECNP's responses to these interrogatories reasonable. The issuance of Applicants' documents are beyond NECNP's control. NECNP is not required to answer interrogatories which require a review of Applicants' documents until the documents are issued. Applicants' motion to compel answers to these interrogatories is *denied*. NECNP's request for a protective order with respect to these interrogatories is *granted*.

3. Interrogatories to Which NECNP Responded That It Had Not Yet Obtained an Expert Opinion on the Contention or That Its Experts Were Still in the Process of Evaluating the Contention

NECNP responded to the following interrogatories that either it had not obtained an expert opinion on the contention yet or that its experts were still in the process of evaluating the contention and that it would supplement its answers when the information becomes available:

VI-6, VI-7, VI-8, VII-2, VII-3, VII-4, VII-5, XV-3, XVI-4, XVI-5, XVI-6, XVI-7, XXI-6, XXIII-2, XXIV-2, XXIX-3 through XXIX-21, XXIX-24, XXIX-25, XXX-2, XXX-4, XXX-5, XXX-7, XXX-8, XXX-10, and XXX-11.

These interrogatories, in general, seek to solicit specifically what it is that NECNP contends and what Applicants will need to defend against at hearing. We note that NECNP's responses to these interrogatories were filed on January 21, 1983. Two months have passed since that time and discovery has closed on all contentions other than the emergency planning contentions admitted by this Board on November 17, 1982. The last day for filing discovery requests on those contentions was March 17, 1983. Moreover, answers to motions for summary disposition on all contentions other than those related to emergency planning are due no later than March 24, 1983. (See *Order Rescheduling Prehearing Conference and Ruling on NECNP's Motion for Deferral of Consideration of Motions for Summary Disposition or for Dismissal*, dated March 16, 1983 (unpublished).) We see no reason why NECNP should not be prepared to answer these interrogatories at this time.

Therefore, Applicants' motion to compel responses to these interrogatories is *granted*. NECNP must provide in hand answers to these interrogatories within seven days of the date of this order. NECNP's motion for a protective order with respect to these interrogatories is *denied*.

The Board will determine the fate of NECNP's contentions and whether the interrogatories pertaining to them have been adequately answered when it considers the motions for summary disposition.

4. *Interrogatories Regarding Emergency Planning Contentions*

NECNP explains its failure to fully answer *Interrogatories XXX-13 through XXX-25, XXXII-3 through XXXII-8, XXXIII-2 through XXXIII-5, XXXIII-8, XXXIII-9, XXXIII-12 through XXXIII-20* on the grounds that it is "still in the process of discovery on these contentions and will be able to supplement [its] answers when that information becomes available." (NECNP Motion at 16).

NECNP has had since November 17, 1982, to conduct discovery on these contentions. As we noted above, the last day for filing discovery requests on the emergency planning contentions was March 17, 1983. At this date, NECNP must be prepared to respond fully to Applicants' interrogatories.

Therefore, Applicants' motion to compel answers to these interrogatories is *granted*. NECNP must provide in hand answers to these interrogatories within seven days of the date of this order. NECNP's motion for protective order with respect to these interrogatories is *denied*.

5. Interrogatory XXXII-12

Interrogatory XXXII-12 inquires about the contents of a conversation referenced in the basis of Contention III.12. We find NECNP's answer to the interrogatory in NECNP's response to be non-responsive. Moreover, NECNP's claim of attorney work product privilege in NECNP's motion is unfounded. We find that the information Interrogatory XXXII-12 solicits is *not* protected by the attorney work product privilege. (See our discussion *supra* on the attorney work product privilege). Therefore, Applicants' motion to compel answers to Interrogatory XXXII-12 is *granted*. NECNP must provide in hand to Applicants answers to this interrogatory within seven days of the date of this order. NECNP's motion for a protective order with respect to this interrogatory is *denied*.

ORDER

Based on the foregoing, it is this 24th day of March, 1983,
ORDERED

1. That Applicants' Motion to Compel Answers to the following interrogatories is *granted*: G-2, VI-6, VI-7, VI-8, VII-2, VII-3, VII-4, VII-5, XV-3, XVI-4, XVI-5, XVI-6, XVI-7, XXI-6, XXIII-2, XXIV-2, XXIX-3 through XXIX-21, XXIX-24, XXIX-25, XXX-2, XXX-4, XXX-5, XXX-7, XXX-8, XXX-10, XXX-11, XXX-13 through XXX-25, XXXII-3 through XXXII-8, XXXIII-2 through XXXIII-5, XXXIII-8, XXXIII-9, XXXIII-12 through XXXIII-20, and XXXII-12. NECNP must provide in hand to Applicants answers to these interrogatories within seven days of the date of this order. Accordingly, NECNP's Motion for a Protective Order with respect to these interrogatories is *denied*.

2. That NECNP's Motion for a Protective Order is granted with respect to the following interrogatories: G-3, VI-2, VI-3, and X-2 through X-5. Accordingly, Applicants' Motion to Compel Answers to these interrogatories is *denied*.

3. That motions with respect to the following interrogatories are moot: IX-5, XIII-2 through XIII-32, XX-2 through XX-4, XV-8 and XV-9.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Helen F. Hoyt, Chairperson
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 24th day of March, 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)**

March 30, 1983

The licensing board grants in part and denies in part applicant's motion for summary disposition of a contention concerning possible degradation of certain polymers used as electrical insulation.

RULES OF PRACTICE: CHALLENGES TO BOARD ORDERS

The form in which a contention is admitted is a decision of the licensing board and becomes part of the law of the case. Other materials from the record may be used to interpret the admitted contention but not to challenge its admissibility. A challenge to a board order may be made in a motion for reconsideration, which generally must be filed promptly; but challenges may not continue to be filed throughout the proceeding.

ENVIRONMENTAL QUALIFICATION OF ELECTRICAL EQUIPMENT

Applicants for licenses need not complete their full-fledged environmental qualification of electrical equipment until November 30, 1983, but they must demonstrate that they can operate safely, without having completed the required qualification, before they may be granted an operating license.

RULES OF PRACTICE: SUMMARY DISPOSITION

There is no relevant genuine issue of fact, sufficient to resist a motion for summary disposition, unless intervenor can show a connection between its concerns and the safety of the plant.

RULES OF PRACTICE: SUMMARY DISPOSITION

It is permissible for an intervenor to demonstrate the existence of a genuine issue of fact that is inextricably intertwined with an admitted contention.

TECHNICAL ISSUES DISCUSSED

Polymer degradation
Radiation dose-rate, effect on polymers
Environmental qualification

MEMORANDUM AND ORDER (Polymer Degradation¹: Summary Disposition)

Important research² brought to our attention by Ohio Citizens for Responsible Energy (OCRE) suggests that polymers, used at the Perry Nuclear Power Plant as electric insulation and in some other uses, may degrade more rapidly than had been

¹ This controversy arises under admitted Issue #9.

² Research performed by K. T. Gillen and R. L. Clough of Sandia Laboratories has been cited to us, including "Occurrences and Implications of Radiation Dose-Rate Effects for Material Aging Studies," NUREG/CR-2157, June 1981; "Loss of Coolant Accident (LOCA) Simulation Tests on Polymers: The Importance of Oxygen," NUREG/CR-2763, July 1982; and "Investigations of Cable Deterioration in the Containment Building of the Savannah River Nuclear Reactor," NUREG/CR-2877, August 1982 (with Lowell H. Jones).

projected from accelerated-radiation tests. The principal new information is that there are polymers for which the same amount of radiation received at lower dose-rates causes more degradation than if received at higher dose-rates.³

However, the Nuclear Regulatory Commission (NRC) is aware of this problem, which is applicable to almost all reactors because of the widespread use of polymers in nuclear plants. In recognition of one aspect of this problem, the NRC has adopted a regulation that incorporates safety standards for polymers used as electric insulation. Because there does not appear to be any reason to go beyond the reach of that regulation, and because we find that the interim requirements applicable to Perry have been met, we grant summary disposition of the portion of the polymer degradation question dealing with polymers used for electric insulation.

Another part of this contention deals with polymers used in seals, gaskets, O-rings, seats and tubing. Summary disposition also must be granted with respect to these uses because OCRE has not identified any locations where polymer degradation would cause a safety-related risk. Hence, there is no genuine issue of fact relating polymer degradation to a safety issue.

On the other hand, we deny summary disposition of OCRE's allegation that Cleveland Electric Illuminating Company, *et al.* (applicant) has not devised a reasonable plan to inspect and maintain equipment in which polymers are used. OCRE's interest in the adequacy of applicant's inspection plans arose from its concern, founded in recent research, that inspection plans are now more important because the rate of degradation of polymers is more rapid (and somewhat more uncertain) than had previously been expected. This concern is related to OCRE's polymer degradation contention and to the basis it provided for it. However, applicant does not yet have an inspection and maintenance plan, as required by the applicable regulatory guide.⁴ Consequently, OCRE's concern cannot be put to rest. Assurances that applicant will adopt an adequate plan are insufficient to demonstrate that its plan is (or will be) adequate.⁵

Our acceptance of a genuine issue of fact with respect to the plan for maintenance and inspection is without prejudice to the filing of a subsequent summary disposition motion at such time as the maintenance and inspection plan has been completed and filed in this case.

³ Applicant argues that there are threshold values below which this effect does not occur. This point is discussed below.

⁴ Regulatory Guide 1.33, Revision 2, "Quality Assurance Programs (Operation)."

⁵ Although OCRE has not identified susceptible non-electrical equipment, or explained why we should be concerned that the use of polymers in this equipment may cause safety problems, applicant apparently must make an analysis of the safety significance of these non-electrical uses as a preliminary step in devising a reasonable maintenance plan. Although our record does not disclose whether any of the polymers used for non-electrical purposes perform any essential safety functions, we do not see any reason to rush to resolve this issue before an important, relevant document is filed.

I. IMPORTANCE OF THE GILLEN AND CLOUGH STUDY

It is the general practice that applicants for licenses to operate nuclear power plants test the radiation-resistance of polymers they plan to use by exposing the polymers to high doses of radiation. Thus, the polymers rapidly experience total exposures to radiation that exceed the total dose they may expect to see in many years of operation. Since degradation has been attributed almost entirely to the total dose received by the polymer, it was widely believed that these rapid exposures to radiation assured the safety of the polymers during their operating lives.

Gillen and Clough's studies⁶ cast doubt on the conservatism of this "accelerated" radiation testing procedure. They found that when different samples of polymers received equal doses of radiation, the polymer receiving the dose at a slower rate (over a longer period of time) degraded more rapidly than samples receiving their dose more rapidly. These findings do not imply that accelerated radiation studies are invalid, but they do suggest that accelerated studies must be interpreted conservatively, in order to be sure that dose-rate effects have been adequately considered.

Although applicant challenges the extent to which it may be appropriate to generalize from the Gillen and Clough studies,⁷ its arguments merely confirm that there are genuine issues of fact — alerting us to what applicant may show at a hearing but not affecting the necessity of our accepting the Gillen and Clough conclusions for the purpose of deciding a motion for summary disposition.

II. BACKGROUND

A. The Issue

Issue #9 is:

Applicant has not demonstrated that the exposure of polymers to radiation during the prolonged operating history of Perry would not cause unsafe conditions to occur.

That issue was admitted into this proceeding in an Order of this Board.⁸ Accordingly, it is part of the law of this case. Although parties may use the prior history of this case to interpret ambiguities in our order, no party may challenge the precedential authority of our decision other than in a timely motion for reconsideration. Any other principle would leave the considered orders of this

⁶ See footnote 2 above for a citation to the principal studies.

⁷ Applicant's affidavit at ¶¶25-26, pp. 13-14.

⁸ LBP-82-53, 16 NRC 196 (1982).

Board without effect and would make of this case a leaf endlessly turning in the wind, without course or direction. We will not have it thus.

B. Interpretation of the Issue

The plain wording of this issue extends beyond the electrical uses of polymers. The word electric is not even used. Furthermore, the contention from which this simplified issue was drawn was not limited to electric insulation. We derive this conclusion in part from a passage of OCRE's original filing that the Commission's Staff (staff) also has cited in its motion:

OCRE is concerned that the radiation-induced embrittlement of polymers, especially those used as electrical insulation, may compromise plant safety. OCRE therefore contends that *all* polymer materials used in a radiation environment. . . ⁹

Furthermore, this contention was supported by the basis provided. That basis consisted of studies of polymers used for electric insulation, but the key findings — stated in over-simplified form — related to the increased degradation of polymers exposed to the same amount of radiation but to low dose-rates rather than high dose-rates.

Logically, research concerning radiation-induced degradation of polymers used in electric wiring applies to other use of polymers. Indeed, as applicant has pointed out to us, the recent research has less to do with the electric insulation properties of polymers than with their tensile strength, tensile elongation and swelling, all factors more relevant to non-electrical uses than to electrical uses.¹⁰

III. ANALYSIS OF THE PARTIES' ARGUMENTS

The principal arguments of the parties, in addition to an argument we already have resolved in our discussion of the scope of Issue #9, are: (1) the extent to which 10 CFR 50.49¹¹ precludes litigation of this issue, (2) whether or not OCRE has demonstrated the safety significance of non-electrical uses of polymers, (3) whether or not applicant has demonstrated that its plant can be safely operated pending completion of qualification of its electrical equipment, (4) whether there is equipment at Perry that is exposed to sufficient radiation so that the dose-rate effects studied by Gillen and Clough are applicable to this plant, (5) the extent of

⁹ Emphasis added. OCRE Motion for Leave to File Its Contentions 17, 18 and 19 dated April 22, 1982 at 5-6.

¹⁰ Affidavit of Srinivasan Kasturi (applicant's affidavit) in Support of NRC Staff Motion for Summary Disposition of Issue No. 9 at p. 10; Minor, E. E. and Furgal, D. T., "Equipment Qualification Research Test of Electrical Cable with Factory Splices and Insulation Rework Test No. 2," NUREG/CR-2932 (2 vols.), September 1982, as interpreted in applicant's affidavit, *id.*

¹¹ 48 Fed. Reg. 2729 (January 21, 1983).

applicant's obligation to complete an inspection and maintenance program for equipment with polymers, and (6) whether there is a genuine issue of fact concerning the safety of polymers from "synergistic effects."

The test we apply to a summary disposition decision of the polymer degradation contention is whether there is a relevant genuine issue of fact, arising under the applicable law, concerning the safety of Perry. Let us turn now to a consideration of each of the principal arguments.

A. Effect of the Regulations

10 CFR §50.49 sets forth requirements governing the "environmental qualification" of electrical equipment important to safety for nuclear power plants. "Environmental qualification" is a process by which an applicant may persuade the NRC that its electrical equipment will perform properly in the conditions (temperature, moisture, radiation, etc.) for which it must be able to operate, both under ordinary conditions and accident conditions. The regulation defines the equipment that must be qualified and requires the applicant to specify the necessary performance characteristics that the equipment must meet, as well as the environmental conditions in which it must perform. Subsection (e)(4) requires environmental qualification for radiation effects, including consideration of "dose-rate effects," a requirement that apparently acknowledges the importance of the Gillen and Clough findings.

The regulations recognize that it may not be feasible to conduct tests in which polymers are naturally exposed to radiation until they reach an "end-of-installed life condition."¹² So they permit accelerated aging.¹³ However, the regulation appears to require that the tests recognize possible "dose-rate effects," by including them either in "margins . . . for unquantified uncertainty" or "conservatisms."¹⁴

The principal dispute about the application of the regulations to this case arises because of the conformance deadlines that they establish. The applicable subsection, §50.49(i) establishes that applicant must complete "an analysis to ensure that the plant can be safely operated pending completion of environmental equipment qualification. . . ." When read together with subsection (g), which sets forth the full-fledged requirements for equipment qualification, it is obvious that the Commission may issue a license after the applicant completes a lesser level of analysis than the full-scale equipment qualification that it must complete by November 30, 1985, after it receives an operating license.

¹² See subsection (e)(5).

¹³ *Id.*

¹⁴ See subsection (e)(8). See also 10 CFR §50.49(f)(3).

Thus, the regulations preclude that the Board from inquiring into the full-scale equipment qualification. However, they provide for an analysis that ensures the safety of Perry until the required equipment qualification is completed.

Although there appears to be no firm date set for the completion of equipment qualification studies for licenses issued after February 22, 1983, we interpret the regulations to suggest strongly that those studies must be completed no later than November 30, 1985. First, subsection (i) on interim licensing applies only to licenses granted prior to November 30, 1985, suggesting subsequent licensees will need to conduct their studies prior to obtaining licenses. Second, the latest date provided for completion of studies by currently operating nuclear plants is November 30, 1985.¹⁵

We base our conclusion on the acceptability of the interim analysis on our interpretation that the full-scale equipment qualification must be completed by November 30, 1985. Since there is some ambiguity concerning this interpretation, we condition the grant of summary disposition on the filing of an acceptable stipulation, agreed to by applicant and staff, that the latest date for completing the equipment qualification shall be November 30, 1985.

B. Safety Significance of Non-Electrical Uses

Since only electrical uses of polymers are covered by §50.49, non-electrical uses may be challenged in this proceeding without restriction from that regulation.

However, OCRE has limited its case to establishing that there are polymers that are used at Perry for non-electrical purposes and that are exposed to radiation doses. It has not demonstrated that the degradation of any of these polymers causes a safety problem.¹⁶ All we know is that the polymers have been used in "seals, gaskets, O-rings, seats and tubing used in purely mechanical components such as valves."¹⁷ Although OCRE has enjoyed full discovery rights, it has not given us any reason to believe that degradation of these polymers would cause a safety problem.

We conclude that OCRE has not demonstrated the existence of a genuine issue of fact concerning the relationship between more rapid degradation of polymers (that are not used for electric insulation) and the safety of the Perry plant.

¹⁵ 10 CFR §50.49(g).

¹⁶ This contrasts with polymers used in electric systems, where there is a natural inference that the system was designed to control plant equipment and that failure would disrupt control. Seals, gaskets and the like can become degraded without causing any safety problem, and we are unwilling to assume, without evidence, that their degradation would cause a safety problem.

¹⁷ OCRE Response to NRC Staff Motion for Summary Disposition of Issue #9, February 7, 1983 (OCRE Response) at 3.

C. Safety to Commence Operation

OCRE claims that it has raised a genuine issue of fact because applicant has not established the safety of commencing operation prior to the completion of its full environmental qualification of polymers.¹⁸ However, we find that applicant's affidavit, filed in support of staff's motion for summary disposition, does meet this requirement.

In reaching this conclusion, we do not accept applicant's characterization of a total dose of 2×10^7 rads or greater as a "threshold" below which there are no dose-rate effects.¹⁹ However, our examination of the Sandia Report, Figs. 1-4, does persuade us that effects occurring below that level are extremely small.

The zone of highest dose-rate at Perry is expected to be 357 rads/hr.²⁰ Given that significant dose-rate effects will appear after a total dose of 2×10^7 rads are received, we divide the total dose by the dose per hour and conclude that this "threshold" amount will be received in this high zone at Perry after six years of continuous irradiation. After that time, materials in the high zone ("CT-5") would be somewhat more degraded than would be expected from the uncorrected results of a high dose-rate qualification test. Materials in other "high" zones would experience this dose-rate effect somewhat before the expected life of the plant expires.²¹

Of course, the occurrence of a dose-rate effect is not the equivalent of a safety problem. Good engineering practice allows a 100% safety margin in equipment design; hence, a reduction of this margin by half would still reserve a substantial design margin for other unanticipated occurrences.²² The deposition filed for applicant by Mr. Srinivasan Kasturi implies that a 100% safety margin has been built in to the Perry design, and such a margin would lead us to conclude that there is a safe margin for the interim period.²³ However, to clarify the record, we will require applicant to file an affidavit by an appropriate, competent person stating that none of the Perry electrical equipment located in zone CT-5 will employ polymers that have less than a 100% safety margin except for specific equipment for which applicant discloses their safety margin and the polymer involved.²⁴

¹⁸ OCRE Response at 4.

¹⁹ Applicant's affidavit at ¶22, p. 11.

²⁰ *Id.* at ¶42, p. 20.

²¹ *Id.* We do not believe that appropriate to require OCRE to provide more particularly for its electrical equipment contention any more than it has already done by specifying radiation zones as locations of electrical equipment. As OCRE points out, the task of providing greater particularity would require great effort and expense, and we do not think enough would be gained to justify requiring it to undertake such an effort.

²² *Id.*, at ¶8, pp. 4-5.

²³ *Id.*

²⁴ If applicant is currently unable to assure us of the availability of 100% safety margins, it may demonstrate the existence of lesser margins and provide radiation-exposure calculations that prove that the equipment to which these margins apply will be safe at the end of 11 months, allowing sufficient conservatism.

Inspection of the Sandia data suggests that for the lowest dose-rates tested, 50% degradation of some properties of the materials occurs in the range of 30-50 megarads.²⁵ Dividing this 50% dose-level by the rate of exposure of polymer materials in zone CT-5 at Perry, we find that it would take about 9.6 years before 30 megarads would be received and 50% degradation might occur. This far exceeds the eleven months that might elapse between the time Perry commences operation (planned for December 1984) and the time that applicant will be expected to complete its environmental qualification of electrical equipment (November 1985).

Consequently, we conclude that — subject to the two clarifying conditions we are setting — applicant's affidavit fulfills the interim regulatory requirement that applicant demonstrate that it can operate safely until it completes its final environmental qualification. The two conditions are: (1) the filing of a stipulation agreed to by applicant and staff that the environmental qualification studies required by the regulations will be completed no later than November 1985, and (2) the filing by applicant of an affidavit clarifying the safety margins used at Perry in designing electrical equipment that will be located in a high-radiation zone.

Our conclusion, based on a calculation of the dose that might cause 50% degradation of the mechanical properties of the electric wiring, is buttressed by applicant's evidence concerning a survey that it conducted of operating plants. Applicant conducted interviews of personnel at five operating nuclear power plants, including three General Electric Boiling Water Reactors (BWRs), like Perry. Each of the BWRs had been operated for at least 11 years.²⁶ All of the polymers used in safety-related equipment at Perry were present at these other plants.²⁷ Most equipment was exposed to dose-rates below 10 rad/hr, but some received doses of 10 to 15 rads/hr.²⁸ Applicant concluded that cross-linked polyethylene cable insulation (which is of the same polymeric family as the bulk of cable insulation used at Perry) did not exhibit embrittlement. Furthermore, applicant found that the only degradation of polymeric materials that has been found at the surveyed plants has been attributed to improper application and not to radiation exposure.²⁹

Although we agree with OCRE that applicant's report of its survey is regrettably incomplete, we think this goes to the weight to be accorded it and not to its

²⁵ Sandia Report, Figs. 1-4. We note that the measured properties of the polymers did not include electric insulation capabilities, which would be expected to degrade subsequent to the loss of mechanical properties. However, the degradation of mechanical properties can lead to electric problems if mechanical stresses should be applied to the affected equipment, and we have no evidence concerning the likelihood of this occurring.

²⁶ Applicant's affidavit at ¶¶32-33, pp. 15-16.

²⁷ *Id.* at ¶34, p. 16.

²⁸ *Id.*

²⁹ *Id.* at ¶36, pp. 16-17.

admissibility.³⁰ The deficiency is that the details that would permit scrutiny of individual conclusions or of the overall analysis are lacking. For example, we are not told how the dose-rates of various plant areas was calculated or what tests were done in order to determine whether degradation had in fact occurred. These omissions would, we conclude make this evidence insufficient to establish that polymeric materials are safe from dose effects. However, given the length of operation of the studied plants compared to the *interim* period in which Perry will operate before the formal environmental qualification is completed, we derive some comfort from an expert opinion that the safety of the plant is supported by survey results.

We have some concern that factors discussed in NUREG/CR-2877 cast doubt on the degree of certainty with which one may predict that 50% degradation will not occur for nine years. One factor is the uncertainty of accurately measuring radiation doses inside containment.³¹ We infer that it is even harder to predict radiation doses inside containment for a plant like Perry, where operation has not commenced. Other factors that may affect the rate of embrittlement are the color of the sheathing on electric wiring and the heat to which polymers may be exposed during the time that they also are irradiated.³²

However, our doubts about the accuracy of the prediction that a full nine years will elapse prior to 50 percent degradation of electric insulation does not affect our conclusion. There is no reason to believe that these additional uncertainties would cause serious degradation within two years.

D. Miscellaneous Arguments

We already have concluded that there is sufficient exposure of polymers at Perry to expect dose-rate effects to appear. The appearance of the effects is not, by itself, enough to establish the existence of a safety problem, so we also have considered whether or not there is enough degradation (during the period until full-scale equipment qualification has been completed) to be of concern. Based on the brief period prior to completion of full-scale testing, we then concluded that the appearance of dose-rate effects is not enough to evoke serious concern.

We also note that applicant and staff have objected to our consideration of OCRE's arguments about "synergistic" effects. These "synergistic" effects apparently are the increased degradation that occurs when a polymer that is exposed to radiation also is exposed to heat or has a non-black insulation jacket.

³⁰ OCRE Reply to Applicants' Answer in Support of NRC Staff Motion for Summary Disposition of Issue #9, February 23, 1983 (OCRE Reply).

³¹ Gillen & Clough, NUREG/CR-2877 at 11-12.

³² *Id.* at 10, 13, 27.

We reject the suggestion of applicant and staff because we do not consider it proper to consider a dose-rate contention and shut our minds to conditions that appear to interact with differences in dose-rate in order to cause degradation. The effects of the color of the jacketing and of heat are inextricably intertwined with the effects of dose-rate. Were we to follow applicant's and staff's suggestion we would be drawing an artificial distinction and would be writing an unnecessarily plastic and unreal opinion.

However, the presence of synergistic effects does not affect our conclusion concerning the adequacy of applicant's demonstration that its electric wiring will be safe until its full-fledged environmental qualification testing is completed.

E. Inspection and Maintenance Program

All operating commercial nuclear power plants have surveillance and maintenance programs developed in accordance with 10 CFR Part 50, Appendix B.³³ One part of the required plan must deal with electric wiring and with other equipment made of polymers. This requirement appears to survive the enactment of 10 CFR §50.49. However, as OCRE points out, applicant has not filed the required program.³⁴

We accept the evidence in this case as establishing that there is a need for a carefully designed and implemented program of inspection and maintenance. Dose effects may be hard to predict. The magnitude of the effects at low rates of exposure are hard to establish because experiments with large doses at low exposure rates require extremely long experimental times. In addition, in the field these effects are inextricably bound up with temperature effects and color-of-insulation effects, both of which have been inadequately explored. When these factors are added to the difficulty of measuring or anticipating the strength of radiation fields at various precise locations, there is substantial uncertainty about rates of degradation, and a good inspection and maintenance program becomes essential to plant safety.

Consequently, we conclude that there is a genuine issue of fact concerning whether the inspection and maintenance program will be adequate to assure that safety functions³⁵ will not be inhibited by radiation-induced embrittlement of polymers. At the time that applicant files its program, however, it may file a supplementary motion for summary disposition on this point. Nothing decided with respect to the current motion prejudices its right to file such a motion.

³³ See Applicant's affidavit at ¶45, p. 21.

³⁴ OCRE Response at 5.

³⁵ See 10 CFR §50.49(b)(1).

ORDER

For all the foregoing reasons and based on consideration of the entire record in this matter, it is this 30th day of March, 1982,

ORDERED:

The Motion for Summary Disposition filed by the Staff of the Nuclear Regulatory Commission on January 14, 1983, is granted except that:

1. We find that there is a genuine issue of fact concerning applicant's program for inspection and maintenance of polymers used in electric wiring and for other uses and we admit this genuine issue of fact for hearing.

2. Applicant may move for summary disposition of the genuine issue of fact stated in paragraph 1, above, when it files its inspection and maintenance plan.

3. Applicant and staff must, as a condition to the grant of summary disposition, file a stipulation committing applicant to completing its environmental qualification program for electrical equipment by November 1985.

4. Applicant must file an affidavit by an appropriate, competent individual establishing either that the electrical equipment located in zone CT-5 of the Perry Nuclear Power Plant has been designed with a 100% safety margin or disclosing in full any deviations from the principle, as further discussed in the body of this opinion.

THE ATOMIC SAFETY AND LICENSING BOARD

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Jerry R. Kline
ADMINISTRATIVE JUDGE

Glenn O. Bright
ADMINISTRATIVE JUDGE

Bethesda, Maryland

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of

Docket Nos. 50-295
50-304
(10 CFR 2.206)

COMMONWEALTH EDISON COMPANY
(Zion Nuclear Plant, Units
1 and 2)

March 1, 1983

The Director of the Office of Nuclear Reactor Regulation denies a request by Pollution and Environmental Problems to take regulatory actions with respect to Zion facilities because present and continuing acceptability of pressurized thermal shock risk is assured for the Zion facilities.

TECHNICAL ISSUES DISCUSSED

Pressurized thermal shock
High burnup fuel

DIRECTOR'S DECISION UNDER 10 CFR 2.206

By letter dated October 11, 1982, Pollution & Environmental Problems, Inc. (PEP) requested, pursuant to 10 CFR 2.206, that the Nuclear Regulatory Commission (NRC) take certain actions with respect to Commonwealth Edison Company's Zion facilities. Specifically, PEP requested that the NRC:

1. Deny Commonwealth Edison permission to use high burnup nuclear fuel in Zion 1 and 2 nuclear reactors.
2. Provide evidence to the public that Zion 1 and 2 reactors should be allowed to continue operating despite the facts that their reactor pressure

vessels are vulnerable to embrittlement and the time for which the NRC has vouched for their ability to withstand a severe overcooling event has already expired.

Notice of receipt of PEP's request was published in the *Federal Register* on December 14, 1982 (47 Fed. Reg. 56087).

Discussion

PEP's first request is that the NRC deny Commonwealth Edison permission to use high burnup fuel. The basis for this request is PEP's assertion that use of high burnup fuel will increase the vulnerability of the reactor pressure vessels to embrittlement and cracking and that the Commission should examine this question in a generic environmental impact statement on the use of high burnup fuel.¹

First of all, Commonwealth Edison has no application before the Commission for use of high burnup fuel. Thus, there is nothing before the Commission to grant or deny and no action before the Commission for which an environmental impact appraisal or statement should be prepared. Commonwealth Edison was authorized on March 7, 1979 to reinsert four fuel assemblies for additional burnup. That operation has since been completed. PEP previously filed a 2.206 petition concerning the amendments authorizing this extended burnup of the four assemblies claiming that the Commission had failed to do an Environmental Impact Statement (EIS) before issuing the amendments. The Director of Nuclear Reactor Regulation denied the request to prepare an EIS on those amendments explaining that the Environmental Impact Appraisal (EIA) which was prepared was entirely in accord with the requirements of the National Environmental Policy Act (NEPA). *Commonwealth Edison Co.* (Zion Station, Units 1 and 2), DD-80-11, 11 NRC 496 (1980).

Even if the Commission had before it an application from Commonwealth Edison for additional use of high burnup fuel, the issue raised by PEP does not represent a significant concern in the use of high burnup fuel. PEP asserts that:

The obvious potential for higher reactivity and increased neutron irradiation of the reactor pressure vessel, as caused by high burnup fuel, are real causes for concern. . . . We are entitled to evidence that this fuel will not increase the vulnerability of the reactor pressure vessels to embrittlement and cracking.

The issue raised by the petitioner includes a fundamental misapprehension, namely the implication that high burnup fuel will increase the irradiation and the embrittlement of the pressure vessel. Indeed, there is no relationship between high

¹ PEP already has pending before the Commission a petition for rulemaking to amend Part 51 to require the preparation of a generic environmental impact statement for use of high burnup fuel in commercial nuclear reactors. Docket No. PRM-51-6, 45 Fed. Reg. 25557 (April 15, 1980).

burnup fuel and pressure vessel neutron irradiation because the rate of irradiation depends on the particular core and reactor design. Extended burnup loadings are low leakage loadings to achieve neutron economies and result in higher burnup. The article by P. M. Lang (attached as Reference 1) cited by the petitioner states ". . . extended burnup remains highly desirable to utilities on economic grounds and to reduce the rate at which spent fuel is generated. While these are the principal motives for most utilities, others consider the facility of longer operation cycles (in PWRs) and reducing the fast neutron irradiation of reactor vessels equally important." Similar statements are made elsewhere in the article.

The NRC staff and its consultants have conducted evaluations for the pressure vessel irradiation of several plants for which degradation of material toughness was thought to be present. The Zion plants, however, were not found to have significant material toughness degradation or to be in need of any specific evaluation. (See Appendix I of Enclosure A to SECY-82-465, attached as Reference 2.)

Thus, the use of high burnup fuel does not contribute to increased vulnerability of reactor pressure vessels to embrittlement. Nor does the use of high burnup fuel contribute to increased corrosion, wear or fatigue cracking of the vessel.

PEP's basic concern as expressed in its second requested item appears to be with potential embrittlement of the Zion facilities and their continued ability to withstand an overcooling event or pressurized thermal shock (PTS). The pressure vessel embrittlement for PWRs under pressurized thermal shock conditions has been extensively evaluated by the staff. A policy position paper on this subject, SECY-82-465, dated November 23, 1982 has been published (Reference 2). The statements made in the September 28, 1982 response to PEP that "all operating plants could withstand a severe overcooling event for at least a year of full power operation" were based on interim staff evaluations. As staff work has progressed, more information has been gathered from licensees, and results of research projects and numerous staff evaluations have been assembled in the policy position set forth in SECY 82-465 and approved by the Commission on January 5, 1983 (See Ref. 2). As shown in Table-4 of Appendix I of that document, neither Zion-1 nor Zion-2 will reach the staff screening criterion for embrittlement of the pressure vessel within the remaining effective full power years of operation under their licenses, provided that Zion-1 applies "low leakage fuel" management. The last four columns of Table-4 list the Flux Reduction Factor (FRF) necessary for each plant to assure adequate pressure vessel toughness for the plant lifetime. For Zion-2 the FRF is less than 1 which means that the pressure vessel will not reach the screening criterion at the end of the plant lifetime. The pressure vessel toughness will, therefore, exceed the requirements for pressurized thermal shock during the plant life. For Zion-1 the FRF is between 1 and 2 which means that the pressure vessel embrittlement will reach the staff criterion before the end of the 32 effective full power years of the plant life, unless future core loadings are low leakage, *i.e.*, the outer row of assemblies have about 50% of the previous power

level. The Zion units are, in fact, already operating on such low leakage loadings.² It should be noted that low leakage fuel management is not the only means to counter pressure vessel embrittlement, but for the Zion plants no other measures should be necessary.

Potential material cracking is only one of the parameters which has been accounted for in the treatment of material properties and the response of the pressure vessel to a pressurized thermal shock event. Indeed the evaluations performed assumed the existence of cracks and flaws in the pressure vessel. Chapters 3 to 8 and Appendix H of Enclosure A of Reference 2 include details of the evaluation model.

Quantification of the material toughness is in terms of the Reference Transition Nil Ductility Temperature (RT_{NDT}) which is a single reference temperature chosen in a defined way to represent the temperature at which the material toughness (resistance to fracture) begins to increase rapidly with increases in temperature. At temperatures below the RT_{NDT} , the material is significantly less tough than at temperatures well above the RT_{NDT} .

Three quantities are added together to obtain RT_{NDT} for a vessel. They are:

1. The initial RT_{NDT} of the controlling material is obtained from tests run in accordance with ASME Code rules at the time of vessel fabrication. If these results are not available, mean values from generic data for that material type are used.
2. The delta RT_{NDT} is obtained as described in Reference 2, using the neutron fluence corresponding to the location in the vessel and the specified time in vessel life, and a trend curve that gives mean values of delta RT_{NDT} as a function of fluence and chemical composition.
3. Margin is added to give a conservative value of RT_{NDT} . For example, if mean values of initial RT_{NDT} and delta RT_{NDT} are being used, this third term is twice the square root of the sums of the squares of the standard deviations for the initial RT_{NDT} and the delta RT_{NDT} .

The NRC staff has developed a screening criterion for evaluating acceptability of reactor vessels to PTS related risk. For axially-oriented welds, the criterion is an RT_{NDT} of 270°F. For circumferentially-oriented welds, which are more resistant to crack propagation due to greater stiffness of the vessel in that direction, the criterion is an RT_{NDT} of 300°F. For Zion 2, the 270° RT_{NDT} criterion is the governing criterion and for Zion 1 where the controlling weld is circumferential, the 300°F criterion applies. The criterion is based on deterministic and probabilistic fracture mechanics calculations for the most severe PTS events experienced

² A report NCAP-10019, "Summary Report on Reactor Vessel Integrity for Westinghouse Operating Plants" submitted by letter from Kingsley to H. R. Denton, dated December 30, 1981, indicates on page 122 that both Zion units have low leakage cones.

during 350 reactor-years of more severe events that have not occurred. The development of this criterion is described in Reference 2.

Based on NRC studies of PTS operating events and our calculations of PTS events that have occurred, both of which we believe are applicable to Zion 1 and 2, we conclude that plants with RT_{NDT} below the screening criterion have a predicted frequency of vessel failure due to PTS events that is acceptable. Since Zion Units 1 and 2 are below this criterion their continued operation is acceptable.

We now estimate that Zion 1 will not reach the screening criterion before the year 2000 and Zion 2 will not reach it during its design life. These estimates are based on past fuel management practices. Commonwealth Edison has not applied a low leakage fuel management plan and the date for Zion 1 will move farther into the future as a result of the use of low leakage core loading; that is as a result of a reduction in the neutron flux at the vessel wall. For plants where such flux reductions are not possible, or if such fuel management practices at Zion are discontinued, plant-specific analyses will be required to be submitted three years before the criterion will be exceeded. The analyses will quantify PTS risk for the specific unit, and will identify the dominant contributing causes. If the risk is not acceptable for values of RT_{NDT} above the screening criterion, appropriate actions would be required before the plant would be allowed to operate at RT_{NDT} values above the screening criterion.

Thus, present and continuing acceptability of PTS risk is assured for Zion Units 1 and 2.

For the foregoing reasons, no actions need to be taken with respect to the Zion facilities. Therefore, Pollution and Environmental Problems, Inc.'s 2.206 petition is *denied*.

A copy of this decision will be filed with the Secretary for the Commission's review in accordance with 10 CFR 2.206(c) of the Commission's regulations. As provided in 10 CFR 2.206(c), this decision will constitute the final action of the

Commission twenty-five (25) days after the date of issuance, unless the Commission on its own motion institutes review of this decision within that time.

FOR THE NUCLEAR REGULATORY
COMMISSION

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland
this 1st day of March, 1983.

Attachments:

1. P. M. Lang, "Extending LWR Fuel Burnup," Nuclear Engineering International, July 1982, pp. 14-15
2. SECY 82-465, Pressurized Thermal Shock, November 23, 1982

[The attachments have been deleted from this publication but may be found in the NRC Public Document Room, 1717 H Street, NW, Washington, D.C. 20555.]

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of

Docket Nos. 50-498
50-499
(10 CFR 2.206)

HOUSTON LIGHTING AND POWER
COMPANY

(South Texas Project,
Units 1 and 2)

March 3, 1983

The Director of Nuclear Reactor Regulation denies a petition under 10 CFR 2.206 which requested immediate suspension of construction at the South Texas Project, based upon certain alleged design deficiencies in the project identified in a report prepared by the Quadrex Corporation. The petition also requested an independent third-party review of the project's design, and the establishment of an Atomic Safety and Licensing Board to hold hearings on the alleged design deficiencies which were identified.

RULES OF PRACTICE: SHOW CAUSE PROCEEDING

Where an adjudicatory board is presiding in a proceeding with jurisdiction to consider a particular issue, a party to that proceeding may not choose to avoid that forum by use of 10 CFR 2.206.

RULES OF PRACTICE: SHOW CAUSE PROCEEDINGS

In the absence of some special circumstances, an office director will not interfere with the customary licensing process by instituting a proceeding to consider issues properly within the scope of the operating license review.

RULES OF PRACTICE: SHOW CAUSE PROCEEDINGS

It is beyond the power of an office director to order an adjudicatory board to consider particular issues.

TECHNICAL ISSUE DISCUSSED

Review of Design Deficiencies

DIRECTOR'S DECISION UNDER 10 CFR 2.206

Mr. Lanny Sinkin, on behalf of Citizens Concerned About Nuclear Power, Inc. (CCANP), has filed a petition with the Nuclear Regulatory Commission (NRC) dated August 4, 1982. The petition principally seeks immediate suspension of construction at the South Texas Project (STP), which is being constructed by Houston Lighting and Power Company (HL&P) under construction permits issued by the Commission. CCANP bases its request for relief upon certain alleged design deficiencies in the project identified in a report prepared for HL&P by the Quadrex Corporation (Quadrex Report).¹ The petition also requests an independent third-party review of the STP design, and the establishment of an Atomic Safety and Licensing Board to hold hearings on the alleged design deficiencies identified in the Quadrex Report. HL&P responded to the petition in a filing dated August 24, 1982. The petition, originally brought before the Commission, has been referred to the Director of the Office of Nuclear Reactor Regulation for consideration pursuant to 10 CFR 2.206.

CCANP's request for immediate suspension of construction of the STP was denied by letter dated October 12, 1982 for the reasons stated therein, including my determination that review activities to date had not revealed findings that would warrant an immediate halt to construction activities. At that time I indicated that a detailed review of the STP design was being performed for HL&P by the Bechtel Power Corporation (Bechtel), with specific consideration being given to

¹ Quadrex was retained by HL&P in January 1981 to review the STP engineering design activities undertaken by the project's original architect-engineer, Brown and Root. Quadrex's primary task was to determine the technical adequacy of the STP design. An exhaustive review of the design work was not feasible in the time allowed to complete the review. As a result, a sampling program was devised to determine Brown and Root's engineering response to known nuclear industry issues and problem areas. It was felt that this approach would give a representative indication to HL&P as to the status of the Brown and Root design. The Quadrex Report, issued to HL&P in May 1981, was highly critical of the STP design efforts.

HL&P announced in September 1981 that the construction management and architect-engineering functions at the STP had been reassigned from Brown and Root to the Bechtel Power Corporation. Subsequently, Brown and Root was also replaced as the constructor by Ebasco Services, Inc.

the findings of the Quadrex Report.² I indicated that the Bechtel review was being closely monitored by an NRC regional inspector assigned to the Bechtel office in Houston, as well as other NRC Region IV personnel and technical reviewers from the Office of Nuclear Reactor Regulation at NRC headquarters.

My interim response also indicated that the Region IV office was conducting a review of the issues raised in the Quadrex Report, and had undertaken a special inspection program to monitor the transition from Brown and Root to Bechtel as architect-engineer of the STP. The Region IV evaluation of the Quadrex Report, which includes assessment of the Bechtel review of the STP design,³ has been completed, and is contained in the *Special Inspection Report of the Quadrex Corporation Report on Design Review of Brown and Root Engineering Work for the South Texas Project Units 1 and 2* (inspection report), issued as NUREG-0948 by the Commission in January 1983. This document, enclosed with this decision, is available for public inspection in the NRC public document room in Washington and in the local public document rooms for the South Texas Project.

The Region IV review was not intended to verify either the Quadrex Report findings or the technical adequacy of the STP as designed by Brown and Root. The purpose in reviewing the Quadrex findings was, however, threefold: to determine whether Commission reporting requirements regarding design and construction deficiencies had been met by HL&P; to assess Bechtel's resolutions to the problems raised by the Quadrex review; and to identify those Quadrex findings having safety significance and/or generic implications. To accomplish these goals, Region IV personnel examined every Quadrex Report finding. This effort, which produced 351 separate findings in eight technical areas and includes the

²In this regard, Bechtel undertook two separate analyses of the Quadrex findings. Acting upon HL&P's request to assess the Quadrex findings, Bechtel formed a special task force to evaluate the significance of the Quadrex findings and place the findings in perspective with regard to management and design activities necessary to permit timely resolution of the findings. The purpose of this first report was to provide an early qualitative assessment of the significance of the Quadrex findings in order that proper management and design actions could be taken. See Bechtel Power Corporation Task Force Report — An Assessment of the Findings in the Quadrex Corporation Report (submitted to NRC Region IV by letter from HL&P dated March 15, 1982).

Bechtel also engaged in an in-depth review of the construction and design work accomplished by Brown and Root on STP independently of the work of the special task force, so as to enable Bechtel to assume its role as the new architect-engineer and construction manager of the project. The detailed results of that review were documented in engineering work packages. During the design review, Bechtel reviewed the applicable Quadrex findings, and using the task force report as guidance, identified actions necessary to review the status of and complete the STP design. Findings and intended actions were documented in appropriate engineering work packages. In addition, Bechtel assembled a Quadrex Compliance Work Package, EN-619, which summarized individual Quadrex findings, and provided an evaluation and disposition of each finding. This work package resolved generic Quadrex findings and findings related to specific technical disciplines that were not addressed in separate discipline work packages. See EN-619 — Quadrex Work Package (submitted to NRC Region IV by letter from HL&P dated August 26, 1982); Revision to Final Report, EN-619 — Quadrex Work Package (submitted to NRC Region IV by letter from HL&P dated October 18, 1982).

³ See *supra* note 2.

generic findings, included review of Quadrex findings of particular concern to CCANP.⁴

The conclusions reached by Region IV demonstrate that the issues raised by the petitioner regarding the Quadrex Report have been evaluated. The staff found that the design and construction deficiencies required to be reported to NRC had in fact been reported, NUREG-0948 at 2, 14-23, although two matters were not reported in a timely manner. *Id.* at 20. The staff also concluded that the Quadrex findings have been adequately resolved or dispositioned⁵ under the Bechtel plan approved by HL&P. *Id.* at 2, 26-27. Moreover, the staff determined that all issues important to plant safety have received adequate and timely attention. *Id.* at 2, 23-26. This has been done by either confirming the adequacy of work already performed or establishing procedures to perform detailed reviews and/or design changes subsequent to Bechtel's assumption of the role as architect-engineer of the project. At the same time, the staff also believes that some of the Quadrex items are of sufficient importance to require additional review and follow-up. Consequently, the staff will monitor the specific areas that have been identified in Appendix A of NUREG-0948 as open items. These items include findings cited in the petition.⁶ Adequate consideration of the Quadrex Report findings identified by CCANP has been accomplished, and I see no need to suspend construction of the STP at this time.

The petitioner also requested an independent third party review of the Brown and Root design of the STP. *See* Petition at 4, 12. Substantially similar action has been taken in this regard. When Bechtel was retained to assume architect-engineer

⁴ The petitioner classifies its concerns into six general areas:

- A. The basic conclusions of the Quadrex Report demonstrate a pervasive inadequacy of design that relates to ongoing and near term construction. Petition at 6.
- B. The design basis for the South Texas Project is poorly thought out and inadequately justified. *Id.* at 7.
- C. Brown and Root's design does not meet the single failure criterion. *Id.* at 8.
- D. The Brown and Root design violates ALARA requirements. *Id.*
- E. Brown and Root's distinctions between safety-related and non-safety-related aspects of the design may not be valid. *Id.* at 9.
- F. The Quadrex Report indicates serious deficiencies in all aspects of Brown and Root's design, including areas not specifically studied by Quadrex. *Id.* at 10.

The inspection report discusses these issues, as well as the more specific findings petitioner cites, at the following pages:

- Section A: NUREG-0948 at 33-34, 66-96, 230-48, 262-76, 334-71;
- Section B: *id.* at 37-38, 45-48;
- Section C: *id.* at 33-34, 41-42, 114-115, 334;
- Section D: *id.* at 59-60, 342;
- Section E: *id.* at 39-40, 49-50.

By continuously monitoring the Bechtel design review, Region IV has addressed the concerns raised by CCANP in section F of its petition. *See* text accompanying notes 5-6, *infra*.

⁵ As explained in the inspection report:

[R]esolved means that the finding has or will be remedied by normal Bechtel design procedures already in place. Dispositioned items are those that require a specific action to take place before final resolution and correction; however, plans for resolution had been determined.

NUREG-0948, at 2. *See also id.* at 26.

⁶ *See, e.g.*, NUREG-0948, Appendix A, at §§4.5, 4.8.

functions on the STP, HL&P required it to evaluate the entire design of the project. Review was not limited to the areas addressed by the Quadrex Report.⁷ Prior to assuming its role as architect-engineer, Bechtel had not been involved in the design of the project. In addition, the NRC staff has closely monitored the design review conducted incident to replacement of Brown and Root as the architect-engineer. Consequently, I have concluded that this effort serves the same essential purpose as would an independent third-party review of the design. No additional design review appears necessary at this time.

CCANP further requested that an Atomic Safety and Licensing Board (ASLB) be established to consider the alleged design deficiencies at STP. See Petition at 12. The ASLB panel appointed in the pending operating license proceeding issued an order on December 16, 1981, which calls for a hearing on all aspects of the Quadrex Report. This action fulfills the relief sought by petitioner. In all events, where an adjudicatory board is presiding in a proceeding with jurisdiction to consider a particular issue, a party to that proceeding may not choose to avoid that forum by use of 10 CFR 2.206. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-6, 13 NRC 443, 446 (1981). As CCANP is a party in the pending operating license proceeding, the relief it seeks is more appropriately raised in that forum rather than by initiating some additional proceeding. Further, in the absence of some special circumstances, an office director will not interfere with the customary licensing process by instituting a proceeding to consider issues properly within the scope of the operating license review. *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), DD-79-21, 10 NRC 717, 720 (1979). It should also be noted that it is beyond the power of an office director to order an adjudicatory board to consider particular issues. See *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), DD-79-10, 10 NRC 129, 130 n.2 (1979).

For the reasons set forth in this decision and in my interim response to the petitioner, the request by CCANP for suspension of construction, accomplishment of an independent third-party review of the STP design and referral to a special ASLB is hereby denied.

As provided by 10 CFR 2.206(c), a copy of this decision will be filed with the Secretary for the Commission twenty-five (25) days after date of issuance unless

⁷ See note 2, *supra*.

the Commission, on its own motion, institutes a review of this Decision within that time.

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland
this 3rd day of March, 1983.

Enclosure: NUREG-0948, Special Inspection Report

[The enclosure has been omitted from this publication but may be found in the NRC Public Document Room, 1717 H Street, NW, Washington, D.C. 20555.]

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gilinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket Nos. 50-445
50-446

**TEXAS UTILITIES GENERATING
COMPANY, *et al.***

**(Comanche Peak Steam Electric
Station, Units 1 and 2)**

April 1, 1983

The Commission clarifies its March 30, 1983 order (CLI-83-8, 17 NRC 339) in which it temporarily stayed any further Licensing Board proceeding that could directly or indirectly result in identification of persons interviewed in the course of an NRC investigation, and orders the Licensing Board to initiate hearings as soon as possible on issues that do not involve the identification of alleged informants.

ORDER

This is to clarify our Order of March 30, 1983 (CLI-83-8, 17 NRC 339), temporarily staying that part of any further Licensing Board proceeding which could directly or indirectly result in the possible identification of certain informants. In response to our Order, the Licensing Board vacated its order resuming evidentiary hearings to commence on April 4, 1983. This action by the Licensing

Board prompted the Applicants to move for expedited reconsideration of our Order of March 30, 1983 pursuant to its terms. Applicants contend that the Licensing Board's indefinite suspension of further hearings will be detrimental and prejudicial because the suspension will "place plant licensing as the critical path item for fuel loading." Applicants suggest that the Commission should direct the Licensing Board to either proceed *in camera* on its inquiry into the NRC staff investigation or to conduct hearings on the issues that do not involve the identification of informants, *viz.*, emergency planning, the design of pipe supports, and various matters raised in Board Notifications.

To the extent that the Licensing Board has interpreted the Commission's Stay Order of March 30, 1983 to suspend all further hearings, it has acted inconsistently with the Commission's policy on the expeditious conduct of NRC licensing proceedings. The applicants have identified several issues that can be heard consistent with our Order of March 30, 1983. The prompt initiation of those hearings will not "compromise the Commission's fundamental commitment to a fair and thorough hearing process" (46 Fed. Reg. 28534, May 27, 1981) nor be inconsistent with the specific concerns addressed in the Order of March 30, 1983. Accordingly, the Licensing Board is hereby directed to initiate hearings as soon as possible on those issues which do not involve the identification of informants.

Commissioner Roberts' separate views are attached.

It is so ORDERED.

For the Commission*

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 1st day of April, 1983.

*Commissioner Gilinsky was not present when this Order was approved and did not participate in the vote.

SEPARATE VIEW OF COMMISSIONER ROBERTS

I concur in the result reached in this Order. I believe, however, that if the Licensing Board had acted more reasonably on the Commission's Order of March 30, 1983, the time and resources of the parties to the proceeding and of the Commission would have been better spent. It is my belief that the Commission's Order clearly indicated that it was to stay only that portion of the proceeding which related to examination of witnesses in a manner that might reveal the identities of possible participants in NRC investigations. Thus, I see no need to clarify that Order. Moreover, I find the Licensing Board's Order of March 31, 1983 (unpublished), which provides its justification for cancelling the scheduled hearings on emergency planning issues, various Board notification matters, and significant unresolved safety issues, less than persuasive. The Board appears to rest its Order on the ground that "Intervenor CASE and the State of Texas had asked for continuances or extensions of time for the hearing on the grounds that they needed more time to respond to the Staff's various filings." Stay Order at 3. Despite this apparent basis for its Order, the Board denied the State's motion for a stay on March 28, 1983, stating "the parties have a right to expect that an interested State will use due diligence in its participation in an operating licensing proceeding" and that "the matters addressed in the motion have been pending for many months." The parties should also have a right to expect *Boards* to use due diligence in the conduct of licensing proceedings. I would hope that in the future Boards will attempt to apply Commission guidance in specific cases in a manner that will result in a fair and expeditious process.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket Nos. 50-361-OL
50-362-OL

SOUTHERN CALIFORNIA EDISON
COMPANY, et al.
(San Onofre Nuclear Generating
Station, Units 2 and 3)

April 5, 1983

In answer to two certified questions from the Appeal Board by direction (CLI-82-27, 16 NRC 883 (1982)), the Commission defines the scope of emergency planning for medical services for members of the general public required by 10 CFR §50.47(b)(12).

EMERGENCY PLANS: FEMA VIEWS

The Commission gives great weight to the views of the Federal emergency Management Agency (FEMA) on the need for and adequacy of specific offsite protective emergency planning measures. *See* 45 Fed. Reg. 55402, 55406 (Aug. 19, 1980); *In the Matter of Final Rule on Emergency Planning*, CLI-80-40, 12 NRC 636, 638, 642 (1980).

EMERGENCY PLANS: CONTENT (ARRANGEMENTS FOR MEDICAL SERVICES TO THE PUBLIC)

Emergency response efforts relating to arrangements for medical services to be provided for members of the public in the event of a nuclear accident should include consideration of (1) those who become injured and are also contaminated, and (2) those who may be exposed to dangerous levels of radiation. With respect to those individuals who fall within the first category, no additional medical facilities or capabilities beyond those currently required for onsite personnel and emergency workers are required; facilities with which prior arrangements have been made or which have the capability to treat contaminated injured individuals should be identified. Treatment for individuals who fall within the second category need be arranged for only on an as-needed basis. Emergency plans should identify local or regional medical facilities that can provide appropriate treatment for radiation exposure, but no prior contractual agreements are necessary and no additional facilities need be constructed.

MEMORANDUM AND ORDER

I. INTRODUCTION

On September 24, 1982, the Commission (CL1-82-27) directed certification of two issues concerning the scope of emergency planning for medical services for members of the general public required pursuant to 10 CFR §50.47(b)(12). This regulation requires that emergency planning include “[a]rrangements . . . for medical services for contaminated injured individuals.” Specifically, the issues directed to be certified were:

- (1) Does the phrase “contaminated injured individuals” as used in 10 CFR §50.47(b)(12) require applicants for nuclear power plants to provide arrangements for medical services only for members of the public who have suffered traumatic injury and are also contaminated with radiation?
- (2) If the answer to Question 1 is no, to what extent does 10 CFR §50.47(b)(12) require advance, specific arrangements and commitments for medical services for the general public as opposed to the general knowledge that facilities and resources exist and could be used on an *ad hoc* basis?

For the reasons discussed fully below, the Commission has determined that the emergency planning required to meet the provisions of 10 CFR §50.47(b)(12) should be decided through a clarification not only of the phrase “contaminated

injured individuals," but also more importantly of the scope of "arrangements . . . for medical services" to be provided for the public in the event of a nuclear plant accident. Accordingly, we have concluded that emergency response efforts should include consideration of: (1) those who become injured and are also contaminated, and (2) those who may be exposed to dangerous levels of radiation. With respect to individuals who become injured and are also contaminated, the arrangements that are currently required for onsite personnel and emergency workers provide emergency capabilities which should be adequate for treatment of members of the general public. Therefore, no additional medical facilities or capabilities are required for the general public. However, facilities with which prior arrangements are made and those local or regional facilities which have the capability to treat contaminated injured individuals should be identified. Additionally, emergency service organizations within the plume exposure pathway emergency planning zone (EPZ) should be provided with information concerning the capability of medical facilities to handle individuals who are contaminated and injured. With respect to individuals who may be exposed to dangerous levels of radiation, treatment requires a lesser degree of advance planning and can be arranged for on an as-needed basis during an emergency. Emergency plans should, however, identify those local or regional medical facilities which have the capabilities to provide appropriate medical treatment for radiation exposure. No contractual agreements are necessary and no additional hospitals or other facilities need be constructed.

II. BACKGROUND

The Commission directed certification of the above questions because it had noted that the Appeal Board and the Atomic Safety and Licensing Board (Licensing Board) had interpreted the requirements of 10 CFR §50.47(b)(12) differently in this proceeding. In addition, the interpretation of this regulation involves a significant issue of policy that affects other plants and proceedings. In its Initial Decision of May 14, 1982, the Licensing Board concluded, *inter alia*, that 10 CFR §50.47(b)(12) "requires applicants and offsite jurisdictions to develop and stand ready to implement arrangements for medical services for members of the offsite public who may be injured in a serious accident." LBP-82-39, 15 NRC 1163, 1199 (hereinafter "I.D. at 000," referring to pages in 15 NRC). The Licensing Board reached this conclusion after a review of (a) the applicable regulations and

legislative history,¹ (b) pertinent Commission guidance documents,² (c) the Federal Emergency Management Agency (FEMA) position, (d) prior NRC decisions, and (e) the evidentiary record. I.D. at 1186-1200. However, the Licensing Board's conclusion was based mainly on what it felt was "clear language" in 10 CFR §50.47(b)(12) which requires that "offsite" plans include arrangements for medical services for contaminated injured individuals, and that members of the general public were the intended beneficiaries of the offsite plans. I.D. at 1187, 1199. The Licensing Board then concluded that the offsite emergency response plans for San Onofre did not satisfy this interpretation of 10 CFR §50.47(b)(12). Notwithstanding this defect in the plan, the Licensing Board authorized the NRC staff to issue the operating licenses for a limited time within which the defect was to be remedied. The Board reasoned that given the low probability of a serious accident, adequate availability of hospital facilities and trained personnel, and good coordination and cooperation between applicants and local officials, the defect in the emergency plan was not significant within the meaning of 10 CFR §50.47(c)(1), and allowed full-power operation for no more than six months. I.D. at 1999-2000.³

On February 1, 1983, based on a review of a stipulation by the parties and other considerations, the Licensing Board amended its Initial Decision of May 14, 1982 to allow full power operation, pending resolution of the medical services issue, for a period extending six months from March 17, 1982, or six months from the date the Commission issues its determination of the certified medical services question, whichever is the shorter period of time.

In denying intervenors' application for a stay of the Initial Decision, the Appeal Board stated that it had "serious doubts that the Board's reading [of 10 CFR §50.47(b)(12)] is accurate." ALAB-680, 16 NRC 136, (1982). In the Appeal Board's opinion there is a clear and deliberate distinction between "contaminated

¹ 10 CFR §50.47(b)(12); 10 CFR Part 50, Appendix E §IV(E).

² NUREG-0396, EPA 520/1-78-016, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans In Support of Light Water Nuclear Power Plants" (December 1978); NUREG-0654, FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," (November 1980).

³ On July 16, 1982, the Commission, acting pursuant to 10 CFR §2.764(f), decided that the Licensing Board's decisions resolving contested issues in favor of the issuance of full-power operating licenses for San Onofre Units 2 and 3 may go into effect pending appellate review. (CLI-82-14, 16 NRC 24). The Commission's decision did not authorize issuance of the requested full-power licenses until the NRC staff briefed the Commission on certain uncontested issues. The staff briefed the Commission and on July 28, 1982 the Commission later authorized the staff to issue a full-power license for Unit 2 with specified conditions. This license was issued on September 7, 1982. A low-power license was issued for Unit 3 on November 15, 1982. In addition, the Commission decided that it would later conduct an "immediate effectiveness" review of any future decision by the Licensing Board regarding the medical arrangements question. The Licensing Board, in an October 1, 1982 prehearing order (unpublished), scheduled the medical arrangements issues for hearing and further clarified the issues in an order dated October 29, 1982 (unpublished). However, in response to a certified question from the Licensing Board dated October 5, 1982, the Commission suspended all further evidentiary hearings on these matters in a Memorandum and Order dated November 19, 1982 (CLI-82-35, 16 NRC 1510).

injured individuals” and members of the general public who may have suffered radiation exposure or injury in a nuclear accident. According to the Appeal Board, “contaminated injured” encompasses “potential patients whose traumatic (*i.e.*, physical) injuries are complicated by radioactive contamination.” *Id.* at 137. The Appeal Board found that contaminated injured patients require emergency care for their physical injuries and special medical services and facilities to ensure that the traumatic injury is treated without contaminating the persons or facilities providing it. The Appeal Board concluded that the “record is clear that relatively few people [one to 25] are expected to be both contaminated and traumatically injured in a nuclear accident . . . [and] the applicants’ present emergency plan is fully adequate to cope with these eventualities.” *Id.* at 137.⁴ In general, applicants and NRC staff support the Appeal Board’s view, while intervenors support the Licensing Board’s view.⁵ These positions have been considered in our resolution of these matters.

III. DISCUSSION

A. NRC Regulations

In accordance with 10 CFR §50.47(b)(12), onsite and offsite emergency response plans must include “[a]rrangements . . . for medical services for contaminated injured individuals.” In its simplest terms, the first certified question seeks a definition of the phrase “contaminated injured” in order to initially establish the metes and bounds of the required planning. We have examined the regulation at issue and its legislative history, the related regulation in 10 CFR Part 50, Appendix E and its legislative history, and pertinent background guidance documents (NUREG-0396, “Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants,” and NUREG-0654, FEMA-REP-1, Rev. 1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants”). We find that none of

⁴ The Appeal Board’s conclusion on this matter was in the context of making a legal decision on the stay motion. It concluded that the intervenors had failed to make a strong showing that they were likely to prevail on their claim that San Onofre should not operate at full power for six months until plans are in place for medical arrangements for those members of the general public who may suffer radiation exposure in a serious nuclear accident.

⁵ The parties’ positions are reflected in the following documents: NRC Staff’s Brief Regarding Medical Services Issues Certified by Commission Order, dated October 14, 1982; Applicants’ Brief Regarding Certified Questions on Definition and Implementation of 10 CFR 50.47(b)(12), Medical Services, dated October 13, 1982; Intervenors’ Brief Regarding Required Medical Services for the General Public in Response to Commission Order CLI-82-27, dated October 14, 1982; NRC Staff’s Reply Brief Regarding Medical Services Issues Certified by Commission Order, dated October 29, 1982; and Applicants’ Reply Brief Re Certified Questions on Definition and Implementation of 10 CFR 50.47(b)(12), Medical Services, dated October 28, 1982.

these materials provides an explicit and conclusive definition of the term "contaminated injured individuals." Particularly, these materials provide no insight as to whether individuals exposed to severe doses of radiation would be encompassed within the term for purposes of offsite emergency planning. Basically, the Commission never explicitly addressed this issue. Accordingly, the Commission must now determine the scope of "arrangements . . . for medical services" that are needed for members of the public in the event of a nuclear plant accident in accordance with 10 CFR §50.47(b)(12).

The underlying assumption of the NRC's emergency planning regulations in 10 CFR §50.47 is that, despite application of stringent safety measures, a serious nuclear accident may occur. This presumes that offsite individuals may become contaminated with radioactive material *or* may be exposed to dangerous levels of radiation or perhaps both. Planning for emergencies is required as a prudent risk reduction measure for these individuals. Since a range of accidents with widely differing offsite consequences can be postulated, the regulation does not depend on the assumption that a particular type of accident may or will occur. In fact, no specific accident sequences should be specified because each accident could have different consequences both in nature and degree. Although the emergency planning basis is independent of specific accident sequences, a number of accident descriptions were considered in development of the Commission's regulations, including the core melt accident release categories of the Reactor Safety Study (WASH-1400).⁶

It was never the intent of the regulation to require directly or indirectly that state and local governments adopt extraordinary measures, such as construction of additional hospitals or recruitment of substantial additional medical personnel, just to deal with nuclear plant accidents. The emphasis is on *prudent* risk reduction measures. The regulation does not require dedication of resources to handle every possible accident that can be imagined. The concept of the regulation is that there should be core planning with sufficient planning flexibility to develop a reasonable *ad hoc* response to those very serious low probability accidents which could affect the general public.

As a matter of practice, the Commission gives great weight to FEMA's views on the need for and adequacy of specific offsite protective planning measures. *See* 45 Fed. Reg. 55402, 55406 (August 19, 1980), In the *Matter of Final Rule on Emergency Planning* (PR-50 (44 Fed. Reg. 75167)), CLI-80-40, 12 NRC 636, 638, 642 (1980). In this proceeding, FEMA provided its views for inclusion in the Licensing Board's deliberations.

FEMA has stated it "believes that special arrangements for medical services need to be made for persons within the 10-mile EPZ who may suffer from radiation

⁶ *See* NUREG-0654/FEMA-REP-1, Rev. 1, *supra* at 2.

exposure, radiological contamination, or both.”⁷ It reasoned that “despite the application of protective response measures, persons within the 10-mile EPZ may be exposed to dangerous levels of radiation . . . [and], therefore, require appropriate medical services.” *Id.* at 2. FEMA has also indicated that the medical arrangements needed should be consistent with Planning Standard L and other related planning standards in NUREG-0654. It has concluded that in the event of a serious accident which “resulted in a large number of persons being contaminated by excessive levels of radiation, State and local governments would have to rely upon identified medical support organizations in an area beyond the EPZs for the plant where the accident occurred and even other States with facilities that have the required capabilities and resources.” *Id.* at 3.

FEMA further clarified its position regarding advance medical arrangements for members of the public in a letter to the NRC, dated September 3, 1982.⁸ With respect to the need for medical arrangements for offsite individuals who might be classified as contaminated or radiologically exposed, it stated:

The justification for [making advance arrangements for medical services] is, in part, the difficulty of predicting additional and concurrent medical needs. Advance arrangements are justified because of the need to initiate a medical history for those exposed individuals whose future health could be affected and to reduce organizational demands on hospital emergency staff. The medical services being called for here are those predominately of medical staff knowledge and capability to handle the additional factor of radiological contamination or exposure.

* * *

Decontamination facilities and monitoring equipment would be necessary along with trained and knowledgeable staff. Planning, training and pre-established procedures are clearly a need. The arrangements for beds, special medicines, if any, and perhaps the need for isolation could be handled on an ad hoc basis.

FEMA letter at p. 2.

B. Analysis and Conclusion

The Commission presumes as does FEMA that offsite individuals in the EPZ may, as a result of a nuclear plant accident, either become externally contaminated

⁷ Letter from Marshall E. Sanders, Acting Chief, Technological Hazards Division, Office of Natural and Technological Hazards, FEMA, to Judge James L. Kelley, Atomic Safety and Licensing Board Panel, NRC, dated October 15, 1981.

⁸ Letter from Richard W. Krimm, Assistant Associate Director, Office of Natural and Technological Hazards, FEMA, to Brian Grimes, Director, Division of Emergency Preparedness, NRC, dated September 3, 1982. *Intervenors' Brief*, Ex. B

with radioactive materials or become exposed to dangerous levels of radiation, or both.

With this underlying assumption in mind, we now focus on the scope of "arrangements . . . for medical services for contaminated injured individuals" needed as a result of a nuclear plant accident which is fundamental to the certified questions. Initially, we think it fair to read the regulation to refer here to immediate or near term care. Advance planning would be most useful for immediate or near term care while long term care can be handled on an *ad hoc* basis and should not require advance planning. Thus, we must decide what medical services or arrangements must be provided in emergency plans to reasonably assure immediate or near term care for members of the public in the event of a nuclear plant accident.

The scope of "medical services" to be provided must focus on the special hazards from radiation which, we think, fall into two categories. The first category addresses individuals who may become traumatically injured (non-radiation injury for which emergency medical care is needed) and are also externally contaminated with radiation. To meet the emergency planning regulation, it has been the general practice for licensees or offsite authorities to make special arrangements for emergency treatment of contaminated injured onsite personnel and emergency workers.⁹ The issue here is whether there should be additional specific arrangements for the general public. While some immediate action may be required, the number of individuals both onsite and offsite who may become contaminated and injured is expected to be very few.¹⁰ The Commission believes it is prudent to identify local or regional medical service facilities considered capable of providing support for contaminated injured individuals. Additionally, emergency service organizations within the EPZ should be provided with information concerning the capability of medical facilities to handle individuals who are contaminated and injured. This information, in conjunction with the core services to deal with onsite personnel and emergency workers, should be sufficient to accommodate members of the general public and could be expanded as necessary on an *ad hoc* basis.

The second category addresses individuals who have been subjected to dangerous levels of radiation and who need medical treatment for that reason. Here, the special hazard is posed by the radiation exposure to the patient. The nature of radiation injury is that, while medical treatment may be eventually required in cases of extreme exposure, the patients are unlikely to need emergency medical

⁹ These special arrangements would include (a) local and backup hospital and medical services having the capability for evaluation of radiation exposure and uptake, including assurance that persons providing these services are adequately prepared to handle contaminated individuals, (b) onsite first aid capability, and (c) transportation capability. See NUREG-0654, Planning Standard L; 10 CFR §50.47(b)(12); 10 CFR Part 50, App. E §IV(E).

¹⁰ The Appeal Board referred to an "estimate" of "from one to perhaps 25 or so" individuals would be both contaminated and injured. ALAB-680, 16 NRC 137.

care.¹¹ The non-immediacy of the treatment required for radiation-exposed individuals provides onsite and offsite authorities with an additional period of time to arrange for the required medical service. Thus, any treatment required could be arranged for on an *ad hoc* basis. Accordingly, emergency plans should include a listing of those local and regional medical facilities which have the capabilities to provide appropriate diagnosis and treatment for radiation exposure. No contractual arrangements or special training programs are necessary and no additional hospitals or other facilities need be constructed. No extraordinary measures are required of state and local governments. Diagnosis and treatment could take place at most existing medical facilities.¹²

The scope and timing of medical treatment required and the underlying assumptions and structure of 10 CFR §50.47 lead us to conclude that adequate medical services could be provided by using existing local or regional facilities including arrangements made specifically for onsite personnel and emergency workers. We believe that this is consistent with the above-stated FEMA position and the recommendations set forth in NUREG-0654.^{12a}

IV. CONCLUSION

For the reasons discussed above, this Memorandum and Order focuses on the scope of "arrangements . . . for medical services" to be provided for members of the public in the event of a nuclear plant accident. Accordingly, we have concluded that emergency response efforts should include consideration of: (1) those who become injured and are also contaminated, and (2) those who may be exposed to dangerous levels of radiation. With respect to individuals who become injured and are also contaminated, the arrangements that are currently required for onsite personnel and emergency workers provide emergency capabilities which should be adequate for treatment of members of the general public. Therefore, no additional medical facilities or capabilities are required for the general public. However, facilities with which prior arrangements are made or which have the capability to treat contaminated injured individuals should be identified. With respect to individuals who may be exposed to dangerous levels of radiation,

¹¹ ALAB-680, 16 NRC 137-38. The Licensing Board determined that "time is not of the essence" in this case. 15 NRC at 1163, 1245.

¹² FEMA has stressed that medical arrangements should include decontamination facilities, monitoring equipment, training, and procedures. In this regard, NUREG-0654, which is relied upon by both the NRC and FEMA, requires relocation centers capable of registering and monitoring all residents and transients in the plume exposure EPZ (Planning Standard J.12), criteria for administration of radioprotective drugs to the general public (Planning Standard J.10), and a list of medical facilities capable of providing monitoring and treatment for contaminated injured individuals (Planning Standard L.3). These provisions should ensure that adequate capability exists to handle radiological contamination or exposure.

^{12a} We recognize that FEMA's position is not entirely clear. See, e.g., 15 NRC at 1195 n.21.

treatment requires a lesser degree of advance planning and can be arranged for on an as-needed basis during an emergency. Emergency plans should, however, identify those local or regional medical facilities which have the capabilities to provide appropriate medical treatment for radiation exposure.¹³ No contractual agreements are necessary and no additional hospitals or other facilities need be constructed.

The Licensing Board should take any further action it deems necessary to comply with this decision.

Commissioners Gilinsky and Asselstine dissent from this Order.

The additional views of Commissioner Ahearne and dissenting views of Commissioner Asselstine are attached.

For the Commission*

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 4th day of April, 1983.

ADDITIONAL VIEWS OF COMMISSIONER AHEARNE

Emergency planning has been a difficult concept to get accepted, both inside and outside the NRC. As the original sponsor of the NRC's emergency planning rule, I have seen many attempts to mischaracterize it by opponents and supporters of emergency planning. Commissioner Asselstine's views fit the latter. It is this type of expanding requirement that has driven the search for a revised source term, and increased the pressures to reduce the real requirements of the emergency planning rule.

¹³ This is consistent with Planning Standard L.3 of NUREG-0654 which recommends that each state: [D]evelop lists indicating the location of public, private and military hospitals and other emergency medical services facilities within the State or contiguous States considered capable of providing medical support for any contaminated injured individual. The listing shall include the name, location, type of facility and capacity and any special radiological capabilities. These medical services should be able to radiologically monitor contaminated personnel, and have facilities and trained personnel able to care for contaminated injured persons.

*Commissioners Gilinsky and Ahearne were not present when this Order was approved. Had Commissioners Gilinsky and Ahearne been present at the meeting they would have voted to, respectively, disapprove and approve the Order.

We do recognize the radiation effects from a nuclear accident and we and FEMA do require some levels of additional facilities, special training, and substantial planning. The Commission decision endorses a balanced approach that I believe is consistent with FEMA's (at the moment somewhat ambiguous) position.

**DISSENTING OPINION OF COMMISSIONER ASSELSTINE* ON
SECY-83-81 SAN ONOFRE MEMORANDUM AND ORDER ON THE
CERTIFIED ISSUES REGARDING SCOPE OF ARRANGEMENTS
FOR MEDICAL SERVICES**

The fundamental reason for emergency planning is to prepare for the possibility of a nuclear accident involving substantial releases of radioactivity to the surrounding environs. Should such an accident occur, it is possible that large numbers of people offsite will receive significant, though not life threatening, radiation doses. It is unrealistic to assume that those individuals will not seek immediate medical opinion regarding the significance of the radiation dose. The majority decision *refuses* to require advanced planning, training, or procedures for handling this situation. I not only believe it prudent to have such a requirement, but I believe FEMA guidance calls for it. (Letter from Richard W. Krimm, Assistant Associate Director, Office of Natural and Technological Hazards, FEMA, to Brian Grimes, Director, Division of Emergency Preparedness, NRC, dated September 3, 1982).

Further, I believe that such planning, training and procedures can be provided without constructing new facilities or hiring new personnel. Therefore, these elements of emergency planning should be attainable without incurring a significant expense. The Commission has recently been pressing for additional emphasis on cost/benefit analyses in reaching regulatory decisions. This is a case where I believe the benefits to be gained clearly outweigh the costs. Finally, the majority's decision in this case represents, in my view, an unfortunate step back from the strong commitment to improve radiological emergency planning and preparedness that was made by this Agency and by others following the TMI-2 accident.

*Commissioner Gilinsky agrees with Commissioner Asselstine's views.

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)

April 8, 1983

The Appeal Board denies intervenors' request for a stay of the Licensing Board's partial initial decision authorizing the issuance of a limited work authorization in connection with the construction of the Clinch River Breeder Reactor. LBP-83-8, 17 NRC, 158 (1983).

REGULATIONS: LIMITED WORK AUTHORIZATION

An applicant for a construction permit may seek early approval of certain types of site preparation activity, such as the construction of temporary access roads, sewage treatment facilities, or systems, structures or components that will not eventually be involved with accident prevention or mitigation. Thereafter, an applicant may seek early approval for the installation of structural foundations. See 10 §§CFR 50.10(e)(1), (2), (3).

REGULATIONS: EXEMPTIONS (EARLY SITE PREPARATION)

10 CFR 50.10 (c) generally prohibits any person from clearing or excavating a site or otherwise commencing construction of a nuclear power reactor until either a construction permit or a limited work authorization has been obtained following an adjudicatory hearing. However, 10 CFR §50.12(b) provides for the case-by-case granting of exemptions from this prohibition if specified criteria are met.

RULES OF PRACTICE: STAY PENDING APPEAL

In determining whether a stay should be granted, an appeal board will ordinarily apply the criteria specified in 10 CFR §2.788(e). *Alabama Power Co.* (Joseph M. Farley Nuclear Plant, Units 1 and 2), CLI-81-27, 14 NRC 795 (1981); *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-680, 16 NRC 127 (1982). Those criteria are the ones traditionally applied by the courts. See *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-437, 6 NRC 630, 631 (1977), citing *Virginia Petroleum Jobbers Ass'n v. Federal Power Commission*, 259 F.2d 921 (D.C. Cir. 1958), and *Washington Metropolitan Area Transit Comm'n v. Holiday Tours, Inc.*, 559 F.2d 841 (D.C. Cir. 1977).

RULES OF PRACTICE: IMMEDIATE EFFECTIVENESS OF DECISIONS (STAY PENDING APPEAL)

In certain situations an appeal board may review a stay request under the criteria embodied in the Commission's "immediate effectiveness" rule, 10 CFR §2.764. When doing so, the board will look at two factors in addition to those laid out in 10 CFR §2.788(e): whether effectiveness of the initial decision will create novel safety or environmental issues in light of the Three Mile Island accident or prejudice review of significant safety or environmental issues. 10 CFR §2.764 (e)(2)(ii).

RULES OF PRACTICE: IMMEDIATE EFFECTIVENESS REVIEW (EFFECT ON APPEAL BOARD DECISIONS)

In the absence of Commission directions to the contrary, Commission immediate effectiveness review is without prejudice to Appeal Board decisions, including stay decisions under 10 CFR §2.788. Cf. *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-647, 14 NRC 27, 29-30 (1981).

RULES OF PRACTICE: STAY PENDING APPEAL (BURDEN OF PROOF)

General assertions, in conclusionary terms, of alleged harmful effects are insufficient to demonstrate entitlement to a stay. *Public Service Co. of Oklahoma* (Black Fox Station, Units 1 and 2), ALAB-505, 8 NRC 527, 530 (1978); *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-395, 5 NRC 772, 785 (1977).

APPEARANCES

Barbara A. Finamore and **S. Jacob Scherr**, Washington, D.C., for the intervenors Natural Resources Defense Council and the Sierra Club.

George L. Edgar, Washington, D.C., for Project Management Corporation, and **William D. Luck**, for the United States Department of Energy, applicants.

Stuart A. Treby for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

Intervenors Natural Resources Defense Council and the Sierra Club have asked us to stay the Licensing Board's partial initial decision issued February 28, 1983 (LBP-83-8, 17 NRC 158), which authorized the issuance of a limited work authorization in connection with the construction of the Clinch River Breeder Reactor. The applicants and the NRC staff oppose grant of the stay. As explained below, we deny the request.

I.

The Department of Energy, the Project Management Corporation and the Tennessee Valley Authority (collectively referred to as the applicants) have proposed to construct a demonstration liquid metal fast breeder reactor, to be known as the Clinch River Breeder Reactor (CRBR), on a site adjacent to the Clinch River Industrial Park near Oak Ridge, Tennessee. A "breeder" reactor is one that produces more nuclear fuel than it consumes and involves a technology somewhat different from that employed in the conventional nuclear power plant.

On October 11, 1974, the applicants applied to the Atomic Energy Commission, predecessor to the Nuclear Regulatory Commission, for a construction permit

under section 104b of the Atomic Energy Act, 42 U.S.C. §2134b. The Commission began prehearing activity in connection with the adjudicatory proceeding on the application. Applicants requested, as a first step in that proceeding, that the presiding Atomic Safety and Licensing Board schedule hearings and issue a partial initial decision on environmental and site suitability issues in support of issuance of a limited work authorization for site preparation activities (a so-called "LWA-1").¹ However, in 1977, before the case progressed to the hearing stage, all proceedings were suspended at the applicants' request following an announcement by the Carter Administration that it was opposed to the Clinch River project.

The change in administrations in 1981 led to a reversal of that position. As a result, the applicants asked that the suspended adjudicatory proceedings on the construction permit and limited work authorization resume. At about the same time, the applicants also asked the Commission to grant an exemption from its regulations to permit initiation of certain site preparation activities for the CRBR prior to the issuance of a construction permit or a limited work authorization.² The proposed activities include site clearing and grading; excavation and quarry operations; the construction of temporary construction-related facilities, a barge facility, an access road and a railroad spur; and the installation of services including power, water, sewerage, and fire protection.

Following an initial denial,³ the Commission granted the requested exemption on August 17, 1982. CLI-82-23, 16 NRC 412.⁴ The exemption was challenged in court by the Natural Resources Defense Council and the Sierra Club, and the Commission's decision was reversed and remanded by the court for a further explanation of why site preparation activities justified invocation of the Commission's exemption procedures.⁵ Site preparation went forward, however, because the court declined to grant a stay of the Commission's exemption decision. The Commission clarified its earlier decision and reaffirmed its grant of the exemption in an opinion issued on January 6, 1983. CLI-83-1, 17 NRC 1. On February 28,

¹ Under the Commission's regulations, an applicant for a construction permit may seek early approval of certain types of site preparation activity, such as the construction of temporary access roads, sewage treatment facilities, or systems, structures or components that will not eventually be involved with accident prevention or mitigation. See 10 CFR §50.10(e)(1), (2), authorizing issuance of an LWA-1. Thereafter, an applicant may seek early approval for the installation of structural foundations. See 10 CFR §50.10(e)(3), authorizing issuance of a so-called "LWA-2."

² 10 CFR §50.10(c) generally prohibits any person from clearing or excavating a site or otherwise commencing construction of a nuclear power reactor until either a construction permit or an LWA has been obtained following an adjudicatory hearing. However, 10 CFR §50.12(b) provides for the case-by-case granting of exemptions from this prohibition if specified criteria are met.

³ CLI-82-4, 15 NRC 362, *reconsideration denied*, CLI-82-8, 15 NRC 1095 (1982).

⁴ The applicant also sought permission to install some emergency plant service water piping that is part of the safety-related emergency service water system for the plant but that portion of the exemption request was denied.

⁵ *Natural Resources Defense Council, Inc. v. Nuclear Regulatory Commission*, 695 F.2d 623 (D.C. Cir. 1982).

1983, the Licensing Board issued its partial initial decision authorizing the Director of Nuclear Reactor Regulation to issue the LWA-1. LBP-83-8, 17 NRC 158.

The intervenors have filed numerous exceptions to the partial initial decision, accompanied by a motion for a stay of the decision pending our appellate review. Although recognizing that site preparation activities have proceeded under the Commission's exemption authorization, the intervenors urge us to bring those activities to a halt by granting a stay of the Board's decision pending review. We deny the motion.

II.

In determining whether a stay should be granted, we ordinarily apply 10 CFR §2.788(e), which calls upon us to consider —

- (1) whether the moving party has made a strong showing that it is likely to prevail on the merits;
- (2) whether the party will be irreparably injured unless a stay is granted;
- (3) whether the granting of a stay would harm other parties; and
- (4) where the public interest lies.

Alabama Power Co. (Joseph M. Farley Nuclear Plant, Units 1 and 2), CLI-81-27, 14 NRC 795 (1981); *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-680, 16 NRC 127 (1982). The criteria embodied in 10 CFR §2.788(e) are those traditionally applied by the courts. See *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-437, 6 NRC 630, 631 (1977), citing *Virginia Petroleum Jobbers Ass'n v. Federal Power Commission*, 259 F.2d 921 (D.C. Cir. 1958), and *Washington Metropolitan Area Transit Comm'n v. Holiday Tours, Inc.*, 559 F.2d 841 (D.C. Cir. 1977).⁶

The intervenors have not demonstrated that a stay is justified. The possibility that one party may be irreparably injured in the absence of a stay has often proven to be the most critical element in determining whether a stay is warranted. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-77-27, 6 NRC 715, 716 (1977), *Marble Hill*, *supra*, 6 NRC at 632. Yet the stay petition

⁶ The intervenors seek a stay pursuant to both 10 CFR §2.788 and 10 CFR §2.764. In certain situations an appeal board may review a stay request under the criteria embodied in the Commission's "immediate effectiveness" rule, 10 CFR §2.764. When doing so, we look at two additional factors: whether effectiveness of the initial decision will create novel safety or environmental issues in light of the Three Mile Island accident or prejudice review of significant safety or environmental issues. 10 CFR §2.764(e)(2)(ii). We need not decide whether our review of the stay request should be conducted under these provisions because, in an unpublished order issued on March 28, 1983, the Commission determined to conduct the effectiveness review of the Licensing Board's decision itself. We therefore review the stay request pursuant to 10 CFR §2.788. Section 2.764(g) stipulates that, in the absence of Commission directions to the contrary, Commission immediate effectiveness review is without prejudice to Appeal Board decisions, including stay decisions under 10 CFR §2.788. Cf: *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-647, 14 NRC 27, 29-30 (1981).

includes no evidence that direct and irreparable harm will result if site preparation activities are allowed to go forward pending appellate review. Rather, the petitioners simply assert, in conclusory terms, that continuation of excavation and construction can have a direct and significant effect on the surrounding environment and the nearby aquatic and terrestrial biota, and create "additional project momentum" so as to foreclose effective appellate review.⁷ Such general assertions are insufficient to demonstrate entitlement to a stay. *Public Service Co. of Oklahoma* (Black Fox Station, Units 1 and 2), ALAB-505, 8 NRC 527, 530 (1978); *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-395, 5 NRC 772, 785 (1977). In the instant case, moreover, the Commission's earlier decisions granting the exemption expressly concluded that site preparation would not cause significant environmental effects. The Commission found that the site improvements would be consistent with any future use of the site; that any possible adverse environmental effects could be effectively redressed if that should ultimately be required; and that site preparation will not result in any irreversible or irretrievable commitment to the remaining segments of the project.⁸ Although we may not be bound by those earlier determinations in ruling on the instant request, we believe the petitioners had some obligation to explain what factors the Commission may have overlooked or why circumstances have changed since the Commission reached its conclusions.

As far as we can tell from the initial decision and the stay papers, moreover, the petitioners' principal substantive concerns regarding the Board's result involve issues affecting eventual construction of the reactor at the Clinch River site rather than the preparatory work to be done in connection with the exemption or the limited work authorization.⁹ But, apart from the generalized allegations discussed above that failure to stop the project now will increase its momentum and compromise appellate review, the petitioners do not explain why their concerns cannot be examined in an orderly fashion on appeal and any necessary remedial action taken in due course.

We have also considered the petitioners' arguments that issuance of a stay would not substantially harm other parties and that the overall public interest favors grant of the stay. As with their argument concerning irreparable injury, the petitioners' assertions are simply conclusory and thus insufficient to justify issuance of the stay. We again take note that the Commission, as recently as last January, carefully evaluated many of these same arguments in reaching its determination that exigent circumstances existed to warrant issuance of an exemption to begin site prepara-

⁷ See Application for Stay (March 18, 1983) at 8-9.

⁸ See CLI-82-23, *supra*, 16 NRC at 424 and CLI-83-1, *supra*, 17 NRC at 5-6.

⁹ Petitioners claim, for example, that the Board failed to resolve what they describe as "the most hotly contested issue in the . . . proceeding," *i.e.*, whether the applicants have included all credible accidents in their list of design basis threats. Application for Stay, *supra*, at 5-7.

tion activities immediately. The petitioners do not discuss the Commission's findings in this regard, let alone demonstrate that circumstances have changed.

The petitioners place heavy emphasis on their likelihood of success in overturning the Board's decision. We have considered the petitioners' arguments in this connection and find it impossible at this early stage of the appellate process, before briefs have been filed, to gauge the likelihood that the Board's decision will eventually be overturned. The Board was confronted with a substantial number of sharply contested and complex issues and resolved them in a partial initial decision in excess of 200 pages. We are satisfied that, in light of our findings with respect to the other three factors to be considered in deciding the stay request, the petitioners' arguments regarding the merits of the Board's decision are not sufficient to tip the balance in favor of a stay.¹⁰

The application for a stay pending appeal is *denied*.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

¹⁰ The petitioners claim that, because they have demonstrated a substantial likelihood of success on the merits, their burden of showing irreparable injury is substantially reduced. We find that the petitioners have failed to demonstrate irreparable injury, whether perceived as a heavy or a light burden.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Stephen F. Elperin, Chairman
Christine N. Kohl
Dr. Reginald L. Gotchy

In the Matter of

Docket No. 50-397-CPA

**WASHINGTON PUBLIC POWER
SUPPLY SYSTEM, et al.**
(WPPSS Nuclear Project No. 2)

April 11, 1983

The Appeal Board affirms, but for different reasons, the Licensing Board's denial of an intervention petition filed in this construction permit extension proceeding.

**CONSTRUCTION PERMITS: EXTENSION OF COMPLETION DATE
(GOOD CAUSE)**

Under the Atomic Energy Act and Commission regulations, if a nuclear power plant is not completed by the latest date specified in a construction permit, the permit expires and all rights thereunder are forfeited; however, this lapsing of rights is subject to the proviso "[t]hat upon good cause shown the Commission will extend the completion date for a reasonable period of time." 42 U.S.C. §2235; 10 CFR §50.55(b).

**CONSTRUCTION PERMITS: EXTENSION OF COMPLETION DATE
(SCOPE OF PROCEEDING)**

The test for determining whether a contention is within the scope of a construction permit extension proceeding is a two-pronged one. First, the construction

delays at issue have to be traceable to the applicant. Second, the delays must be "dilatatory." If both prongs are met, the delay is without "good cause." CLI-82-29, 16 NRC 1221, 1231 (1982).

RULES OF PRACTICE: INTERVENTION PETITION (PLEADING REQUIREMENT)

At the pleading stage all that is required for a contention to be acceptable for litigation is that it be specific and have a basis. Whether or not the contention is true is left to litigation on the merits in the licensing proceeding. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542 (1980).

CONSTRUCTION PERMITS: EXTENSION OF COMPLETION DATE (GOOD CAUSE)

"Dilatatory conduct" in the sense used by the Commission in defining the test for determining whether a contention is within the scope of a construction permit extension proceeding means the intentional delay of construction without a valid purpose. See CLI-82-29, *supra*, 16 NRC at 1231.

RULES OF PRACTICE: SHOW CAUSE PROCEEDING

10 CFR §2.206 affords all persons the opportunity to raise whatever health, safety, or environmental concerns the construction or operation of a nuclear power plant may cause them. The Section 2.206 remedy is taken seriously, is available at all times, and provides the bridge the Commission expects a litigant to use in most instances between the construction permit and operating license proceedings. CLI-82-29, *supra*, 16 NRC at 1228-29.

OPERATING LICENSE PROCEDURES: RESPONSIBILITY OF NRC STAFF

The fact that an application for an operating license is uncontested does not mean that an operating license automatically issues. An operating license may not issue unless and until the NRC staff makes the findings specified in 10 CFR 50.57 — including the ultimate finding that such issuance will not be inimical to the health and safety of the public. *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 NRC 881, 895-96 (1981), *affirmed sub nom. Fairfield United Action v. Nuclear Regulatory Commission*, 679 F.2d 261 (D.C. Cir. 1982).

CONSTRUCTION PERMITS: EXTENSION OF COMPLETION DATE (SCOPE OF PROCEEDING)

Unless an applicant is responsible for delays in completion of construction and acted in a dilatory manner (*i.e.*, intentionally and without a valid purpose), a contested construction permit extension proceeding is not to be undertaken at all. Moreover, even if a properly framed contention leads to such a proceeding and is proven true, the Atomic Energy Act and implementing regulations do not erect an absolute bar to extending the permit. A judgment must still be made as to whether continued construction should nonetheless be allowed. 42 U.S.C. §2235; 10 CFR 50.55(b).

APPEARANCES

Nina Bell, Portland, Oregon, for petitioner Coalition for Safe Power.

Nicholas S. Reynolds and **Sanford L. Hartman**, Washington, D.C., for the applicant Washington Public Power Supply System.

William D. Paton for the Nuclear Regulatory Commission staff.

DECISION

The issue before us on appeal is a narrow one: whether the contention of the Coalition for Safe Power concerning the applicant's asserted mismanagement of construction of the WPPSS 2 nuclear power plant is sufficiently particularized for litigation in this construction permit extension proceeding. The Licensing Board ruled that it was not, and hence denied the Coalition's petition for intervention. Memorandum and Order of Feb. 22, 1983 (unpublished). We affirm the Board's ruling, but for somewhat different reasons.

I. BACKGROUND

Tracking Section 185 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. §2235, the Commission's regulations provide that, if a nuclear power plant is not completed by the latest date specified in a construction permit, "the permit shall expire and all rights thereunder shall be forfeited." 10 CFR §50.55(b). This lapsing of rights is subject to the proviso "[t]hat upon good cause shown the Commission will extend the completion date for a reasonable period of time." *Ibid.*

The regulation further specifies a number of causes of delay beyond the control of a permit holder as illustrative of bases for extending a construction permit completion date. *Ibid.*

On March 19, 1973 the Commission issued the applicant Washington Public Power Supply System (WPPSS) a permit for the construction of WPPSS 2. The permit called for the plant to be completed by September 1977, a date subsequently extended to December 1, 1981.¹ On September 4, 1981, WPPSS filed an application for a further extension, this one to February 1, 1984. The plant is now approximately 95 percent complete. Prehearing Conf. Tr. 54. As the "good cause" basis for its extension request WPPSS gave several reasons why it was assertedly not responsible for the construction delays.² The Director of the Division of Licensing, Office of Nuclear Reactor Regulation, agreed and granted the extension request. He published notice of that action in the *Federal Register*, thus prompting the Coalition for Safe Power (Coalition) to petition for intervention and to request a hearing on the already effective permit extension. See 47 Fed. Reg. 4780 (Feb. 2, 1982); Coalition Request for Hearing (Feb. 22, 1982).³

The Commission itself initially addressed the Coalition's intervention request "in order to clarify for all concerned the nature of the issues that can be asserted in challenging a permit holder's extension request." CLI-82-29, 16 NRC 1221, 1223 (1982). The Commission reviewed the structure of the Atomic Energy Act with its two-stage licensing process and deduced from it no congressional intent to require the "periodic relitigation of health, safety, or environmental questions" in the context of construction permit extension proceedings. *Id.* at 1228. The Commission deems the operating license proceeding, and the opportunity of any person to request the NRC staff at any time to institute a show-cause proceeding, sufficient

¹ In the meantime WPPSS filed its application for an operating license. The Commission published a notice of opportunity for hearing (43 Fed. Reg. 32338 (July 26, 1978)), but the only prospective intervenors were found to lack standing to intervene. See LBP-79-7, 9 NRC 330 (1979). Accordingly, the operating license application is uncontested.

² In particular, WPPSS cited the following factors:

1. Changes in the scope of the project, including increases in the amount of material and engineering required as a result of regulatory actions (in particular those subsequent to the Three Mile Island accident);
2. Construction delays and lower than estimated productivity, resulting in delays in installation of material and equipment and in completion of systems necessitating rescheduling of preoperational testing;
3. Strikes by portions of the construction work force;
4. Changes in plant design;
5. Delays in delivery of equipment and materials.

See Letter to Harold R. Denton, Director, Office of Nuclear Reactor Regulation, from G. D. Bouchey, Director, Nuclear Safety, WPPSS (Sept. 4, 1981).

³ The Coalition has not questioned the Director's authority to issue the extension without prior notice. We see no reason to discuss that possible issue in this opinion because, in any event, applicant's timely request for an extension would likely continue its construction permit authority in effect until the request was acted upon. See Administrative Procedure Act, Section 9(b), 5 U.S.C. §558(c); 10 CFR §2.109. See also *Sholly v. Nuclear Regulatory Commission*, 651 F.2d 780 (D.C. Cir. 1980), *vacated and remanded* "to consider the question of mootness and, should the cases not be moot, for further consideration in light of Pub. L. No. 97-415." 51 U.S.L.W. 3610 (U.S. Feb. 22, 1983).

to assure an available forum in which to raise these questions. *Id.* at 1228-29. Accordingly, the Commission decided that under its regulations the focus of a construction permit extension proceeding should be the "reasons that have contributed to the delay in construction and whether those reasons constitute 'good cause' for the extension." *Id.* at 1228. The admissibility of a particular contention is to be judged therefore on whether it falls within that scope and otherwise meets the Commission's pleading requirements. *See* 10 CFR §2.714(b).

Applying that principle, the Commission ruled inadmissible a series of the Coalition's contentions that dealt primarily with health, safety, and environmental matters. These contentions neither challenged the applicant's reasons for its construction delay nor sought to show that other reasons, not constituting good cause, were the principal bases for the delay. CLI-82-29, *supra*, 16 NRC at 1230. The Commission further ruled that only one of the Coalition's contentions — alleging that "delays in construction have been under the full control of the WPPSS management" — fell within the proper scope of a Section 185 construction permit extension proceeding. As to that one contention, the Commission decided that "[t]o the extent [the Coalition] is seeking to show that WPPSS was both responsible for the delays and that the delays were dilatory and thus without 'good cause' this contention, if properly particularized and supported, would be litigable." *Id.* at 1231.

The Commission referred that issue to the Licensing Board, which allowed the Coalition an opportunity to flesh out its "mismanagement" contention. As supplemented, the Coalition's contention tracks the language of the Commission's opinion and is supported by references to congressional and state legislative reports that discussed the WPPSS management problems. Supplement to Request for Hearing and Petition for Leave to Intervene (Jan. 10, 1983) ("Supplemental Petition").⁴ The cited congressional report refers to severe quality assurance problems, lost records, inadequate testing data, falsification of certain records, and WPPSS difficulties in managing a large array of contractors. *Id.* at 2. The Washington State Senate Energy and Utilities Committee is quoted as having concluded that "WPPSS mismanagement has been the most significant cause of cost overruns and schedule delays on the WPPSS projects." *Id.* at 3.

As noted, the applicant contends that labor difficulties, low productivity, and materials and engineering delays were beyond its control and justified the extension of its permit. The Coalition, however, argues that these problems are the fault

⁴ The contention that the Coalition seeks to have admitted reads as follows:

Petitioner contends that delays in the construction of [WPPSS 1 and 2] have been under the full control of the WPPSS management. The Applicant was responsible for the delays and the delays were dilatory and thus Applicant has not shown the "good cause" as required by 10 CFR 50.55(b).

Supplemental Petition at 1. Although the Coalition's pleading refers to WPPSS 1 as well as WPPSS 2, the Licensing Board's decision before us for review is confined to WPPSS 2.

of management, the principal cause of construction delays at WPPSS 2, and evidence of the absence of good cause for applicant's request. *See id.* at 4-5. In short, while the Coalition does not claim that the applicant consciously set out to delay construction of the plant, it is the Coalition's position that WPPSS' documented mismanagement has prevented the timely construction of the plant. That claim, the Coalition contends, is cognizable in a construction permit extension proceeding and sufficiently particularized in its petition. *See Prehearing Conf. Tr.* 50-53.

II. ANALYSIS

The Commission's opinion propounds a two-pronged test for determining whether the Coalition's contention is within the scope of this construction permit extension proceeding. First, the construction delays at issue have to be traceable to the applicant. Second, the delays must be "dilatatory." If both prongs are met, the delay is without "good cause." CLI-82-29, *supra*, 16 NRC at 1231.

Plainly, the Coalition satisfies the first aspect of the Commission's test. The legislative reports on which it relies cite serious management failures and lay those failures directly on the applicant's doorstep. The troublesome questions are what the Commission meant by "dilatatory," and whether the Coalition has met that prong of its test. The Licensing Board rejected both the applicant's suggestion that "intentional delay" was meant, and the Coalition's position that a "tendency to delay" was all that was necessary. Memorandum and Order at 5. Instead, the Board took a middle path, believing the Commission to have used the term "as it is commonly used to describe litigation tactics, as *intending* to cause delay or being *indifferent* to the delay that might be caused." *Id.* at 6 (emphasis in original). While the Board found that the Coalition had alleged indifference by the applicant to the delays it had caused, it nevertheless ruled that the Coalition had "particularized and supported only matters relating to alleged mismanagement that resulted in delays" and that that was insufficient. *Ibid.*

If we were to agree with the Licensing Board's understanding of the Commission's guidance, we would be constrained to reverse the Board. In our view, the documentation the Coalition submitted of applicant's persistent mismanagement problems is sufficient to support an inference that the applicant has been indifferent to the timely completion of the WPPSS 2 project. No further particularization in support of that inference is necessary.⁵

⁵ This is not to say that the mismanagement claims are accurate. At the pleading stage all that is required is that the contention be specific and have a basis. Whether or not the contention is true is left to litigation on the merits in the licensing proceeding. *See Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542 (1980).

However, in our view, the Licensing Board has misconstrued the Commission's guidance. The question is undoubtedly a close one, but we agree with the position taken by the applicant and the NRC staff that dilatory conduct in the sense used by the Commission means the intentional delay of construction without a valid purpose.⁶ The ordinary usage of the term allows for such a reading, and the Commission's opinion and the policy reasons it advances support a more restrictive meaning than the Licensing Board assigned.

The dictionary definition of dilatory — "tending or intended to cause delay or to gain time or to put off a decision" — could support either the Licensing Board's reading or our own.⁷ However, the Licensing Board's reading that dilatory conduct is demonstrated by allegations of applicant indifference accords the second prong of the Commission's two-pronged test little, if any, meaning. The first prong already requires that the delay be traceable to the applicant, either through its action or inaction. It is difficult to posit a situation of such applicant-caused delay where the applicant has not been at least indifferent to the construction delay. Thus, the Commission must have meant something more than "passive responsibility" by its use of dilatory.

So too, case law usage tilts more toward the meaning we have ascribed. For example, the Supreme Court in *Polk County v. Dodson*, 454 U.S. 312, 323 n.14 (1981), implied that the comment (found in the American Bar Association Standards for Criminal Justice) that it is unprofessional for lawyers to present "dilatory or frivolous motions" refers to intentional action without a valid purpose. Reflecting a similar theme of intentional action without a valid purpose is the Court's caveat that, "[i]n the absence of any apparent or declared reason — such as undue delay, bad faith or dilatory motive," leave to amend a complaint should be freely given. *Foman v. Davis*, 371 U.S. 178, 182 (1962). See also *Link v. Wabash R.R.*, 370 U.S. 626, 633-34 (1962).

The policy reasons advanced by the Commission suggest the same result. The Commission's opinion points out that 10 CFR §2.206 affords all persons the opportunity to raise whatever health, safety, or environmental concerns the construction or operation of a nuclear power plant may cause them. The Section 2.206 remedy is taken seriously, is available at all times, and provides the bridge the

⁶ Thus, for example, an intentional slowing of construction because of a temporary lack of financial resources or a slower growth rate of electric power than had been originally projected would constitute delay for a valid business purpose. As with these examples, the purpose and the action taken must be consistent with the Atomic Energy Act and implementing regulations.

⁷ See Black's Law Dictionary 411 (5th ed. 1979). We agree with the Licensing Board that the Commission could not have used dilatory as meaning "tending to cause delay" without rendering the Commission's guidance meaningless.

If the Commission had intended to use dilatory in its broadest sense, it would not have established a 2-part test, because if [applicant] were responsible for the delays, its actions would *a fortiori* be dilatory in its broadest sense since one's acts cannot have caused delay without having tended to cause delay.

Memorandum and Order at 6.

Commission expects a litigant to use in most instances between the construction permit and operating license proceedings. CLI-82-29, *supra*, 16 NRC at 1228-29.⁸ The import of the Commission's opinion is that a construction permit extension proceeding should not have a much greater scope than is statutorily mandated.⁹

In this connection, we note that the ultimate "good cause" determination called for by Section 185 of the Atomic Energy Act is whether good cause exists to *extend* the construction completion date. The statutory focus is not so much (or at least, not exclusively) on an applicant's past conduct, but rather on the future. Plainly then, that ultimate "good cause" determination is expected to encompass a judgment about why the plant should be completed and is not to rest solely upon a judgment as to the applicant's fault for delay.

We recognize that the Commission's implementing regulation, 10 CFR §50.55(b), does not track the statute in all respects and focuses on whether the applicant was responsible for the delay. But as we discern the Commission's intent, its regulation and guidance suggest that, unless the applicant was responsible for the delays and acted in a dilatory manner (*i.e.*, intentionally and without a valid purpose), a contested construction permit extension proceeding is not to be undertaken at all. Moreover, even if a properly framed contention leads to such a proceeding and is proven true, the statute and implementing regulations do not erect an absolute bar to extending the permit. A judgment must still be made as to whether continued construction should nonetheless be allowed.

⁸ Indeed, here, the Coalition did not even seek to intervene in the WPPSS 2 operating license proceeding. See LBP-79-7, *supra*, 9 NRC 300. The fact that the operating license is uncontested, however, does not mean that an operating license automatically issues. We take this occasion to repeat what we said in *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 NRC 881, 895-96 (1981), *affirmed sub nom. Fairfield United Action v. Nuclear Regulatory Commission*, 679 F.2d 261 (D.C. Cir. 1982):

[A]n operating license may not issue unless and until this agency makes the findings specified in 10 CFR 50.57 — including the ultimate finding that such issuance "will not be inimical to * * * the health and safety of the public".

⁹ The Commission has recently forwarded proposed legislation to Congress that seeks, among other things, to eliminate the requirement of Section 185 of the Atomic Energy Act to specify a construction completion date. See Letters to the Honorable Thomas P. O'Neill, Jr., and the Honorable George H. Bush from Chairman Nunzio J. Palladino (Feb. 21, 1983). The Commission's legislative proposal is relevant not because a legislative proposal alters existing law, but rather because it reinforces the view that the Commission would not by regulation expand Section 185 proceedings to discretionary areas. It thus suggests that the narrower definition of dilatory was the one meant by the Commission. The section-by-section analysis accompanying the Commission's proposal explains that:

This legislation would delete the requirement for specification of the earliest and latest completion dates for construction permits. The existing provision has produced unnecessary paperwork and expenditure of resources without assuring that construction is diligently pursued. Moreover, the provision in current section 185 for earliest and latest completion dates made sense when it was included in the Act in 1954 because the Federal Government would be owning the fuel and would need to allocate special nuclear material between the civilian nuclear power and defense programs. It was important for AEC to predict completion dates (and hence operation commencement dates) with accuracy so that civilian requirements for special nuclear material could be predicted accurately and planned for properly. The Federal Government no longer allocates fuel and has a much lesser need to predict completion dates accurately. Thus, the provision is no longer needed to serve the purpose for which it was adopted.

We need not attempt to define what kinds of issues might bear upon this ultimate "good cause" determination. Suffice it to say that on this record the Coalition never claimed (let alone particularized) that the applicant's delays in constructing WPPSS 2 were intentional and lacking a valid purpose. Coalition Brief (March 10, 1983) at 2, 4; Prehearing Conf. Tr. 51. For that reason the Licensing Board's decision dismissing the intervention petition and request for hearing is *affirmed*.¹⁰

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

Id., Enclosure 2 at Section 101.

¹⁰ As noted the Coalition can pursue its allegations, if it so chooses, through the 10 CFR §2.206 procedure.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL PANEL

Alan S. Rosenthal, Chairman

In the Matter of

**Docket Nos. STN-50-556
STN-50-557**

**PUBLIC SERVICE COMPANY OF
OKLAHOMA, et al.**

**(Black Fox Station, Units 1
and 2)**

April 14, 1983

The Appeal Panel Chairman grants the applicants' motion to terminate, on ground of mootness, the Appeal Board's jurisdiction over the single remaining appellate issue in the proceeding, following the applicants' withdrawal of their construction permit application and termination of the proceeding by the Licensing Board.

CONSTRUCTION PERMIT PROCEEDING: TERMINATION

A licensing board's vacation, upon termination of the proceeding, of its earlier decision authorizing the issuance of a Limited Work Authorization is not necessarily cause for vacation of the Appeal Board's affirmance of the earlier Licensing Board decision. The precedential value of an ultimate appellate determination on a generic legal issue litigated in a particular proceeding should not hinge upon the presence or absence of wholly extraneous subsequent developments in that proceeding.

APPEARANCES

Joseph Gallo and Lisa C. Styles, Washington, D.C., for the applicants, Public Service Company of Oklahoma, et al.

MEMORANDUM AND ORDER

1. In ALAB-573, 10 NRC 775 (1979), an appeal board affirmed in part a partial initial decision paving the way for the issuance under 10 CFR 50.10(e) of a limited work authorization (LWA) for the Black Fox facility.¹ The Board retained jurisdiction over one 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. As ALAB-573 explained, that generic issue was then pending in *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3) on consolidation of several individual licensing proceedings. 10 NRC at 807.

Last November, the appeal boards in *Peach Bottom* rendered their ultimate decision on the radon issue. ALAB-701, 16 NRC 1517 (1982). The application of the conclusions reached in that decision to other proceedings was deferred, however, to await the outcome of possible Commission review of ALAB-701. *Id.* at 1529 fn. 23. As matters currently stand, the Commission has before it a petition for such review but as yet has not acted upon it.

2. A month ago, the Licensing Board in this proceeding granted, subject to certain conditions, the applicants' motion seeking (1) leave to withdraw without prejudice their application for construction permits for the Black Fox facility, and (2) a termination of the proceeding.² In the same order, the Board vacated its 1978 partial initial decision (*see* fn. 1, *supra*) and authorized the revocation by the Director of Nuclear Reactor Regulation of the outstanding LWA.

Given this development, the radon issue is now clearly moot insofar as this proceeding is concerned. Without objection, the applicants have moved on that ground to terminate the appellate jurisdiction retained in ALAB-573 with regard to the issue. The motion is hereby *granted*.

3. The Licensing Board's vacation of its 1978 partial initial decision may have been prompted by our action in *Rochester Gas and Electric Corp.* (Sterling Power Project, Nuclear Unit No. 1), ALAB-596, 11 NRC 867 (1980). In that proceeding, the Licensing Board had rendered in 1977 an initial decision authorizing the issuance of a construction permit for the Sterling facility.³ On appeal, we had affirmed the decision on most of the issues presented but had retained jurisdiction over both the generic radon issue and the question of the need for the power to be generated by the facility. ALAB-502, 8 NRC 383 (1978), *affirmed*, CLI-80-23, 11 NRC 731 (1980). Thereafter, because of the loss of a necessary state approval to

¹ LBP-78-26, 8 NRC 102, *as modified*, LBP-78-28, 8 NRC 281 (1978).

² March 7, 1983 memorandum and order (unpublished). The basis of the motion was the applicants' determination to cancel their plans to build the facility.

³ LBP-77-53, 6 NRC 350.

build the facility, the applicants moved before us to terminate the construction permit proceeding. In granting that relief, we took yet another step:

[A]s the NRC staff correctly points out in its response to the applicants' termination request, there remains the question as to the status, once the proceeding has been terminated, of the construction permit which was issued by the Director of Nuclear Reactor Regulation on the strength of the initial decision. Although the applicants have sidestepped that question, its answer is dictated by considerations of fundamental fairness. Had the intervenor's appeal been prosecuted to a successful conclusion, the possible consequence would have been not merely the reversal of the initial decision, but, as well, the revocation of the construction permit. Surely, the applicants cannot improve their position — *i.e.*, insure the retention of the permit — by having us terminate the proceeding and thus bring a halt to the appeal.

The Supreme Court has illuminated the path which should be followed in the circumstances which confront us here. Specifically, the appropriate course is to couple the grant of the applicants' request with a vacation of the initial decision on the ground of mootness. *United States v. Munsingwear*, 340 U.S. 36, 39-41 (1950). See also *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-455, 7 NRC 41, 55 (1978), *remanded on other grounds, sub nom. State of Minnesota v. NRC*, 602 F.2d 412 (D.C. Cir. 1979). The effect of this action will be to remove the authority underlying the issuance of the construction permit. This will, in turn, call upon the Director of Nuclear Reactor Regulation to perform the ministerial duty of revoking the permit — *i.e.*, the same duty that he would have had to discharge in the event that our appellate review of the merits of the initial decision had led us to conclude that the Licensing Board erroneously had authorized permit issuance.

11 NRC at 868-69 (footnote omitted).

At the same time, however, we did not go still further and vacate also our affirmance in ALAB-502 of the initial decision on all but the radon and need for power issues. Although not explicated in ALAB-596, the reason is discernible. On the one hand, the vacation of the initial decision was all that might have been necessary to accomplish the desired result of removing "the authority underlying the issuance of the construction permit." On the other hand, a vacation of ALAB-502 would have had the effect of stripping controlling precedential significance from the several holdings in that decision on generic legal questions. Indeed, it might even have cast doubt on the continued vitality of the Commission's explicit affirmance in CL1-80-23, *supra*, of one of those holdings. Assuredly, the happenstance that the *Sterling* applicants had been compelled by state action to abandon their plans to build the facility provided insufficient justification for such an outcome. Stated otherwise, the precedential value of an ultimate appellate

determination on a generic legal issue litigated in a particular proceeding should not hinge upon the presence or absence of wholly extraneous subsequent developments in that proceeding.

In the case at bar, the same considerations are present. It may or may not have been necessary for the Licensing Board to vacate its 1978 partial initial decision in order to clear the path for the revocation of the outstanding LWA for the Black Fox facility. But, manifestly, the vacation of ALAB-573 is not a precondition to the accomplishment of that objective. And, were ALAB-573 now to be withdrawn, the rulings in it on generic legal issues perforce would lose much, if not all, of their vitality. Further, as in *Sterling*, the Commission itself took up and rendered its own decision on one of the issues addressed by the Appeal Board. See CLI-80-8, 11 NRC 433 (1980). See also (on remand), ALAB-587, 11 NRC 474 (1980). There is at least room for question as to what the future status of CLI-80-8 might be were ALAB-573 vacated.

It need be added only that the situation at hand is markedly different from that in such cases as *Puget Sound Power and Light Co.* (Skagit Nuclear Power Project, Units 1 and 2), CLI-80-34, 12 NRC 407 (1980). There, unlike here, the termination of the construction permit proceeding occurred while the Commission still had before it for possible review an appeal board decision on an interlocutory matter. Because that decision thus had not achieved finality — *i.e.*, might have been overturned or modified had Commission review gone forward — the Commission understandably vacated it on mootness grounds.

In sum, the grant of the applicants' motion to terminate the appellate jurisdiction retained in ALAB-573 had no effect upon any other portion of that decision. The legal conclusions in ALAB-573 not altered by the Commission in CLI-80-8, *supra*, retain such force as they would have possessed but for the election of the applicants to abandon the proposal to build the Black Fox facility.

It is so ORDERED.

FOR THE APPEAL PANEL
CHAIRMAN

C. Jean Shoemaker
Secretary to the
Appeal Panel

This action was taken by the Appeal Panel Chairman under the authority of 10 CFR 2.787 (b).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Gary J. Edles, Chairman
Dr. John H. Buck
Dr. Reginald L. Gotchy

In the Matter of

Docket No. 50-289
(Design Issues)

METROPOLITAN EDISON COMPANY, et al.
(Three Mile Island Nuclear
Station, Unit No. 1)

April 20, 1983

The Appeal Board issues a memorandum to alert the parties and the Commission to (1) certain safety questions raised by information contained in a Board Notification and two license event reports, which are outside the scope of this adjudicatory proceeding and are in need of exploration before any restart of the plant; and (2) announce the Board's intention to premise any decision it may reach with regard to design issues on the assumption that those safety questions will be resolved outside the adjudicatory context.

MEMORANDUM

We have before us appeals from a Licensing Board decision disposing of various issues regarding plant design and procedures in connection with the proposed restart of Unit 1 at the Three Mile Island Nuclear Station. LBP-81-59, 14 NRC 1211 (1981). The design and procedures issues are limited to those that have a nexus either to the specific TMI-2 accident (*i.e.*, an accident involving a loss of main feedwater or a small break loss of coolant) or to questions which that accident

raised about whether TMI-1 could be operated safely.¹ On at least one occasion on which we sought permission to pursue safety questions not having such a nexus, the Commission, as is its prerogative, elected to pursue those questions itself.²

Two safety matters have recently surfaced which we believe require careful and prompt consideration. For the following reasons, we have decided that we are unable to pursue them but that they should nonetheless be brought to the Commission's attention now.

On April 12, 1983, we received "Board Notification Regarding the Need for Rapid Primary System Depressurization Capability in PWRs" (BN-83-47), dated April 4, 1983. This notification concerned a memorandum from Roger J. Mattson, Director, Division of Systems Integration, Office of Nuclear Reactor Regulation, which presented the NRC staff conclusion that, in the event of a steam generator tube rupture in some Westinghouse or Babcock & Wilcox designed plants (including TMI-1), the best accident mitigation procedure is to depressurize the primary system rapidly by use of the power-operated relief valve (PORV). Given that conclusion, the staff now believes that the PORV must meet all safety-grade criteria. This constitutes a shift from the staff's previous position on appeal.³

Since receiving BN-83-47, we have noted two licensee event reports from H. D. Hukill, Vice-President, GPU Nuclear Corporation, to R. C. Haynes, Regional Administrator for Region I. These publicly available reports, dated October 28, 1982 (LER 82-011/99X-0) and March 7, 1983 (LER 83-003/01T-0), indicate that the last two PORV valves removed from TMI-1 (the first in the summer of 1981 and its replacement in February of 1983) were found to be heavily corroded and probably would not have functioned if they had been needed. According to the reports, the corrosion appeared to be due to sulphur; elemental sulphur was found in the replacement valve.

As noted above, our appellate review is necessarily limited to the requirements for the use of the PORV in incidents that have a nexus to the TMI-2 accident. In this connection, the Licensing Board found that the PORV need meet only those safety-grade design criteria applicable to its role as part of the reactor coolant system pressure boundary. 14 NRC at 1282. Although the intervenor Union of Concerned Scientists has raised in general terms the argument that the PORV must meet all safety-grade criteria, we do not believe that we may evaluate the issues

¹ See CLI-79-8, 10 NRC 141 (1979) and ALAB-705, 16 NRC 1733, 1743 (1982). Cf. CLI-83-5, 17 NRC 331 (1983).

² CLI-82-12, 16 NRC 1 (1982). Our authority to consider new matters is discussed in ALAB-685, 16 NRC 449, 452 n.5 (1982).

³ See NRC Staff's Brief in Response to the Exceptions of Others to the Licensing Board's Partial Initial Decision on Plant Design and Procedures, Separation and Emergency Planning Issues (May 20, 1982) at 23-24.

raised in BN-83-47 because they stem from matters outside the scope of this proceeding.⁴

The Commission, however, is examining a number of safety issues as part of its immediate effectiveness review, including issues outside the hearing record such as those associated with the steam generators. It should be reasonably close to making a decision as to whether or not TMI-1 should be allowed to resume operations.⁵ In our view, the issues raised in BN-83-47 and the licensee event reports have a direct nexus to the steam generator issues now under review by the Commission and should be explored before restart. We are also concerned that the corrosion problem noted with respect to the PORVs may also affect the safety relief valves, particularly now that the loop seals have been eliminated.

In sum, we believe it desirable to alert the parties and the Commission as promptly as possible to the matters which we have noted above. In addition, we think it useful to announce our intention to premise any decision we may reach with regard to design issues on the assumption that the problems involving use of the PORV during steam generator tube break accidents and the corrosive contamination present will be resolved outside the adjudicatory context.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

⁴ Quite apart from that controlling consideration, it is worthy of note that this proceeding has already been the subject of lengthy adjudicatory hearings and ongoing appeals. We heard oral argument on September 1, 1982. On December 29, following the receipt of several Board notifications and extensive comments by the parties, we were compelled to reopen the record in order to clarify various inconsistencies in the parties' positions and the testimony regarding certain methods of decay heat removal. We held four days of evidentiary hearings between March 7 and 17, 1983, supplemental briefs were filed on April 12, and our decision is nearing completion. No party has asked us to reopen the record to examine matters raised in BN-83-47, and we now anticipate that we will be able to issue our decision no later than May 31, 1983.

⁵ Under present Commission practice, a licensing board decision authorizing the commencement (or, in this case, resumption) of operations is reviewed by the Commission to determine whether it shall become effective pending administrative appellate review. *See generally* 10 CFR §2.764(b).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Thomas S. Moore, Chairman
Dr. John H. Buck
Christine N. Kohl

In the Matter of

Docket No. 50-155-OLA
(Spent Fuel Pool Modification)

CONSUMERS POWER COMPANY
(Big Rock Point Nuclear Plant)

April 27, 1983

The Appeal Board vacates the Licensing Board's order (LBP-82-97, 16 NRC 1439 (1982)) requiring applicant to amend its spent fuel pool modification application and remands to the Licensing Board with instructions to make findings on the adequacy of the applicant's criticality analysis contingent upon the reliability of a remotely controlled makeup line the applicant plans to install.

REGULATORY GUIDES: APPLICATION

"General design criteria (GDC), as their name implies, are 'intended to provide engineering goals rather than precise tests or methodologies by which reactor safety [can] be fully and satisfactorily gauged.' *Nader v. NRC*, 513 F.2d 1045, 1052 (1975). . . . Through regulatory guides, standard format and content guides for safety analysis reports, Standard Review Plan provisions, and Branch Technical Positions, license applicants are given guidance as to acceptable methods for implementing the general criteria. However, applicants are free to select other methods to achieve the same goal." *Petition for Emergency and Remedial Action*, CLI-78-6, 7 NRC 400, 406-07 (1978).

REGULATORY GUIDES: APPLICATION

Although they are entitled to considerable weight, regulatory guides and the like do not have the force of regulations. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), CLI-74-40, 8 AEC 809, 811 (1974).

REGULATORY GUIDES: APPLICATION

Regulatory guides and the like do not prescribe maximum design objectives and the sole means of obtaining them. In some circumstances, it may well be appropriate to require a higher level of performance or more stringent measures of compliance. In the same vein, consideration of accidents other than those postulated in staff guidance may be warranted. *See e.g., Florida Power and Light Co.*, (St. Lucie Nuclear Power Plant, Unit No. 2) ALAB-603, 12 NRC 30, 45 (1980) (consideration of loss of all AC power).

TECHNICAL ISSUES DISCUSSED

Spent fuel pool loss of coolant;
Spent fuel pool criticality;
Neutron multiplication factor (K_{eff});
Optimum moderation.

APPEARANCES

Joseph Gallo, Washington, D.C. (with whom **Peter Thornton**, Chicago, Illinois, was on the brief), for applicant Consumers Power Company.

Herbert Semmel, Washington, D.C., for intervenors Christa-Maria, Bier, and Mills.

John O'Neill, II, Maple City, Michigan, intervenor *pro se*.

Richard G. Bachmann for the Nuclear Regulatory Commission staff.

DECISION

In one of a series of partial initial decisions in this proceeding, the Licensing Board concluded that Consumers Power Company's proposed modification to the

spent fuel pool at the Big Rock Point facility did not comply with the Commission staff's guidance on the neutron multiplication factor. As a result, the Board ordered Consumers Power essentially to perform additional analysis and to amend its application to conform to that guidance. The Board also ordered the NRC staff to review and evaluate the applicant's filing. LBP-82-97, 16 NRC 1439, 1440, 1457-58 (1982). Consumers Power has appealed.¹

As explained below, we disagree with the Licensing Board's interpretation of staff guidance on criticality calculations for spent fuel pools. Accordingly, we vacate the order requiring Consumers Power to amend its application and remand the matter with instructions to the Board to take specified further action.

I.

The matter at hand arises from intervenor John O'Neill's contention IIE-3, which states:

The application has not adequately analyzed the possibility of criticality occurring in the fuel pool because of the increased density of storage without a gross distortion of the racks.²

Consumers Power and the staff moved for summary disposition of this issue. See 10 CFR §2.749. The Licensing Board, however, denied the motions on the basis of its agreement with other intervenors (Christa-Maria, *et al.*) that the applicant's criticality calculations may not have been conservative enough. The Board also raised questions concerning the adequacy of the staff's review of the calculations. LBP-82-7, 15 NRC 290, 292-93 (1982). Further, in another memorandum and order issued shortly thereafter, the Licensing Board indicated that the applicant and staff should address at the upcoming hearing on O'Neill contention IIE-3 whether the Big Rock Point spent fuel pool might reach supercriticality if it were to begin boiling. The Board's concern on this matter was prompted by an article cited in an affidavit submitted by Mr. O'Neill in connection with a different contention. LBP-82-8, 15 NRC 299, 332-33 (1982).³

¹ The Licensing Board originally gave Consumers Power 60 days in which to amend its application. In response to the applicant's motion for a stay of that deadline, the Board extended the time in which Consumers Power must comply to 60 days from the issuance of our decision disposing of the appeal. Memorandum and Order of Dec. 7, 1982 (unpublished), at 3.

² A system containing fissionable material — such as a spent fuel pool — is "critical," or "supercritical," if it is capable of supporting a neutron chain reaction. This condition is expressed in terms of the "effective neutron multiplication factor" (k_{eff}) — *i.e.*, the ratio of the number of neutrons produced by fission in each generation to the number of neutrons lost by absorption and leakage. Thus, when a system is critical or supercritical, k_{eff} equals or is greater than 1.0.

³ See Cano, Caro, and Martinez-Val, *Supercriticality through Optimum Moderation in Nuclear Fuel Storage*, 48 Nuclear Technology 251 (1980).

At the hearing, the applicant and staff presented the testimony of several witnesses. Although the intervenors did not file testimony or present their own witnesses, they participated extensively with the Board itself in cross-examination of the applicant and staff witnesses.

In its partial initial decision, the Licensing Board thoroughly recounted the witnesses' testimony on the water temperature and density parameters of the criticality analyses. LBP-82-97, *supra*, 16 NRC at 1444-51.⁴ With respect to one of the applicant's witnesses in particular, Dr. Yong S. Kim, the Board now found his revised analysis of k_{eff} to be "thorough and persuasive." *Id.* at 1447.⁵ The Board was less enthusiastic about the analysis and testimony of staff witness Edward Lantz. *Id.* at 1449-51. The Board thus concluded that, for a scenario that assumes loss of all pool cooling systems and the beginning of boiling, Dr. Kim's criticality analysis was preferable. The Board, however, viewed his calculations as "non-conservative" because they did not "adequately consider the possibility of extended boil-off, as might occur during a TMI-2 type incident in which the containment could not be entered to gain access to the fuel pool." *Id.* at 1451.⁶ The Board acknowledged that "this extended boil-off might be averted if the [remotely controlled] makeup line applicant is installing is reliable." But because " k_{eff} is intended to remain above [sic] 0.95 for *all* conditions in the pool," the Licensing Board concluded that "it is not proper . . . to consider a makeup line as mitigation of this requirement." *Ibid.* See also *id.* at 1456-57.

The Board then explored the possibility of supercriticality occurring when all or a substantial part of the water in the spent fuel pool boils away and is replaced by mist or some other form of low density water — a condition characterized as "optimum moderation." *Id.* at 1451-53. See 48 Nuclear Technology 251, *supra* note 3. Dr. Kim testified that no criticality analysis for that condition at Big Rock Point had been performed. He opined, however, that it was extremely unlikely, given the remotely controlled makeup line, that the water in the pool would boil away enough to effect a supercritical condition. He also noted that the article relied on by the Board (*see* note 3, *supra*) indicates that, at very low water densities in a pool with racks like those at Big Rock Point, the maximum k_{eff} would in any event be approximately 0.97 and thus below criticality. *Id.* at 1451. Mr. Lantz, for the staff, testified to his belief that additional calculations would show k_{eff} decreasing

⁴ The Board's decision also covers other aspects of the criticality analyses that are not at issue in this appeal.

⁵ That analysis, which assumed the failure of all pool cooling systems, used an average temperature of 224.5°F along the length of the fuel bundles and assumed a 20.6 percent steam void. Dr. Kim's calculations yielded a k_{eff} of 0.9470, below the 0.95 acceptance criterion of the Commission's Standard Review Plan for spent fuel storage. See NUREG-0800, "Standard Review Plan," Revision 3 (July 1981), §9.1.2, at 9.1.2-4.

⁶ Unlike most facilities, the spent fuel pool at Big Rock Point is housed within the reactor containment building rather than in a separate structure.

with decreasing water density, thus precluding a supercritical condition. *Id.* at 1452. Nonetheless, the Board expressed its “substantial uncertainty about whether k_{eff} . . . for the Big Rock spent fuel pool would be higher or lower than 0.95 at very low water densities.” *Id.* at 1453.

The Licensing Board emphasized that “the 0.95 k_{eff} limitation generally applied by the staff should be rigorously applied to spent fuel pools, including application to all conditions that may be found in those pools.” *Id.* at 1456. The Board found further support for its view in the staff’s Safety Evaluation Report (“SER”) for this proceeding. It states that “the neutron multiplication factor in spent fuel pools shall be less than or equal to 0.95, including all uncertainties, under all conditions, throughout the life of the racks.” Staff Exhibit 1, SER, at 3-2. Seeing no reason to depart from the terms of the SER or other more generalized staff guidance, the Board directed the applicant, pursuant to staff review, to demonstrate — presumably either through further calculations and analysis or by modification of its proposed method of enlarging the storage capacity of the pool — that k_{eff} will not exceed 0.95 at extremely low water densities.

II.

Consumers Power argues that the Licensing Board erred in refusing to take account of the remotely controlled makeup line the applicant plans to install. According to Consumers Power, this engineered safety feature will prevent loss of coolant in the spent fuel pool, should all other normal means of cooling fail, and thus preclude the condition leading to supercriticality postulated by the Board. It argues that, contrary to the Board’s belief, relevant Commission standards and guidance on performing criticality analyses for spent fuel pools permit credit to be taken for features designed to prevent supercriticality. Moreover, the accident specified by the Board — significant loss of pool water through boiling — is not the type of accident that must be considered for criticality purposes. The applicant therefore objects to the Board’s order requiring it to demonstrate that k_{eff} will not exceed 0.95 at very low water densities in the pool. Instead, it proposes (as it did before the Licensing Board) that the Board make its finding on the criticality contention contingent upon a finding that the remotely controlled makeup line will be reliable — a matter that remains to be litigated. Consumers Power Brief (Dec. 16, 1982) at 5; App. Tr. 7. Finally, the applicant contends that, if a criticality analysis must be performed for the scenario postulated by the Board, the proper acceptance criterion against which such calculations should be measured is 0.98. This is the value for k_{eff} specified in the Standard Review Plan (“SRP”) for *new* fuel stored under a condition of optimum moderation. *See* NUREG-0800, “Standard Review Plan,” Revision 2 (July 1981), §9.1.1, at 9.1.1-4.

The staff takes a position similar to that of the applicant, although it does not agree that reliance on the Standard Review Plan acceptance criterion for new fuel

storage is appropriate. Intervenors O'Neill and Christa-Maria, *et al.*, on the other hand, contend that the Board correctly applied Commission guidance in ordering that k_{eff} must not exceed 0.95 under all conditions (including loss of pool water) and without regard to assertedly reliable engineered safety features.

The issue before us is a very narrow one: must the applicant's criticality analysis assume the loss of a significant amount of pool coolant? The starting point for our discussion is a brief review of the standards and staff guidance for such spent fuel pool analyses.

Two of the Commission's general design criteria ("GDC") are germane.⁷ GDC 61 provides, as pertinent:

Fuel storage and handling and radioactivity control. The fuel storage and handling, radioactive waste, and other systems which may contain radioactivity shall be designed to assure adequate safety under normal and postulated accident conditions. These systems shall be designed * * * (4) with a residual heat removal capability having reliability and testability that reflects the importance to safety of decay heat and other residual heat removal, and (5) to prevent significant reduction in fuel storage coolant inventory under accident conditions.

10 CFR Part 50, Appendix A, §VI. Regulatory Guide 1.13, "Spent Fuel Storage Facility Design Basis," Revision 1 (December 1975), describes methods acceptable to the staff for implementing this criterion.⁸ GDC 62 states:

Prevention of criticality in fuel storage and handling. Criticality in the fuel storage and handling system shall be prevented by physical systems or processes, preferably by use of geometrically safe configurations.

10 CFR Part 50, Appendix A, §VI.

Section 9.1.2 of the Commission's Standard Review Plan sets forth guidance for staff review of applications relating to spent fuel storage "during all credible . . . conditions." As pertinent to this proceeding, it establishes an acceptance criterion for criticality: k_{eff} should not be greater than 0.95 for a pool "when fully loaded

⁷ The Commission discussed general design criteria in *Petition for Emergency and Remedial Action*, CLI-78-6, 7 NRC 400, 406-07 (1978):

General design criteria (GDC), as their name implies, are "intended to provide engineering goals rather than precise tests or methodologies by which reactor safety [can] be fully and satisfactorily gauged." *Nader v. NRC*, 513 F.2d 1045, 1052 (1975). They are cast in broad, general terms and constitute the minimum requirements for the principal design criteria of water-cooled nuclear power plants. There are a variety of methods for demonstrating compliance with GDC. Through regulatory guides, standard format and content guides for safety analysis reports, Standard Review Plan provisions, and Branch Technical Positions, license applicants are given guidance as to acceptable methods for implementing the general criteria. However, applicants are free to select other methods to achieve the same goal. If there is conformance with regulatory guides, there is likely to be compliance with the GDC. Even if there is nonconformance with the staff's guidance to licensees, the GDC may still be met.

See also 36 Fed. Reg. 3255 (Feb. 20, 1971); 10 CFR §50.34(a)(3)(i).

⁸ For example, Regulatory Guide 1.13 refers to the use of a permanent fuel-pool-coolant makeup system to mitigate the effect of small leaks and prevent the fuel from becoming uncovered. Such a system would include water level and radiation monitors to alert personnel to pool leakage.

and flooded with nonborated water." SRP, §9.1.2, *supra* note 5, at 9.1.2-4. According to the Standard Review Plan, meeting GDC 62 "is based on conformance to position C.1 and C.4 of Regulatory Guide 1.13 [which relate to the structure in which the spent fuel pool is housed] and the appropriate paragraphs of ANS 57.2." *Id.* at 9.1.2-3. ANS-57.2, published by the American Nuclear Society, contains the American National Standard design objectives for light water reactor spent fuel storage facilities at nuclear power stations. It, too, provides that k_{eff} shall not be greater than 0.95 "with the racks fully loaded with fuel and flooded with unborated water." Further, the design of the spent fuel racks and pool "shall be based on the maximum enrichment and fissile isotopic content of fuel to be cycled in the plant" — *i.e.*, fresh fuel. ANS-57.2, §5.1.12.1. *See also id.*, §6.6.1(1).

Finally, the staff has compiled pertinent portions of the references necessary to address spent fuel pool modifications in a document known as the Branch Technical Position (Apr. 14, 1978) ("BTP").⁹ It states that k_{eff} "shall be less than or equal to 0.95, including all uncertainties, under all conditions." BTP at III-3. *See also id.* at III-5. More specifically, k_{eff} is to be calculated for "all credible conditions," including "normal storage" (where the fuel is conservatively assumed to be "at the most reactive point in its life") and four postulated accidents (one of which is the "loss of all cooling systems or flow"). *Id.* at III-1, III-2.

In discussing spent fuel pool criticality calculations, the staff's Safety Evaluation Report for the Big Rock Point facility noted that the "0.95 acceptance criterion is based on the overall uncertainties associated with the calculational methods." Staff Exhibit 1, SER, at 3-2. Hence, this criterion has a number of built-in conservatisms: it is calculated on the basis of fresh, unirradiated (and thus highly reactive) fuel, racks with no burnable poisons to absorb neutrons, and unborated water. Further, in addition to a technical specification limiting k_{eff} to 0.95 under these conditions, another technical specification limits the maximum amount of uranium that each fuel assembly may contain. Calculations based on such assumptions, in the staff's view, provide a sufficient margin to preclude criticality. *Ibid.*

Given the uncertainties associated with these calculations, we agree with the Licensing Board that the staff guidance and acceptance criterion for spent fuel pool criticality is entitled to considerable weight.¹⁰ But although purporting to apply

⁹ The cover letter for this BTP carries the following disclaimer: "No additional regulatory requirements are imposed or implied by this document."

¹⁰ Nonetheless, regulatory guides and the like do not have the force of regulations. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), CLI-74-40, 8 AEC 809, 811 (1974). Applicants are free to accomplish the same ultimate objectives by different means (see note 7, *supra*) and, by the same token, other parties are not "precluded from demonstrating that the prescribed method is inadequate in the particular circumstances of the case." *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760, 773 (1977). *Cf.* 10 CFR §50.34(g)(3), 47 Fed. Reg. 11651, 11652 (Mar. 18, 1982), *as corrected*, 47 Fed. Reg. 15569 (Apr. 12, 1982). Simply stated, staff guidance generally sets neither minimum nor maximum standards.

that guidance "rigorously" to the matter at hand (LBP-82-97, *supra*, 16 NRC at 1456), the Board in fact only selectively applied parts of it, thus failing to consider all of the relevant documents.

Most troublesome is the Board's extended focus on statements that k_{eff} should not exceed 0.95 "for all conditions" — a phrase sprinkled, in one form or another, throughout the Safety Evaluation Report, Branch Technical Position, and Standard Review Plan §9.1.2. *Id.* at 1451, 1456, 1457. The Board has interpreted this isolated phrase quite literally, so as to encompass a condition in which the pool, through extended boil-off, is no longer full of water and is enveloped to a significant degree by mist or a comparable form of low density water. The Board's interpretation might be plausible were it not that the two principal documents establishing the 0.95 acceptance criterion clearly state that the criticality calculation is to assume a pool "flooded" with unborated water. *See* SRP, §9.1.2, at 9.1.2-4; ANS-57.2, §5.1.12.1.

Moreover, none of the documents relied on by the Board mentions loss of pool water or a low density water condition as a postulated accident that must be considered for criticality purposes. For example, the portion of the Branch Technical Position devoted to k_{eff} describes four accident scenarios that must be considered, none of which involves a loss of coolant or mist condition. BTP at III-1 - III-2.¹¹ ANS-57.2 describes four categories of "general design conditions," ranging from normal operation to "the most severe incident for which the spent fuel facility must be designed to remain intact." ANS-57.2, §4.2. None specifies a significant or total loss of pool water, extended boil-off, or a mist condition. *Id.*, §§4.2.1, 4.2.2, 4.2.3, 4.2.4. The Standard Review Plan, §9.1.2, refers to, among other things, "[t]he effects of external loads and forces" and "[f]ailures of nonsafety-related systems or structures," but is silent as to the condition posited by the Licensing Board. SRP, §9.1.2, at 9.1.2-1, 9.1.2-5.

We therefore conclude that the Licensing Board imparted an overly broad construction to the staff guidance providing that k_{eff} not exceed 0.95 under all conditions in a spent fuel pool. The phrase "under all conditions" is necessarily limited by the context in which it appears and is intended to be used — most particularly by the statements that calculations of k_{eff} are to assume the pool is

¹¹ The fourth postulated accident assumes a "loss of all cooling systems or flow." BTP at III-2 (emphasis added). This refers to a failure of the pool's cooling loops and related apparatus — a condition assumed and analyzed by Dr. Kim and the applicant's and staff's other witnesses. *See* LBP-82-97, *supra*, 16 NRC at 1444, 1447, 1451. *See also* Staff Exhibit 1, SER, at 3-3-3-4; Kim, fol. Tr. 1419, at 3, 6; Prelewicz, fol. Tr. 1420, at 2.

The Branch Technical Position also states that "[e]xcessive pool water temperatures may lead to excessive loss of water due to evaporation and/or cause fogging." But again, in that context the BTP specifies that consideration be given to "loss of all pool cooling systems" and incorporation of a technical specification to limit pool water temperatures. BTP at III-5. Thus, the focus is on preventing or mitigating excessive water loss, not on requiring analysis of that condition itself.

flooded with unborated water. See ANS-57.2, §5.1.12.1; SRP, §9.1.2, at 9.1.2-4.¹²

The result reached by the Licensing Board is thus not one mandated by strict adherence to the staff guidance on spent fuel pool criticality calculations. As noted earlier, however, regulatory guides and the like do not prescribe maximum design objectives and the sole means of obtaining them. See note 10, *supra*. In some circumstances, it may well be appropriate — indeed, necessary — to require a higher level of performance or more stringent measures of compliance. In the same vein, consideration of accidents other than those postulated in staff guidance may be warranted. See, e.g., *Florida Power and Light Co.* (St. Lucie Nuclear Power Plant, Unit No. 2), ALAB-603, 12 NRC 30, 45 (1980) (consideration of loss of all AC power). The Licensing Board in the case at bar ordered consideration of the boil-off scenario because it felt obliged to do so by the staff guidance. Assuming, however, that the Board would have taken the same action as a matter of discretion, it failed to establish that consideration of this type of accident was justified here.

The principal source of the Board's concern is that extended boil-off "might occur during a TMI-2 type incident in which the containment could not be entered to gain access to the fuel pool." LBP-82-97, *supra*, 16 NRC at 1451. See note 6, *supra*. This concern was fueled further by the Cano article discussing the possibility of supercriticality occurring in a pool under a condition of optimum moderation. See note 3, *supra*.¹³

We agree that the Board's initial interest in the matter was valid. Indeed, the applicant's own witnesses gave some, albeit limited, credence to the scenario hypothesized. For example, in an affidavit filed in support of summary disposition of a different contention, David P. Blanchard addressed the spent fuel pool implications of inaccessibility to containment following a loss-of-coolant accident resulting in reactor core damage. Assuming a fully loaded pool, failure of the pool cooling system, and no makeup water, Mr. Blanchard found that "[t]he amount of time required to boil off all the water above the fuel is approximately one month." Blanchard Affidavit (Oct. 2, 1981) at 8. See also Staff Exhibit 1, SER, at 3-4. Dr. Kim acknowledged that an increase in k_{eff} at very low water densities in pools like Big Rock Point has been recognized in the scientific literature, and that supercriticality could occur "after the pool water boiled away to at least below the level of the storage racks." Kim, fol. Tr. 1419, at 10-12.

¹² The staff's Safety Evaluation Report repeats the "under all conditions" language of the staff guidance and was relied upon by the Board. See LBP-82-97, *supra*, 16 NRC at 1456. Yet the staff clearly did not construe its own guidance as requiring analysis of the extended boil-off condition postulated by the Board and, further, it concluded that Consumers Power's calculations and their underlying assumptions were acceptable. Staff Exhibit 1, SER, at 3-1 - 3-2.

¹³ This article was never admitted or introduced into evidence. Several witnesses, however, discussed it in their testimony in response to the Board's inquiry. See LBP-82-8, *supra*, 15 NRC at 332-33.

Both Dr. Kim and Mr. Blanchard, however, found that extended boil-off in the pool was a very unlikely condition with a remotely controlled makeup line in place. *Id.* at 12-13; Blanchard Affidavit, *supra*, at 9, 11.¹⁴ But the Licensing Board concluded — wrongly, in our view — that it was “not proper . . . to consider a makeup line as mitigation” of the hypothetical extended boil-off scenario. LBP-82-97, *supra*, 16 NRC at 1451. The Board was driven to this position by its belief that the staff guidance required criticality analyses for “all conditions.” As we have shown, the Board misinterpreted that guidance. But more importantly, the Commission’s regulatory requirements themselves permit consideration of means to mitigate criticality in the spent fuel pool.

GDC 62 provides that “[c]riticality . . . shall be prevented by physical systems or processes, preferably by use of geometrically safe configurations.” Given that general design criteria are drafted in intentionally “broad, general terms” (see note 7, *supra*) and that there is no evidence to suggest a contrary meaning, we conclude that the applicant’s remotely controlled makeup line (assuming its reliability is proven) is a “physical system” within the scope of GDC 62.¹⁵ To be sure, its principal function is to prevent a significant coolant loss as required by GDC 61. See p. 567 and note 8, *supra*.¹⁶ But by performing that function, the line will also necessarily aid in preventing criticality as contemplated by GDC 62.¹⁷ Consideration of the makeup line is also fully consistent with the approach of other staff guidance, which recognizes engineered safety features as providing defenses against a range of postulated accidents. For example, Regulatory Guide 1.13 suggests the use of certain design or mechanical features to mitigate the effects of (or prevent) the dropping of heavy loads over the pool.

¹⁴ We have our own doubts about the likelihood of the extended boil-off scenario. In the first place, the Cano article on supercriticality refused to speculate on the circumstances that could lead to an optimum moderation pool environment, and the authors considered the feasibility of such uniformly low water densities “rather questionable.” 48 Nuclear Technology, *supra*, at 251, 260. Second, the work discussed in the article assumed fresh fuel, “in the upper range of enrichments.” *Id.* at 251, 252. Like the fresh fuel Dr. Kim used in his calculations, this fuel has more reactivity than the spent fuel to be stored at Big Rock Point. See Kim, fol. Tr. 1419, at 5. Although the record here does not appear to explore it, we question whether fresh, unirradiated fuel — though more prone to go critical — would be hot enough to cause the pool to boil for a period sufficient to effect a significant water loss. And the corollary question is whether an assemblage of spent fuel — though hot enough to cause boiling in the absence of cooling systems — has enough reactivity to go critical if substantial water were lost.

¹⁵ ANS-57.2, §5.1.9.3.2, specifically contemplates that a makeup system will be the primary means of recovery if the pool begins to boil. See also ANS-57.2, §6.6.1(2)(c).

¹⁶ The staff points out that if the applicant is in compliance with GDC 61, as required, the loss of pool coolant accident contemplated by the Board and O’Neill contention IIE-3 literally is not possible.

¹⁷ There is no claim that the spent fuel pool at Big Rock Point is not designed in a “geometrically safe configuration,” the preferred method of preventing criticality. See generally Consumers Power Exhibit 2, “Spent Fuel Rack Addition Consolidated Environmental Impact Evaluation, Description and Safety Analysis” (April 1982), §§2.1-2.4; Staff Exhibit 1, SER, at 4-1. Thus, in addition to the geometrically safe configuration of the pool, the makeup line helps to assure compliance with GDC 62 because it provides a method of maintaining full coolant inventory, which, in turn, assures proper coolant density.

We conclude that the Licensing Board erred in refusing to consider the makeup line in connection with the extended boil-off accident scenario.¹⁸ The order requiring Consumers Power to amend its application is therefore *vacated* and the matter is *remanded* with instructions to the Board to make its finding on the adequacy of the applicant's criticality analysis contingent upon the reliability of the makeup line.¹⁹

It is so ORDERED.

FOR THE APPEAL BOARD

Barbara A. Tompkins
Secretary to the
Appeal Board

¹⁸ In view of the decision reached here, it is unnecessary for us to rule on Consumers Power's argument that the 0.98 acceptance criterion for new fuel storage may properly be applied to the condition of optimum moderation posited by the Board.

¹⁹ Consumers Power has also requested dismissal of O'Neill contention IIE-3. The Licensing Board appears to be satisfied with the applicant's criticality calculation but for its failure to include analysis of the pool coolant loss scenario. *See* LBP-82-97, *supra*. 16 NRC at 1451. But we believe that dismissal of the contention would be premature and inconsistent with the applicant's consent to making the finding of adequacy of the criticality analysis dependent on the reliability of the makeup line.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

John H Frye, III, Chairman
Dr. Harry Foreman
Gustave A. Linsenberger

In the Matter of

Docket No. 50-70-OLR/70-754-SNMR
(ASLBP No. 83-481-01-OLR)

GENERAL ELECTRIC COMPANY
(GETR Vallecitos)

April 8, 1983

The Licensing Board grants one petition to intervene subject to the acceptance of at least one contention, denies five petitions to intervene for failure to respond to Board orders, sets a schedule for the filing of contentions following applicant's advice regarding its intentions with regard to its application to renew its reactor operating license and its position with regard to consolidation of this application with the SNM license application, and holds that the rules of practice do not permit it to refer the latter application to NMSS for informal review.

RULES OF PRACTICE: HEARING REQUIREMENT

10 CFR §§2.105 and 2.700 require that formal procedures under Part 2, Subpart G, be adhered to following a notice of proposed action issued under §2.105.

MEMORANDUM AND ORDER
(Ruling on Petition to Intervene and Related Matters)

On September 15, 1977, there was published in the *Federal Register* (42 Fed. Reg. 46427) a notice that the NRC had under consideration applications to renew the operating license for the General Electric Test Reactor (GETR) at the Vallecitos Nuclear Center and the special nuclear materials license for the Vallecitos Nuclear Center. That notice provided an opportunity for interested persons to file requests for hearing by October 17, 1977.

A timely request and petition to intervene was filed by Jed Somit, Esq., on behalf of Nancy L. Lyon, Jack Turk, Alameda County Citizens Against Vallecitos, Joseph Buhowsky, Jr., East Bay Women for Peace, and California Public Interest Research Group. Applicant, General Electric Company (GE), and NRC Staff filed responses to this petition. An Atomic Safety and Licensing Board was established to rule on the petition on October 21, 1977. That Board has since been reconstituted three times, most recently on October 14, 1982. That Board, whose members at that time were also members of the Board presiding in the related show cause proceeding on the GETR, orally granted the petition at a Prehearing Conference of March 16, 1978 (Tr. 6-7). However, no written ruling was ever issued, nor were acceptable contentions identified.

The related show cause proceeding was initiated by an Order to Show Cause issued by the Staff on October 27, 1977. That Order required that the GETR be placed in a cold shutdown condition and that GE show cause why its operating license should not be suspended. A hearing was held on this Order and an Initial Decision (LBP-82-64, 16 NRC 596, (1982; *aff'd*, ALAB-720, 17 NRC 397, (1983)) issued which authorized GETR to be restarted after certain modifications were made. The proceedings on this Order, and the modifications required by the Board, are concerned with the ability of GETR to withstand seismic events. The persons who filed the petition in this license renewal proceeding were not parties to the proceeding on the Order to Show Cause, although many of their contentions are related to the subject matter of the latter proceeding.

In light of the amount of time that had passed and the intervening Initial Decision in the show cause proceeding, the Board requested that GE advise of its intentions with respect to the applications here in question. On November 5, 1982, GE responded, requesting deferral of consideration of the GETR license renewal application pending completion of the Appeal Board's *sua sponte* review of the Initial Decision issued in the show cause proceeding and indicating its desire to pursue the SNM license renewal applications.

With respect to the latter application, GE requested that the Board:

1. Refer the application to the Director, Nuclear Material Safety and Safeguards (NMSS), for disposition;

2. Alternatively, commence proceedings before the Board with respect to the application; and
3. Rule that consolidation of proceedings on this application with the GETR application is not appropriate.

The Board then requested the views of Petitioners/Intervenors and NRC Staff on GE's requests, which have now been received.

Initially, the Board notes that of the six individuals and organizations who petitioned to intervene in 1977, only one, Jack Turk, has responded to the Board's request. The Board interprets this silence as indicating that of the six, only Mr. Turk has a continuing interest in these proceedings. The petitions of the remaining five are therefore denied.

Informal Proceedings — SNM License Renewal

As noted above, GE has requested that its application to renew its SNM license be referred to the Director, NMSS, for disposition. GE bases its request on two recent Commission decisions dealing with hearings in connection with materials licenses. These are *Kerr-McGee Corp.* (West Chicago Rare Earths Facility), CLI-82-2, 15 NRC 232 (1982); CLI-82-21, 16 NRC 401, (1982). Subsequent to GE's submission, CLI-82-2 was affirmed in *City of West Chicago, Illinois v. United States Nuclear Regulatory Commission, et al.*, 701 F.2d 632 (7th Cir., 1983).

In its response, Staff takes the position that, unlike *Kerr-McGee*, ". . . here it has been determined that opportunity for a hearing is required in the public interest (see Notice of Hearing . . . and 10 CFR §2.104(c))." (Staff Response of 1/17/83, p. 5-6.) Staff goes on to argue that public interest in this application makes it appropriate for this Board to continue to preside, rather than refer the matter to NMSS.

GE responded to Staff's position on January 24, 1983, noting that Staff was simply incorrect in asserting that a notice of hearing under 10 CFR §2.104 had issued. According to GE, a notice of opportunity for hearing under 10 CFR §2.105 had issued. GE argues that §2.105 permits the Board to refer this application to NMSS under the *Kerr-McGee* rationale.

GE's response prompted a further response of February 2, 1983, from Mr. Turk in which he points to a need to amend 10 CFR §2.105(a) to remove what he perceives as an inconsistency, and takes issue with GE's interpretation of that section of the regulations. Mr. Turk requests that we: (1) hold that CLI-82-2 is not applicable to this application, (2) ". . . inform [him] of [our] opinion and action regarding [his] request to modify 10 CFR 2.105(a) . . .," and (3) continue to preside over the renewal proceedings ". . . for due process considerations." (Turk Response, p. 5.)

We agree with Staff and Mr. Turk that GE's position is not well taken. In CLI-82-2, the Commission clearly sets out the proposition that a notice issued under 10 CFR §2.105 provides interested parties the opportunity to obtain a formal hearing under Part 2. No such notice was required or issued in the *Kerr-McGee* case, and hence the City of West Chicago was not entitled to a formal hearing. 15 NRC at 246.

In affirming this interpretation of the regulations, the Court of Appeals specifically noted that "NRC agrees that a party who requests a hearing pursuant to the notice of opportunity for hearing issued under Section 2.105 is entitled to a notice of hearing under Section 2.104 and a formal hearing will be convened." 000 F.2d 000

Moreover, GE overlooks the fact that the Rules of Practice do not provide latitude to a board to convene an informal hearing following a §2.105 notice of opportunity for hearing. Section 2.700 provides:

The general rules in this subpart [Subpart G — Rules of General Applicability] govern procedure in all adjudications initiated by the issuance of an order to show cause, an order pursuant to §2.205(e), a notice of hearing, a notice of proposed action issued pursuant to §2.105, or a notice issued pursuant to §2.102(d)(3). (emphasis supplied)

Thus the issuance of the notice pursuant to §2.105 in this case (42 Fed. Reg. 46427 September 15, 1977) requires this Board to follow the formal procedures of Subpart G of the Rules of Practice in passing on Mr. Turk's request for hearing and in conducting any proceeding resulting therefrom.

In response to Mr. Turk's request to modify §2.105(a), we can only point out that the Commission has not empowered us to revise its rules. Indeed, we are bound to follow those rules as written. (See 10 CFR §2.758.) However, we wish to invite Mr. Turk's attention to 10 CFR §2.802 which provides a procedure through which he may seek the revision which he proposes.

Mr. Turk's Standing

As noted at the outset of this Memorandum and Order, no formal ruling has been issued with regard to Mr. Turk's standing to request a hearing on the two applications in question although an oral ruling was issued upholding his standing at a March, 1978, prehearing conference. We hereby affirm that oral ruling.

In his petition, Mr. Turk avers that he lives within approximately 30 miles of the facilities in question, and that he is concerned for the safety and health of his family.

In its answer of November 23, 1977, Staff takes the position that Mr. Turk has not sufficiently particularized his interest in these proceedings, citing *Allied-General Nuclear Services, et al.* (Barnwell Fuel Receiving and Storage Station), ALAB-328, 3 NRC 420, 421 (1976). GE, in its response of December 16, 1977,

concur and states that petitioners must state some particulars concerning the amount of radiation which concerns them.

We do not believe that the *Barnwell* case cited by the Staff is dispositive of Mr. Turk's petition. In *Barnwell*, a chapter of the American Civil Liberties Union sought to intervene to protect against the possible infringement of the civil liberties of its members. However, it was unable to specify how those liberties might be threatened by the grant of the license which was the subject of the proceeding. In contrast, Mr. Turk has expressed a concern for his health and safety and that of his family. It is well settled that concern for health and safety is sufficient to confer standing on those individuals residing in proximity to a nuclear facility for purposes of giving party status to NRC proceedings. The protection of the public's health and safety is, after all, the primary mandate of the NRC. Neither GE nor Staff aver that Mr. Turk is too far removed from the facilities here in question to make that interest too remote to be cognizable. Therefore, Mr. Turk is granted party status subject to the acceptance by the Board of at least one contention. An order and notice of hearing, if appropriate, will be issued following receipt of revised contentions and responses thereto as set out below.

Contentions and Other Matters Raised by the Petition

In addition to stating certain contentions, the petition requested other relief. Among these are requests for:

- 1) preparation of environmental impact statements for both applications;
- 2) orders revoking both the operating license for GETR and the SNM license, and denying the applications for renewal;
- 3) orders awarding attorney's fees and expenses;
- 4) conduct of hearings in San Francisco, and that these hearings encompass the geologic, seismic, and environmental aspects of the applications; and
- 5) consolidation of the two license renewal proceedings.

Much time has passed since the contentions and requests were stated. Additionally, as noted above the related Show Cause proceeding was concluded and the result reached therein has now been affirmed.

GE has requested that we defer any further consideration of its license renewal application for the GETR until completion of the Appeal Board's review, and that we deny the request to consolidate the two proceedings. In view of the fact that the Appeal Board's review is now complete, we again call on GE to indicate its intent with respect to the GETR license renewal.¹ In the event that GE wishes to pursue that renewal, it is to once again address the request for consolidation.

¹ Should the Commission elect to review ALAB-720, we would of course grant GE an extension of time until the completion of that review.

With respect to contentions, the passage of time has not only witnessed a decision in the Show Cause proceeding but a change in the regulations as well. As Staff points out, 10 CFR §2.714 now permits the amendment of petitions to intervene and contentions up to 15 days prior to the first prehearing conference. The presiding board may, of course, set a different time period pursuant to 10 CFR §2.711. We therefore set a deadline for accomplishing these steps following the receipt of GE's advice with respect to the GETR application.

Mr. Turk's revision of his contentions must address the decision in the Show Cause proceeding to the extent that they may bear on issues decided therein. In particular, if any contentions challenge any of the findings and conclusions in that proceeding, Mr. Turk is to specifically indicate which findings and conclusions and indicate the basis for the challenge. With this information in hand, the Board will set a schedule for briefing by all parties of the effect which should be given to the decision in the Show Cause proceeding.

With respect to the first and second requests for relief (summarized from Mr. Turk's petition) stated above, we point out that the scope of the proceeding and consequently any relief that may prove to be appropriate will be governed by the admitted contentions. Thus to have these matters considered, Mr. Turk must state acceptable contentions encompassing this relief.²

With respect to the third request, we note that we are prohibited by §502 of Public Law 96-367 from paying the expenses of or otherwise compensating parties intervening in our proceedings. Hence, this request must be denied.

Part of the fourth request seeks hearings in San Francisco. It is our intent, in line with customary practice, to conduct all prehearing conferences and hearings in the vicinity of the facility. So much of this request that concerns the scope of the hearings is covered by the comments on the first and second request.

The fifth request, that the two license renewal proceedings be consolidated, will be addressed in the event GE indicates that it desires to pursue the license renewal application for the GETR.

The schedule for accomplishing the steps outlined above is set out in the following Order.

In consideration of the foregoing, it is this 8th day of April, 1983,
ORDERED

1. The petition to intervene and request for hearing filed on behalf of Mr. Jack Turk is hereby granted subject to the acceptance by the Board of at least one contention;

2. The petitions to intervene and requests for hearing filed on behalf of Nancy L. Lyon, Alameda County Citizens Against Vallecitos, Joseph Buhowsky, Jr.,

² We do not mean to imply that we have formed an opinion as to the acceptability of any of the contentions stated in the petition. We have not.

East Bay Women for Peace, and California Public Interest Research Group are hereby denied;

3. GE's request to refer its SNM license renewal application to the Director, NMSS, for informal proceedings is hereby denied;

4. Within 30 days following service of this Memorandum and Order, GE is to indicate whether it desires to pursue its application to renew its operating license for the GETR and whether, in the event it does wish to pursue the application, it still opposes consolidation;

5. Within 30 days following service of GE's advice under ¶4 above, Mr. Turk is to file amendments to his contentions and petition, indicating which of his proposed contentions may bear upon the Initial Decision (LBP-82-64, 16 NRC 596 (1982)) issued in the Show Cause proceeding as provided above; and

6. Within 15 days (20 days for Staff) following service of Mr. Turk's amended contentions and petition, responses to these documents are to be filed.

Judges Foreman and Linenberger concur.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

John H Frye, III, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland
April 8, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**James A. Laurenson, Chairman
Dr. Walter H. Jordan
Dr. Jerry Harbour**

In the Matter of

**Docket No. 50-322-OL-2
(ASLBP No. 82-478-05-OL)
(Security Proceeding)**

**LONG ISLAND LIGHTING
COMPANY
(Shoreham Nuclear Power Station,
Unit 1)**

April 11, 1983

In an operating license proceeding where a separate licensing board was established to conduct a hearing on the sole issue of physical security and such board approved a "Final Security Settlement Agreement" and dismissed the proceeding, such dismissal constituted a final order for appellate purposes and the lapse of more than three months after such order works a termination of the board's jurisdiction and such board is without jurisdiction to issue any further ruling on a request of a party. 10 CFR §2.717(a).

MEMORANDUM AND ORDER
DISMISSING SUFFOLK COUNTY REQUEST FOR BOARD RULING
WHETHER DOCUMENTS ARE TO BE TREATED AS SAFEGUARDS
INFORMATION

I. PROCEDURAL HISTORY

On August 24, 1982, at the request of the Atomic Safety and Licensing Board previously established to preside in the operating license proceeding, this Board was established to "continue to guide ongoing settlement efforts by the parties with respect to security planning issues and to preside over the proceeding on those issues only in the event that a hearing is required." Thereafter, all parties to this proceeding negotiated a settlement of all security contentions. On November 24, 1982, the parties filed the "Final Security Settlement Agreement" and urged the Board to accept this Agreement and to terminate litigation of the nine security contentions of Suffolk County (the County). On December 3, 1982 we found that the agreement was fair and reasonable and should be approved. Our Order further provided in pertinent part: "The joint request to terminate this proceeding is GRANTED . . . and this proceeding is hereby DISMISSED."

Thereafter, no party appealed our determination. No further motions, pleadings, or proceedings were filed until March 25, 1983 when the County filed a "Request for Board Ruling Whether Documents Are to Be Treated as Safeguards Information." The County states that it was "filing this request out of an abundance of caution . . ." The dispute centers around the determination as to whether certain correspondence between the County and LILCO should be designated as "safeguards information." The County attached five such letters to its request. Without identifying any specific documents, the County stated: "It is the County's view that documents concerning the liaison for security matters between a utility and offsite LLEA personnel do constitute safeguards information." LILCO and the NRC Staff assert that the documents in question do not contain "safeguards information."

II. JURISDICTION

LILCO asserts that "the 'Request' is not within the jurisdiction of this Board." NRC Staff claims that "[t]his Board does not have jurisdiction over the subject matter of the County's request." Thus, before we may consider the merits of the Request or the opposition to it, we must resolve the issue of the Board's jurisdiction to decide this matter.

The parties have not been particularly helpful in clarifying the jurisdictional issue. The County does not address the issue of jurisdiction and, in fact, submits no

authority in support of its request. LILCO, without citing any authority, questions whether

this Board even exists any longer as an entity with jurisdiction over matters pertaining to security at Shoreham. . . . This Board accomplished its mandate from the Commission by encouraging the parties to reach a settlement agreement and by reviewing and accepting that agreement in its December 3, 1982 Order. As a result, the Board's stated purpose for being has also expired. LILCO's response, p. 3, n.1.

Rather, LILCO contends that various regulations provide that the [a]uthority to determine whether the correspondence at issue contains Safeguards Information is vested in the NRC Staff, specifically, the Division of Safeguards in the Office of Nuclear Materials Safety and Safeguards, working on licensing projects in coordination with the Office of Nuclear Reactor Regulation. *Id.* at 3.

Finally, NRC Staff refers to the Order establishing this Board and notes that the Board entered an Order on December 3, 1982 (unpublished), approving a settlement agreement which fully resolved all security contentions which had been pending before the Board. The Staff states, "[a]t that point in time, this Board ceased to exist since it had accomplished the purposes for which it was created." NRC Staff's Response at 2.

On this sparse record, we begin our analysis anew by turning to the NRC Rules of Practice and Procedure. Specifically, 10 CFR §2.717(a) spells out the commencement and termination of jurisdiction of the presiding officer as follows: Unless otherwise ordered by the Commission, the jurisdiction of the presiding officer designated to conduct a hearing over the proceeding, including motions and procedural matters, commences when the proceeding commences. . . . The presiding officer's jurisdiction in each proceeding will terminate upon the expiration of the period within which the Commission may direct that the record be certified to it for final decision, or when a Commission renders the final decision, or when the presiding officer shall have withdrawn himself from the case upon considering himself disqualified, whichever is earliest.

Since the Commission has not rendered a final decision in this matter and the presiding officer has not withdrawn himself from the case, we must determine whether the period of time within which the Commission may direct that the record be certified to it for final decision has expired. We note that this case is in an unusual posture since no initial decision was issued and the original operating license proceeding is still pending before another licensing board. However, it is clear that the Commission has sanctioned separate hearings and the finality of the decisions thereof. 10 CFR, Part 2, Appendix A.I(c)(1) provides:

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.* (emphasis supplied)

In order to determine whether jurisdiction terminated pursuant to 10 CFR §2.717(a), we must determine whether the time for appeal has expired. The NRC Regulations speak in terms of appeals from initial decisions. See 10 CFR §§2.760(c)(4), 2.762, and 2.764. However, the Atomic Safety and Licensing Appeal Board (Appeal Board) established a test to be applied to determine whether a particular licensing board decision may be appealed. In *Toledo Edison Co.* (Davis-Besse Nuclear Power Station) ALAB-300, 2 NRC 752, 758 (1975), the Appeal Board stated the following:

Following the example of federal judicial practice, the Commission essentially restricts a party's right to appeal (as distinguished from seeking our discretionary review by referral or certification) to final decisions. This reflects the policy judgment that piecemeal appeals create more problems than they solve. The test of "finality" for appeal purposes before this agency (as in the courts) is essentially a practical one. *As a general matter, a licensing board's action is final for appellate purposes where it either disposes of at least a major segment of the case or terminates a party's right to participate; rulings which do neither are interlocutory.* (emphasis supplied, footnotes omitted)

The appeal in question in *Davis-Besse* concerned the discovery orders of a special master. The following month, the Appeal Board held that a partial initial decision which did not permit the issuance of a limited work authorization was, nevertheless, appealable. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Units 1 and 2), ALAB-301, 2 NRC 853, 854 (1975).

It is beyond dispute that our Order of December 3, 1982 (unpublished) disposed of a major segment of the Shoreham operating license proceeding, to wit: all contentions concerning the issues of physical security of the plant. Hence, the order approving the settlement agreement and terminating the proceeding met the test of finality in *Davis-Besse*. We conclude that our December 3, 1982 Order was a final order for appeal purposes within the NRC; it resolved and disposed of all pending disputes concerning the parties to this proceeding. The fact that other

litigation is pending between these parties concerning an operating license for Shoreham is irrelevant to our determination of jurisdiction.

However, we do not agree with the Staff's contention that: "At that point in time [December 3, 1982], this Board ceased to exist since it had accomplished the purposes for which it was created." The Appeal Board has held that, just like the courts, licensing boards possess certain inherent power, *e.g.* the power to reconsider a decision. In *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-235, 8 AEC 645, 647 (1974), the Appeal Board stated:

In this case the initial decision was rendered on September 25, 1974.

Saginaw's petition to reopen and reconsider was filed by mail on September 30, 1974. The licensing board therefore had jurisdiction to entertain it.

As we see it, the issue is whether the lapse of more than three months since the date of issuance of our final order dismissing and terminating this proceeding, precludes us from exercising further jurisdiction in this matter. We conclude that it does. Our finding that the Order of December 3, 1982 was a final order which was appealable, compels the conclusion that "the period within which the Commission may direct that the record be certified to it for final decision" has expired and with it our jurisdiction has been terminated pursuant to 10 CFR §2.717(a). Even the existence of inherent power in a licensing board is insufficient here to establish jurisdiction where more than three months has passed and the County's "Request" cannot be equated with a motion to reconsider. We conclude that under the extant facts we are without jurisdiction to rule upon the County's request.

ORDER

WHEREFORE, IT IS HEREBY ORDERED that Suffolk County's Request for Board Ruling Whether Documents are to be Treated as Safeguards Information is **DISMISSED** for want of jurisdiction.

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**James A. Laurenson, Chairman
ADMINISTRATIVE LAW JUDGE**

**Dr. Jerry Harbour
ADMINISTRATIVE JUDGE**

Bethesda, Maryland

Dr. Walter H. Jordan concurs in this Memorandum and Order but was unavailable to sign it.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Helen F. Hoyt, Chairperson
Emmeth A. Luebke
Jerry Harbour**

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)**

April 18, 1983

The Licensing Board grants motions to dismiss a party and its contentions for failure to meet its hearing obligations.

RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES

An intervenor has the burden of going forward with respect to its contentions. It must come forward with sufficient evidence to require reasonable minds to inquire further, and it has an obligation to reveal pursuant to a discovery request what that evidence is. This requirement is not obviated by an intervenor's strategic choice to make its case through cross-examination.

RULES OF PRACTICE: SANCTIONS

In selecting a sanction for failure to meet a hearing obligation, a Licensing Board must weigh (1) the relative importance of the unmet obligation; (2) its potential harm to the other parties or to the orderly conduct of the proceeding; (3) whether its occurrence is an isolated incident or part of a pattern of behavior; and

(4) the importance of safety or environmental concerns raised by the party, and all of the circumstances. Dismissal of a party is a serious sanction reserved for the most severe failure of a participant to meet its obligations.

MEMORANDUM AND ORDER

(Dismissing Contentions of the Hampton Beach Area Chamber of Commerce (HBACC) and Dismissing HBACC as a Party)

On March 11, 1983, Applicants filed "Applicants' Motion that the Contentions of Hampton Beach Area Chamber of Commerce be Dismissed and that it be Dismissed as a Party." On March 15, 1983, the NRC Staff filed its "Renewed Motion of the NRC Staff to (1) Dismiss Hampton Beach Area Chamber of Commerce Contention 7 and (2) Compel Answers to Interrogatories on HBACC Contentions 4 and 5." This is the second time that Applicants and Staff have filed motions seeking relief from this Board for HBACC's failure to answer interrogatories.

I. BACKGROUND

The Board admitted HBACC (formerly CCCNH) as a party to this proceeding on September 13, 1982, and at that time accepted three of its contentions. The Staff filed its first set of interrogatories addressed to HBACC on November 10, 1982. Applicants filed their first set of interrogatories to HBACC on December 8, 1982.

HBACC did not file answers to either the Applicants' or the Staff's interrogatories. The Applicants moved on January 14, 1983, for an order to compel answers to its interrogatories. On February 4, 1983, the Staff moved for an order to compel answers to its interrogatories, or, in the alternative, to dismiss HBACC's Contentions 4, 5 and 7.

The Board granted the motions for an order to compel HBACC to answer the interrogatories propounded to it by the Applicants and by the Staff in its Memorandum and Order (Re Motions Addressing Interrogatories to and by the HBACC), dated February 16, 1983 (unpublished). At that time, the Board denied the Staff's alternative motion to dismiss HBACC's contentions. The Board accepted the Staff's premise that HBACC had failed to comply with the Board's directive requiring that all answers to discovery be filed by January 17, 1983 (*see* unpublished Memorandum and Order (Memorializing Conference Call of December 22, 1982), dated January 17, 1983), but chose not to impose sanctions at that time. Because HBACC is a *pro se* intervenor, the Board exercised restraint in applying sanctions at this early date to ensure that HBACC be made aware that sanctions could be imposed. However, the Board stated clearly that "failure to comply with

this order compelling answers to interrogatories will result in dismissal of HBACC's contentions." Memorandum and Order (Re Motions Addressing Interrogatories to and by the Hampton Beach Area Chamber of Commerce), dated February 16, 1983 at 2 (unpublished). The Board also referred HBACC to the Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981), which the Board had attached to its unpublished Memorandum and Order, dated January 31, 1983.

In its pleading of February 25, 1983, entitled "Answer to Memorandum and Order of Hampton Beach Area Chamber of Commerce," HBACC admitted that confusion and lack of expertise in NRC licensing proceedings were contributing factors to its failure to answer the interrogatories. It explained that it has no resources and no experts and only intends to cross-examine the experts of the Applicants and the NRC Staff on its contentions on the basis of its own "(limited)" knowledge. (HBACC Answer at 1)

On February 26, 1983, HBACC filed and served "HBACC's Answer to the Applicant's Motion to Compel Answers to the Applicant's Interrogatories and Request for Production of Documents" and "The HBACC Response to the NRC Staff's Interrogatories and Request for Production of Documents." In HBACC's answer to Applicants, HBACC stated that it would not litigate those contentions admitted on September 13, 1982. In its response, dated February 26, 1982, HBACC stated that "[t]he HBACC intends, if allowed, to litigate its case through cross-examination and to urge denial (or acceptance) of pending application on the basis of the topics of contention." *Id.* at 3. HBACC noted that it has not relied on experts for previously filed contentions and would not call any expert witnesses. In HBACC's response to the Staff, HBACC noted that since off-site emergency planning contentions were ruled premature, interrogatories based on such premature contentions were also premature.

Applicants indicated at the prehearing conference on April 7, 1983, that they had not received a copy of HBACC's answers to its interrogatories. (Tr. 672) Therefore, they had moved on March 11, 1983 that the Board dismiss HBACC's contentions and HBACC as a party for failure to fulfill its discovery obligations. Applicants stated that they had "received no discovery whatsoever as to the nature of the evidence that CCCNH intends to offer in support of its contentions, nor of the points of fact or law that CCCNH intends to urge in support thereof, nor of the relief or other action that CCCNH intends to seek account thereof." (Applicants' Motion at 4) The Board has examined the answers that HBACC did provide and finds that such information is still lacking.

The Staff indicated in its motion that it did receive the answers HBACC had filed in response to its interrogatories, but that the answers "failed to provide the Staff with almost all the information it had requested in November." (Staff's Motion at 1) The Staff moved to dismiss CCCNH Contention 7 but not CCCNH Contentions 4 and 5 because of HBACC's apparent misunderstanding as to the timeliness of the

interrogatories concerning those contentions. In its filing of March 31, 1983, entitled "The HBACC's Response to the Applicant's Motion that the Contentions of the HBACC be Dismissed and That it be Dismissed as a Party," and at the prehearing conference, HBACC confirmed its belief that certain interrogatories were directed at off-site emergency planning and that, since contentions in that area had not yet been admitted, those interrogatories were premature. However, as the Staff pointed out in its motion, the interrogatories at issue were directed at HBACC's Contentions 4 and 5, concerning on-site emergency planning, which had been admitted by the Board in its "Memorandum and Order" of September 13, 1982 (LBP-82-76, 16 NRC 1029).

II. DISCUSSION

The Board has considered the arguments set forth in the written motions and responses as well as those expressed at the prehearing conference and has examined the interrogatories and responses filed by the parties. The Board finds that after 7 months since discovery began (September 13, 1982), HBACC is still unable (or else unwilling) to provide very basic information about its contentions such as a specification of its concerns, the bases for these concerns and documents which support its position. The answers that HBACC has submitted in response to interrogatories do not provide Applicants and Staff with *any* notice as to what Applicant and Staff expert witnesses should be prepared to address either in their direct testimony or under cross-examination.

HBACC appears to misunderstand its obligations as an intervenor. It does not suffice for an intervenor to merely frame (or in this case adopt) an acceptable contention and then lie in wait and expect the Applicants and the NRC Staff to prepare testimony on the issue raised in the contention. Although an Applicant has the ultimate burden of proof in a licensing proceeding, *an intervenor has the burden of going forward with respect to its own contentions*. The Appeal Board stated in *Pennsylvania Power and Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-613, 12 NRC 317, 340 (1980), that "an intervenor must come forward with evidence, sufficient to require reasonable minds to inquire further, to insure that its contentions are explored at the hearing."¹ The Appeal Board indicated therein that an intervenor has an obligation during the discovery period to reveal what evidence, if any, underlies its contention. The requirement is not obviated by an intervenor's strategic choice to make its case through cross-examination. Although HBACC posed some sort of responses to the interrogatories in accordance with the Board's order of February 16, 1983, its

¹ The Appeal Board footnoted here a citation to *Consumers Power Co.* (Midland Plant, Units 1 and 2), CLI-74-5, 7 AEC 19, 30-32 and fn. 27 (1974), *reversed sub. nom. Aeschliman v. NRC*, 547 F.2d 622, 628 (D.C. Cir. 1976), *reversed and remanded sub nom. Vermont Yankee Nuclear Power Corp. v. NRC*, 435 U.S. 519, 553-54 (1978).

responses revealed *no* evidence underlying HBACC's contentions and provided *no* information that could be considered sufficiently responsive to the interrogatories. Therefore these vague responses cannot be said to *comply* with the Board's order.

Because HBACC has patently failed to meet its discovery obligations with respect to all its contentions, the Board has determined that the only appropriate sanction is the dismissal of HBACC's contentions and the subsequent dismissal of HBACC as a party from this phase of the proceeding. The Board recognizes that dismissal of a party is a serious sanction reserved for "the most severe failure of a participant to meet its obligations." *Wisconsin Electric Power Co. (Point Beach Nuclear Plant, Unit 1)*, ALAB-719, 17 NRC 387, 392 (1983), quoting *Commonwealth Edison Co. (Byron Nuclear Power Station, Units 1 and 2)*, ALAB-678, 15 NRC 1400, 1416 (1982). In deciding upon this sanction, the Board has weighed the following factors set forth in the Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981) for the selection of an appropriate sanction against a party who has failed to meet its hearing obligations:

- 1) the relative importance of the unmet obligation;
- 2) its potential for harm to other parties or the orderly conduct of the proceeding;
- 3) whether its occurrence is an isolated incident or a part of a pattern of behavior; and
- 4) the importance of the safety or environmental concerns raised by the party, and all of the circumstances.

Id. at 454.

The Board makes the following findings:

1. The failure of HBACC to come forth with *any* evidence in response to interrogatories propounded to it by both the Applicant and the NRC Staff during the entire 7-month discovery period constitutes a fatal breach of a party's discovery obligations. Under *Susquehanna, supra*, fulfillment of that obligation is required to ensure litigation of an intervenor's contentions.

2. It would be patently unfair to Applicants and Staff to require them to prepare expert testimony in response to HBACC's contentions, where HBACC has provided no information concerning these contentions. As the Appeal Board stated in *Byron, supra*:

The Applicants in particular carry an unrelieved burden of proof in Commission proceedings. *Unless they can effectively inquire into the positions of the intervenors, discharging that burden may be impossible.* To permit a party to make skeletal contentions, keep the bases for them secret, then require its adversaries to meet any conceivable thrust at hearing would be patently unfair, and inconsistent with a sound record [footnote omitted].

(Emphasis supplied)

Id. at 1417, quoting *Northern States Power Co.* (Tyrone Energy Park, Unit 1), LBP-77-37, 5 NRC 1298, 1300-01 (1977) (previously quoted with approval in *Susquehanna*, 12 NRC at 338).

3. HBACC's failure to *adequately* respond to the interrogatories continued throughout the discovery period and certainly can in no way be considered an isolated incident. To the contrary, as HBACC admitted in its "Answer to Memorandum and Order of Hampton Beach Area Chamber of Commerce," dated February 25, 1983, it is indicative of HBACC's general confusion and lack of expertise in these proceedings.²

4. All of HBACC's contentions were adopted from the State of New Hampshire's contentions which are still remaining in the proceeding. Therefore, the environmental and safety concerns raised in HBACC's contentions will still be considered despite HBACC's dismissal. Moreover, HBACC has demonstrated that it has no information to contribute to this phase of the hearing.

Under those circumstances, the Board has determined that dismissal of HBACC and its contentions is the only appropriate sanction available.

The representative of HBACC stated at the prehearing conference that emergency planning is the area in which it believes it would be "most useful and strong." (Tr. 668) The representative also indicated that HBACC was looking into the possibility of retaining counsel for these proceedings. (Tr. 669) HBACC's dismissal from this phase of the proceeding will not act as a bar to its participation in the emergency planning phase should it choose to do so.

A party may appeal a Board Order terminating that party's right to participate. *Toledo Edison Co.* (Davis-Besse Nuclear Power Station), ALAB-300, 2 NRC 752, 758 (1975). Exceptions shall be filed within 10 days after service of the order. Cf. 10 CFR §§2.762(a).

ORDER

Based on the foregoing, it is this 18th day of April, 1983,
ORDERED

1. That CCCNH contentions 4, 5 and 7 are *dismissed*; and

² The Board has taken into consideration throughout the proceeding the fact that HBACC is a *pro se* intervenor. At the first prehearing conference in May, 1982, the Board referred the representative of HBACC to the NRC Staff for consultation as to what documents HBACC was required to submit. (Tr. 224) Prior to imposing this serious sanction, the Board warned HBACC in its February 16, 1983 Order that failure to respond to the interrogatories would result in dismissal of its contentions. Finally, the Board withheld its ruling on Applicant and Staff motions until the PHC of April 7, 1983 to ascertain with certainty HBACC's position.

2. That the Hampton Beach Area Chamber of Commerce is *dismissed* as a party to this proceeding.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Helen F. Hoyt, Chairperson
ADMINISTRATIVE JUDGE

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Lawrence Brenner, Chairman
Dr. James H. Carpenter
Dr. Peter A. Morris

In the Matter of

Docket No. 50-322-OL
(Emergency Planning)

LONG ISLAND LIGHTING
COMPANY
(Shoreham Nuclear Power Station,
Unit 1)

April 20, 1983

The Licensing Board refers to the Appeal Board its denial of a county governmental intervenor's motion to terminate the proceeding, which motion was premised on the county's refusal to either adopt or implement a radiological emergency response plan. The Board also certifies to the Commission (through the Appeal Board) the question of whether a low-power license should be issued for a nuclear power plant in circumstances which raise doubts that emergency preparedness requirements for full-power operation can and will be met in the future.

**RULES OF PRACTICE: CERTIFICATION OF ISSUES TO
COMMISSION**

In the absence of most compelling circumstances, such as the presence of an emergency situation giving rise to a manifest need for almost immediate final determination of a question, a Licensing Board should be afforded at least a reasonable opportunity to decide a question for which certification is sought. *Toledo Edison Co.* (Davis-Besse Nuclear Power Station, Unit 1) ALAB-297, 2 NRC 727, 729 (1975).

RULES OF PRACTICE: INTERLOCUTORY APPEALS

As in Federal Courts, appellate review of interlocutory orders is not favored under Commission practice. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-634, 13 NRC 96, 99 (1981). With the exception of appeals from certain rulings on petitions to intervene in accordance with 10 CFR §2.714a, there is no right of appeal from any interlocutory ruling by a Licensing Board. 10 CFR §2.730(f).

RULES OF PRACTICE: REFERRAL OF RULING TO COMMISSION

Pursuant to 10 CFR §2.730(f), “[w]hen in the judgment of the presiding officer prompt decision is necessary to prevent detriment to the public interest or unusual delay or expense, the presiding officer may refer the ruling promptly to the Commission . . .” The Appeal Board has construed §2.730(f) as also permitting referral of a decision where the decision would “affect the basic structure of the proceeding in some pervasive or unusual manner.” *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 464 (1983), quoting *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-634, 13 NRC 96, 99 (1981). Interlocutory review on the basis of a referral is discretionary, however, and the Appeal Board may decline to accept a Licensing Board referral. *Catawba, supra*, 16 NRC at 464.

RULES OF PRACTICE: REFERRAL OF RULING TO COMMISSION

While 10 CFR §2.730(f) states that a presiding office may refer a ruling “to the Commission” for interlocutory review, the Appeal Board is authorized to exercise the authority and to perform the adjudicatory review functions which the Commission otherwise would have exercised in the first instance. 10 CFR §2.785(b)(1). In any event, the Commission may choose to review a Licensing Board ruling either without awaiting an Appeal Board’s action or after the Appeal Board’s decision.

RULES OF PRACTICE: CERTIFICATION OF ISSUE TO COMMISSION

When a Licensing Board determines that special circumstances exist under which the application of a particular regulation would not serve the purposes for which the rule or regulation was adopted, it should certify such issues to the

Commission pursuant to 10 CFR §2.718(i), and by analogy to 10 CFR §2.758(d) and n.7 thereof, even though no party has yet raised the matter. *See Commission Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 456 (1981).

EMERGENCY PLANNING: LOW POWER OPERATIONS

Pursuant to 10 CFR §50.47(d) no NRC or FEMA review, findings, or determinations concerning the state of offsite emergency preparedness or the adequacy of and capability to implement State and local offsite emergency plans are required prior to issuance of an operating license authorizing only fuel loading and low-power operations (up to 5% of rated power). Based on NRC conclusions as to the lesser risks attendant to low-power operation, the Commission's regulations state that the issuance of a fuel-loading/low-power license requires only a finding that the state of onsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

EMERGENCY PLANNING: LOW POWER OPERATIONS

Under circumstances in which all of the approximately 10-mile radius plume exposure pathway emergency planning zone for a nuclear power plant is contained within the boundaries of a single county, and that county has indicated its intention to neither adopt nor implement an emergency response plan for the plant, the Licensing Board recommends to the Commission that no low-power license be issued for that plant, even if the plant would appear to meet all regulatory requirements for a low-power license. As the Licensing Board believes the Commission's low-power regulations to be based on the implicit generic assumption that adequate offsite emergency planning would eventually exist for such a plant, the Board certifies to the Commission the question of whether a low-power license should issue when there is reason to doubt that adequate offsite emergency planning will ever exist.

MEMORANDUM AND ORDER
REFERRING DENIAL OF SUFFOLK COUNTY'S MOTION TO
TERMINATE TO THE APPEAL BOARD AND CERTIFYING
LOW-POWER LICENSE QUESTION TO THE COMMISSION
(THROUGH THE APPEAL BOARD)

I. INTRODUCTION

On February 23, 1983, Suffolk County, New York (the County), filed a motion to terminate this proceeding based on the alleged legal impossibility of the Long Island Lighting Company (LILCO) being able to demonstrate its compliance with NRC licensing requirements such as to entitle it to the issuance of an operating license for the Shoreham Nuclear Power Station. This motion was premised upon the County's decision neither to adopt nor to implement an offsite radiological emergency response plan for Shoreham. By an order issued today, we deny the County's motion. "Memorandum and Order Denying Suffolk County's Motion to Terminate the Shoreham Operating License Proceeding," LBP-83-22, 17 NRC 608 (1983).

Concurrently with its motion to terminate, the County filed a motion requesting that we certify its motion to terminate directly to the Commission without any intermediate ruling from either this Board or the Appeal Board. We have determined that the public interest, as well as the interests of the Appeal Board and the Commission, would best be served by our denying that portion of the County's motion seeking certification without intermediate decision.¹ However, as our ruling is based upon an interpretation of legal issues of first impression which could affect the basic structure of this proceeding in a pervasive and unusual manner, we hereby refer our ruling on the County's motion to terminate to the Atomic Safety and Licensing Appeal Board for interlocutory review, pursuant to 10 CFR §§2.730(f) and 2.785(b)(1).

For the reasons discussed in our accompanying order, LBP-83-22, 17 NRC 608, we find that the County's determination to neither adopt nor implement an emergency plan for Shoreham does not constitute a legal bar to the issuance of an operating license. However, we believe that the County's actions could potentially operate as a factual bar to LILCO's ability to demonstrate the existence of emergency preparedness adequate to entitle it to the issuance of a full-power

¹ This Board's knowledge of the facts and circumstances of this proceeding makes us well suited to decide these issues. No party has demonstrated the existence of "most compelling circumstances (such as the presence of an emergency situation giving rise to a manifest need for almost immediate final determination of the question)" such as to vary the normal rule that a licensing board should be afforded at least a reasonable opportunity to decide a question for which certification is sought. *Toledo Edison Co.* (Davis-Besse Nuclear Power Station, Unit 1), ALAB-297, 2 NRC 727, 729 (1975).

operating license. In light of LILCO's proposed August 1983 fuel-load date and the virtual certainty that no initial decision on offsite emergency planning issues will be issued prior to that time, LILCO may seek a low-power license for Shoreham. However, as discussed below, we believe that the Commission's emergency planning rule governing issuance of a low-power license (10 CFR §50.47(d)) may be based on the implicit generic finding that offsite emergency planning can eventually be shown to be adequate for full-power operation of the plant in question. We believe, therefore, that the present factual situation raises the significant policy question of whether the Commission intended to permit the issuance of a low-power operating license for a nuclear power plant when special circumstances exist which call into question the validity of this generic finding for a particular plant.

Accordingly, although no party has yet raised this matter, we believe it appropriate at this time to seek Commission guidance and to certify this mixed legal and policy question to the Commission, pursuant to 10 CFR §§2.718(i) and by analogy to 10 CFR §2.758(d) and n.7 thereof. *See also Commission Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 456 (1981). Circumstances pertinent to this certified question are related to our denial of the County's motion which we refer to the Appeal Board by this order. Therefore, we believe it appropriate to offer the opportunity for the Appeal Board to provide its views on the question which we certify, to the extent the Appeal Board and the Commission deem appropriate.

II. REFERRAL OF OUR DENIAL OF THE COUNTY'S MOTION TO TERMINATE²

As in Federal Courts, appellate review of interlocutory orders is not favored under Commission practice. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-634, 13 NRC 96, 99 (1981). With the exception of appeals from certain rulings on petitions to intervene in accordance with 10 CFR §2.714a, there is no right of appeal from any interlocutory ruling by a Licensing Board. 10 CFR §2.730(f).

Pursuant to Section 2.730(f), however, "[w]hen in the judgment of the presiding officer prompt decision is necessary to prevent detriment to the public interest or unusual delay or expense, the presiding officer may refer the ruling promptly to the Commission . . ." Under the terms of 10 CFR §2.785(b)(1), the Appeal Board is authorized to exercise the authority and perform the adjudicatory review functions which the Commission otherwise would have exercised in the first instance.

² As we have ruled on the County's motion to terminate in the first instance, we treat its motion seeking directed certification as one for referral.

Accordingly, our referral properly must be directed to the Appeal Board.³ The Commission, in any event, may choose to review our ruling, either directly or after the Appeal Board's action. 10 CFR §2.758(d).

Although Section 2.730(f) states a two-factor test for determining the necessity of interlocutory review, the Appeal Board has repeatedly stated three considerations which it believes relevant to determining whether it should accept a referred ruling:

Whether review should be undertaken on "certification" or by referral before the end of the case turns on whether a failure to address the issue would seriously harm the public interest, result in unusual delay or expense, or affect the basic structure of the proceeding in some pervasive or unusual manner.

Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 464 (1983), quoting *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-634, 13 NRC 96, 99 (1981). Interlocutory review on the basis of a referral is discretionary, however, and the Appeal Board may decline to accept a Licensing Board referral. *Catawba, supra*, ALAB-687, 16 NRC 464.

In its motion for certification, at 3, the County asserts that certification is necessary because "time is of the essence to eliminating the present state of uncertainty over Shoreham . . ." It asserts that as its motion to terminate raises vital legal issues of first impression which could have the effect of obviating the need for further licensing hearings before the Board, the public interest would be served by prompt resolution of these matters. It also states that certification is appropriate as the rulings which it seeks would "affect the basic structure of the proceeding in a pervasive or unusual manner." County Sup. Br., at 6-7. Intervenors Shoreham Opponents Coalition and the North Shore Committee Against Nuclear and Thermal Pollution, and interested municipality Town of Southampton, support the County's position, while LILCO and the Staff oppose certification or referral.

In our view, the County's motion to terminate raises significant legal issues of first impression concerning the proper scope and interpretation to be given to the Commission's emergency planning rules and the congressional legislation authorizing their promulgation. While we believe that the overall intentions and purposes of the Commission in promulgating these regulations are clear, we recognize that the specific language of individual provisions permits contrary interpretations. We agree that had we interpreted these regulations in the manner advocated by the County, it would have had the potential to preclude further emergency planning proceedings before this Board, at least unless and until the

³ An exception to this general rule is the certification directly to the Commission of a petition seeking waiver of or exception from a regulation, pursuant to 10 CFR §2.758 and n.7 thereof.

Commission determined that an exemption from or waiver of these regulations should be granted.⁴

Accordingly, we find the effect of our denial of the County's motion to terminate to be sufficient to affect the basic structure of this proceeding in a pervasive manner. Furthermore, we believe the interpretations of law presented by our decision to be ones of first impression in an NRC hearing. These issues have a high potential for being raised in future proceedings now that they have been raised here. Therefore, we believe the public interest would best be served by referral to the Appeal Board of our order denying the County's motion to terminate this proceeding.⁵

III. CERTIFICATION OF LOW-POWER LICENSE QUESTION

In its brief in opposition to the County's motion to terminate this proceeding, LILCO makes passing mention of its view that it could qualify for a low-power operating license notwithstanding the absence of a County emergency plan, citing 10 CFR §§50.57(c) and 50.47(d). LILCO Br., at 96. The Board agrees that the clear language of Section 50.47(d), 47 Fed. Reg. 30,232, *et seq.* (effective on publication on July 13, 1982), so states. It provides that:

Notwithstanding the requirements of paragraphs (a) and (b) of this section, no NRC or FEMA review, findings, or determinations concerning the state of offsite emergency preparedness or the adequacy of and capability to implement State and local offsite emergency plans are required prior to issuance of an operating license authorizing only fuel loading and/or low power operations (up to 5% of the rated power).

* * *

Section 50.47(d) concludes by describing the emergency planning finding to be made by the NRC as a prerequisite to issuance of a five percent license as a finding that:

* * *

. . . the state of onsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. The NRC will base this finding on its assessment of the applicant's emergency plans against the pertinent standards in paragraph (b) of this section and Appendix E of this Part.

⁴ LILCO indicated its intention to seek an exemption from or waiver of the Commission's emergency planning regulations if the Board adopted the County's interpretation of their requirements. LILCO Br., at 94-95.

⁵ In view of the result reached by us, it was unnecessary to address whether this proceeding should be terminated on all issues, including those not related to emergency planning, as the County apparently requests. In the event our referred legal determination is reversed, we expect that this Board would be called upon at that time to assess the effect of that reversal on the posture of the proceeding before us.

The Commission's rationale for promulgation of the regulation is that there is a substantial reduction in risk and potential accident consequences when low-power testing operation is limited to five percent. 46 Fed. Reg. 61,132, col. 3 (December 15, 1981) (Proposed Rule). Accordingly, in enacting Section 50.47(d), the Commission stated that it focused on the risks at this limited level of operation and chose a level of emergency preparedness appropriate to assure public health and safety. 47 Fed. Reg. 30,232, col. 3 (July 13, 1982).

It appears, therefore, that the inquiry expressly provided for under Section 50.57(d) is limited to whether the state of emergency preparedness meets the requirements for a low-power license.⁶ There is no provision that requires a predictive finding of reasonable assurance that offsite emergency preparedness can and will be developed in the future in satisfaction of the requirements for a full-power operating license.

For the sole purposes of this certified question, it is assumed that the pending Partial Initial Decision (P.I.D.) on issues other than emergency planning will not preclude the issuance of a low-power operating license. Even with that assumption, the Licensing Board cannot find at this time that there is reasonable assurance that, as a matter of fact, offsite emergency preparedness sufficient to permit issuance of a full-power operating license for Shoreham can and will be developed. This is because, as detailed in our companion order denying Suffolk County's motion to terminate, we are about to embark on a first-time litigation of an applicant's *offsite* emergency plan in substitution of one sponsored by the local government. We understand that LILCO will attempt to prove that alternative means can substitute for the absence of both a plan and resource assistance by Suffolk County, the local government with jurisdiction over the entire EPZ. It is not clear what role the State of New York will take with respect to emergency preparedness at the local level. In these circumstances, the Board believes that the Commission should not permit the loading of fuel at Shoreham unless and until the impending factual inquiry can support a finding of reasonable assurance that the level of offsite emergency preparedness required for a full-power license can and will be developed.⁷

⁶ As noted in the Statement of Considerations accompanying the proposed rule, the balancing permitted by Section 50.47(c) is also applicable to the low-power decision. Deficiencies in the onsite emergency plans will be evaluated to determine their significance for low-power operation. 46 Fed. Reg. 61,133, col. 2 (1981).

⁷ For purposes of this recommendation, we assume that LILCO meets the onsite emergency preparedness requirements needed for issuance of a low-power license under Sections 50.47(d). This involves some offsite resources and coordination as noted in the Statement of Considerations, 47 Fed. Reg. 30,232, col. 2 and 30,234, cols. 1 and 2. Issues within the scope of the emergency planning findings required by Section 50.47(d) are no longer in controversy before this Licensing Board. Such issues were encompassed within the scope of so-called "Phase I" emergency planning issues which were dismissed due to the default of Suffolk County and other intervenors. This action and the scope of issues which would have been considered during Phase I are summarized, with citations to the pertinent

(Continued)

It is our view that even if the explicit emergency planning requirements of Section 50.47(d) for issuance of a low-power license for Shoreham are met, as a matter of sound public policy the Commission should not apply that section so as to permit the irradiation of fuel in a commercial nuclear power plant in circumstances where there is no reasonable assurance that the power plant will in the future be permitted to engage in the normal contemplated full power operation, or for that matter any operation above five percent. Stated differently, there are special circumstances in this particular proceeding such that application of Section 50.47(d) would not serve the purposes for which the rule was adopted. *Cf.* 10 CFR §2.758(b) (party seeking waiver of or exception from rule must demonstrate existence of special circumstances).

The apparent and proper purpose of the rule is to avoid unnecessary delay after issuance of a full-power license which would result if fuel loading and low-power testing had not already been accomplished. These first stages of fuel loading and operational testing up to five percent of rated power typically take several months, but could take longer if problems arise. We believe that avoidance of this period of delay, which would occur only if and when a full-power operating license is issued for Shoreham, does not outweigh the irreversible change in the status quo of Shoreham which would obtain if fuel were to be irradiated in the reactor in circumstances where, at present, we cannot find there is reasonable assurance that Shoreham will ever be permitted to operate at power levels above five percent.

The certified question is, therefore, whether the Commission intended or now intends Section 50.47(d) to be applied in circumstances which raise preliminary doubts that emergency preparedness requirements for full power operation can and will be met in the future.

In the present circumstances of Shoreham, our opinion is that Section 50.47(d) should not be so applied. This is a certified question, however, and not a referral of a ruling because we cannot and do not decide that the explicit words of Section 50.47(d) or its Statement of Considerations support our opinion.⁸ However, we

rulings, in our accompanying ruling of this date denying Suffolk County's motion to terminate the proceeding, LBP-83-22, 17 NRC at 608.

The dismissal of those issues was with prejudice in the proceeding, but was not a ruling on the merits of the contentions. Accordingly, the determination of whether Section 50.47(d) is satisfied is one which must be made and supported by the NRC Staff, subject to such oversight as the Commission, in its discretion, deems appropriate. (10 CFR §2.764(f), governing the Commission's immediate effectiveness review, only applies to Board, not Staff decisions. In any event, it would not apply where the issue is whether to authorize operation up to only five percent of full power.)

⁸ There are sections in the Statement of Considerations which arguably could support the proposition that the contemplation of the Commission was that eventually any problems in emergency preparedness necessary for full-power operation would in the future be resolved. However, these passages provide weak express support for our view. Read in context, they may also readily be explained as the Commission's assurances (in responses to issues raised by comments on the proposed rule) that the emergency planning requirements for a full-power license would have to be met before such future licensing action would be taken. *See e.g.*, 47 Fed. Reg. 30,233, col. 3 (response to Issue 5), and 30,234, col. 3 (response to Issue 10).

That the Commission intended licensing under 50.47(d) to be for the purpose of avoiding the need to first undergo the initial period of startup activities after a full-power license is issued, as discussed

(Continued)

believe the Commission may have implicitly made a generic finding that, in the absence of special circumstances existing for a particular facility, emergency preparedness required for full-power licenses can in the end be developed for nuclear power plants. Perhaps, in addition, the Commission had in mind the supportive generic finding that in the limited new operating license cases where such special circumstances may exist, they would in all probability become apparent before a decision to issue a low-power license pursuant to Section 50.47(d) would have to be made.

We do not know whether such generic findings implicitly were part, or on reflection would now be part, of the Commission's decision to promulgate Section 50.47(d). We believe the first generic finding would be well supported by the general licensing experience of recent years. Moreover, the second supportive generic finding is supported by the Shoreham exception to this general experience; the special circumstances have become apparent before the low-power determination permitted by Section 50.47(d) must be made.

We are not suggesting that this predictive emergency preparedness inquiry should be made in the typical operating license proceeding before applying Section 50.47(d) to permit issuance of a low-power license. Quite to the contrary, we are suggesting that generic findings, similar to the two we believe may have been implicit, be made explicit by the Commission to obviate the need for such an inquiry. However, where a Licensing Board believes that there are special circumstances in a particular proceeding which contradict the generic finding that offsite emergency preparedness eventually can be implemented, the matter should be certified to the Commission by the Board, similar to the spirit of the procedure outlined in 10 CFR §2.758. The Commission can then determine whether a low-power license may be issued in light of the Board's belief that there are special circumstances which the Commission should consider.

It may be that our present inability to find reasonable assurance that full-power emergency preparedness requirements can in the future be met for Shoreham will not be resolved unless and until our initial decision on the merits of the impending offsite emergency plan litigation finds otherwise. However, changes in circumstances, or facts developed as part of the hearing process, could support the conclusion prior to issuance of our initial decision on emergency planning that there is no longer apparent any factual bar to the eventual development of offsite emergency preparedness adequate to support issuance of a full-power operating license. If and when that occurs, the Licensing Board would so inform the

above, is supported by the Commission's description of the operation permitted under 50.47(d) as a "period of fuel loading and low-power testing" (emphasis added) 47 Fed. Reg. 30,232, col. 3. See also the proposed Statement of Considerations, 46 Fed. Reg. 61,132, col. 3. From this, one could reason that it appears the Commission contemplated that the full-power requirements would ultimately be met, for otherwise what purpose would be served by low-power testing up to five percent. Again, this support is not very direct or clear.

Commission. The Commission, in turn, could then decide whether to withdraw its waiver of the application of Section 50.47(d) so as to permit issuance of a low-power license.

We have not discussed Section 11 of the 1982-83 NRC Authorization Act, Pub. L. No. 97-415 (amending Section 192 of the Atomic Energy Act, 42 USC §2242), which authorizes the issuance of temporary operating licenses (initially up to five percent of power), or the Commission's proposed implementing regulations, dated April 4, 1983. 48 Fed. Reg. 14,926, *et seq.* (April 6, 1983). They are not presently pertinent. In any event, a combination of their provisions appears to require that the level of emergency preparedness appropriate to the power being authorized exists. For a five percent license this would presumably be the same scope of inquiry required by Section 50.47(d). Like Section 50.47(d), and for that matter Section 50.57(c), neither Section 11 of the Authorization Act nor the proposed implementing regulations (proposed Section 50.47(d), 48 Fed. Reg. 14,926 *et seq.* (April 6, 1983) contain any direct or clearly implicit requirement that a low-power temporary operating license should not be issued in circumstances where it cannot be found that there is reasonable assurance that the nuclear power facility will eventually be able to meet the requirements for a full-power operating license. Accordingly, the policy question which we certify on the application of Section 50.47(d) in the present circumstances of this proceeding must be answered whether dealing directly with that section, or indirectly through Section 192 of the act, as amended, and the proposed implementing regulations.

We believe that the question of whether the explicit terms of a regulation should be applied given the special circumstances of a particular proceeding is one which is certifiable directly to the Commission. *Cf.* 10 CFR §2.758 and note 7 thereof (requiring certification directly to the Commission of petition for exception from or waiver of regulation notwithstanding provisions of 10 CFR §2.785). However, we are at this same time referring to the Appeal Board our denial of Suffolk County's motion to terminate the proceeding. A short delay in the Commission's answering of the certified question is of no immediate moment. We therefore invite the Appeal Board, if it wishes, to include its views or otherwise supplement the discussion of this certified question for the benefit of the Commission, along with its decision on the referred ruling denying the County's motion to terminate. The Commission, by notice of this issuance, is apprised in the interim of the pendency of the certified question and can take any action it deems appropriate prior to the possibility of Appeal Board consideration of the question before it forwards the question to the Commission.

Why do we certify this question at this time? As set forth in note 7, *supra*, this Board will not be determining whether the primarily onsite emergency preparedness requirements needed under Section 50.47(d) have been met. There may be no licensing board decision on the merits of offsite emergency planning issues until after a decision to permit fuel loading and low-power testing may have been made.

In addition, given the present attention of this Board and of the Commission to other emergency planning issues in this proceeding, we believe the effect of our decision not to terminate the proceeding on any possible future licensing action, including a low-power license, should be considered as part of the total context. We could now predict the possibility that the Commission's policy guidance would eventually be needed on this question (assuming the Commission agrees with our decision not to terminate the proceeding outright as requested by the County). We therefore believe the question should be raised at this early time, rather than waiting for our first Partial Initial Decision (P.I.D.) on the merits of all issues other than offsite emergency planning. If it turns out that there is nothing in that P.I.D. which prevents the issuance of a low-power license under Section 50.57(c), then such a license up to five percent of rated power might be issued promptly.⁹ We would then have to stay its effect, and thereby cause delay, if we were only then to ask the Commission to consider the question which we raise now.¹⁰ Our early action is consistent with the Commission's Statement of Policy on Conduct of Licensing Proceedings that in general delay be avoided, and specifically that a Board obtain Commission guidance when it becomes apparent that such guidance will be necessary. CLI-81-8, 13 NRC 452, 456-57 (1981).

IV. SCHEDULE

For the information of the Commission and the Appeal Board, we provide the following estimate of the pertinent schedule. It is subject to the unavoidable uncertainties associated with the estimation of a hearing and decision schedule, particularly in a proceeding as extensive and intensive as this one.

LILCO, on April 5, 1983, once again revised to a later date its estimate of when it believes Shoreham will be physically ready for it to load fuel. Its new estimate is August 1983, although Counsel for LILCO indicated that LILCO has not discarded the possibility of accelerating that date. At the Board's request, LILCO will be providing its current schedule estimate in writing the beginning of each month. Tr. 20,360-61.

⁹ As noted above, a decision is immediately effective insofar as it authorizes operation up to five percent of power.

¹⁰ In other words, the Commission would then be unnecessarily placed by us in a situation where its decision time *could* be the pacing item in the plant's fuel-load schedule, particularly if the Commission ultimately rejects our view on the certified question. Of course, if the P.I.D. on issues other than emergency planning concludes that operation may not commence, the certified question may not be a pacing item.

Regardless of the decisions made by us on issues other than emergency planning, it is prudent planning to assume that the Appeal Board and the Commission will be quite occupied with other matters related to Shoreham upon issuance of our predictably extensive P.I.D. at the behest of one or more parties, be they Applicant, Intervenor, Staff or some combination of them. The Commission is entitled to the opportunity to determine whether it wishes to decide the certified question prior to that time.

LILCO estimates that it will file its revisions to its offsite emergency plan, specifying what resources it expects to rely on to replace the County's resources, around the end of April or beginning of May 1983. Tr. 20,990-91.

The Staff has stated that upon formal submission of the plan by LILCO, it immediately will submit LILCO's plan to FEMA for review pursuant to the inter-agency Memorandum of Understanding (45 Fed. Reg. 82,713 (1980) ("MOU")), and that FEMA will "respond" within two weeks of its receipt of the plan. Staff Br., at 5. The vagueness of the Staff's term "respond" inexcusably did not comport with our request for a definitive description and schedule of the Staff and FEMA review. We attempted thereafter to clarify the matter on the record. It turns out the Staff has no idea what FEMA will do or when FEMA will do it; "response" does not mean that FEMA will necessarily undertake a substantive review, let alone complete it within the two week time frame contained in the Staff brief. Tr. 20,992-94. In our referred ruling on the County's motion to terminate this proceeding, we found it was proper to consider factually offsite emergency preparedness in the absence of a County plan. However, we did not contemplate that possibly we would not have the usual benefit of FEMA's testimony on offsite emergency preparedness, because the offsite plan was developed by an applicant rather than a local government. Based on our reading of the MOU, a FEMA review of the State's plan and LILCO's offsite plan would be performed. If FEMA, contrary to our expectation, does not perform a timely review, or any review, we will have to assess the affect of any such circumstance in this proceeding. If there is any question of whether the MOU calls for FEMA review of LILCO's offsite plan, and of coordination between the State's overall plan and LILCO's plan, the Commission may wish to take steps to clarify the respective responsibilities of FEMA and the NRC Staff under the MOU. We are not here ruling that such FEMA review is required under 10 CFR §50.47(a) and/or Section 5 of the 1982-83 NRC Authorization Act. We are stating that it appears highly desirable to obtain such review from the agency in which expertise on offsite emergency preparedness is presumed to exist. Furthermore, since we assume FEMA is or will be familiar with the overall State plan, it is in a good position to assess the efficacy of any desirable coordination between the plan and LILCO's offsite plan.

We have set a five week schedule for the filing of offsite emergency planning contentions, and responses thereto, in our accompanying order denying the County's motion. The schedule would commence after receipt by the parties of LILCO's revised plan. On the assumption that LILCO will file its revised plan by the beginning of May, it is anticipated that a special prehearing conference to hear arguments on the admissibility of the proposed contentions, and to set the schedule for the preparation and filing of testimony, would be held around mid-June 1983.

The evidentiary record on all matters other than emergency planning was closed on April 8, 1983. A County motion to reopen the record on another of the safety contentions has just been received. In addition, as has been discussed in the

proceeding, it is contemplated that at least the County (and possibly other parties such as the Staff, depending on the results) will in effect move to reopen the Quality Assurance/Quality Control record to litigate the still pending, but long anticipated and much delayed (without explanation), Teledyne independent design review report which was commissioned by LILCO and supported strongly, if not effectively required, by the Staff.

Without considering the possible large effect of a reopening of the record, the Board currently believes it will be able to issue its Partial Initial Decision on matters other than emergency planning around the end of July 1983.

Based on the above schedule, it is hoped that if the Appeal Board disagrees with our referred ruling and believes the offsite emergency planning litigation should not proceed, it could issue its decision by the middle of June 1983.

Also based on the above schedule, it is hoped that the Commission will be in a position to decide the question we have certified to it, through the Appeal Board, by the end of July 1983. In raising the certified question, we did not solicit the views of the parties because we believe it is a matter of policy which the Commission must decide for itself, rather than a matter of interpretation of the language of the regulation in question. The Appeal Board or the Commission may, after preliminary inquiry, believe there are some salient points on which the parties' views before it would be helpful.

For the reasons discussed above, our "Memorandum and Order Denying Suffolk County's Motion to Terminate the Shoreham Operating License Proceeding," LBP-83-22, 17 NRC (1983) is REFERRED to the Appeal Board; and

The question of the applicability of 10 CFR §50.47(d) in the present circumstances of this proceeding is CERTIFIED to the Commission through the Appeal Board.

It is so ORDERED.

THE ATOMIC SAFETY AND
LICENSING BOARD

Lawrence Brenner, Chairman
ADMINISTRATIVE JUDGE

Dr. James H. Carpenter
ADMINISTRATIVE JUDGE

Dr. Peter A. Morris
ADMINISTRATIVE JUDGE

Bethesda, Maryland
April 20, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Lawrence Brenner, Chairman
Dr. James H. Carpenter
Dr. Peter A. Morris

In the Matter of

Docket No. 50-322-OL
(Emergency Planning)

LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station,
Unit 1)

April 20, 1983

The Licensing Board denies the motion of a county governmental intervenor to terminate this proceeding, concluding that under the Commission's regulations and applicable federal statutes, an applicant for an operating license should be permitted the opportunity to prove that the state of offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, even when a local county government in the plume exposure pathway emergency planning zone declines either to prepare or to implement a radiological emergency response plan.

EMERGENCY PLANNING: NUREG-0654

The criteria described in NUREG-0654 were intended to serve solely as regulatory guidance, not regulatory requirements. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-698, 16 NRC 1290, 1298-99 (1982) ("TMI"), *affirming* LBP-81-59, 14 NRC 1211, 1460 (1981).

In the absence of other evidence, adherence to NUREG-0654 may be sufficient to demonstrate compliance with the regulatory requirements of 10 CFR §50.47(b). However, "[m]ethods and solutions different from those set out in the guides will

be acceptable if they provide a basis for the findings requisite to the issuance or continuance of a permit or license by the Commission." *Id.* at 1299, quoting *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-644, 13 NRC 903, 937 (1981). "Compliance with NUREG-0654 . . . is thus not required by the Commission's emergency planning regulations." *TMI*, ALAB-698, 16 NRC at 1299.

EMERGENCY PLANNING: STATE AND LOCAL PLANS

Pursuant to 10 CFR §50.33(g), an applicant is required to file its own onsite and state and local government offsite emergency response plans as a condition of operating license issuance. The absence of any such plan would not, however, require the denial of an operating license as a matter of law, or require that an applicant obtain an exemption from the regulations before a license may be issued. Pursuant to 10 CFR §50.47(c)(1), in the absence of one or more of the plans required to be filed pursuant to section 50.33(g), an applicant is granted the opportunity to demonstrate "to the satisfaction of the Commission that deficiencies in the plans are not significant for the plant in question, that adequate interim compensating action have been or will be taken promptly, or that there are other compelling reasons to permit plant operation."

EMERGENCY PLANNING: STATE AND LOCAL PLANS

Pursuant to 10 CFR §50.47(a)(1), the issuance of an operating license for a power reactor is conditioned on an NRC determination that the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Section 50.47(a)(2) provides that the NRC is to make this overall determination based on a review of FEMA findings and determinations as to whether "state and local emergency plans" are adequate and whether there is reasonable assurance that they can be implemented, and on the NRC assessment as to whether the "applicants' onsite emergency plans" are adequate and whether there is reasonable assurance that they can be implemented. This provision does not itself require that state and local government offsite radiological response plans be filed by an applicant; it merely bifurcates initial review of the emergency plans required by section 50.33(g) between the NRC and FEMA.

EMERGENCY PLANNING: STATE AND LOCAL PLANS

In the event that the NRC determines on the basis of its section 50.47(a) review that there are deficiencies in the status of emergency planning based on defects in

or the absence of a state or local government offsite emergency response plan, this does not automatically require the denial of an operating license. Section 50.47(c)(1) provides that in such cases "the applicant will have an opportunity to demonstrate to the satisfaction of the Commission that deficiencies in the plans are not significant for the plant in question, that adequate interim compensating actions have been or will be taken promptly, or that there are other compelling reasons to permit plant operation." In the absence of a state or local government plan, the Commission may base this determination on utility sponsored offsite plan.

EMERGENCY PLANNING: STATE AND LOCAL PLANS

Section 109(a) of the NRC Authorization Act for fiscal year 1980, Pub. L. No. 96-295, 94 Stat. 780 (1980), precludes the Commission from using any funds authorized by that act to take actions leading to the issuance of an operating license for a "utilization facility" unless the Commission first determines that (1) there exists a state or local emergency preparedness plan which provides for responding to accidents at the facility concerned and which complies with the Commission's guidelines for such plans or (2) in the absence of such a plan, that there exists a state, local or utility plan which provides reasonable assurance that public health and safety is not endangered by operation of the facility concerned. The emergency planning regulations promulgated by the Commission pursuant to that act are "consistent" with that act (45 Fed. Reg. 55,402, 55,403, 55,406-07 (1981)), and are intended to fully implement its provisions.

ADMINISTRATIVE PROCEDURE ACT: NRC OPEN MEETINGS

Pursuant to 10 CFR §9.103, an open meeting is not part of the formal or informal record of decision of the matters discussed therein except as otherwise required by law. Statements of views or expressions of opinion made by Commissioners or NRC employees at open meetings are not intended to represent final determinations or beliefs. Such statements may not be pleaded, cited, or relied upon before the Commission or in any proceeding under part 2 of the NRC regulations (10 CFR Part 2) except as the Commission may direct.

ADMINISTRATIVE PROCEDURE ACT: INCORPORATION BY REFERENCE ON REGULATIONS

Pursuant to section 3(a)(1) of the Administrative Procedure Act, 5 U.S.C. §552(a)(1), as implemented by the regulations of the Office of the Federal Register, 1 CFR Part 51, no material may be incorporated into a rule by reference

unless the agency expressly intends such a result, 1 CFR §51.9; requests and receives the approval of the Director of the Office of Federal Register, 1 CFR §§51.1, 51.3; and the *Federal Register* notice indicates such specific approval, 1 CFR §51.9.

STATUTORY/REGULATORY CONSTRUCTION

It is "not necessary" to look beyond the words of a statute itself when constructing the language of an act which is plain and unambiguous on its face. *TVA v. Hill*, 437 U.S. 153, 184, n.29 (1978).

STATUTORY/REGULATORY CONSTRUCTION

Post hoc statements of Commissioners may not be relied upon as a basis for interpreting Commission intent at time regulations were promulgated. (*Cf. Weinberger v. Rossi*, 456 U.S. 25, 102 S. Ct. 1510, 71 L. Ed. 715, 724 (1982).) (Post-enactment statements of a congressional committee are not entitled to much weight as evidence of legislative intent at the time the statute was enacted.)

RULES OF PRACTICE: RESPONSIBILITIES OF COUNSEL

An administrative adjudicatory body, no less than a court, has every right to expect that, in a brief or other submission, nothing will be excised from a quoted passage unless its lack of relevance to the question under discussion is beyond substantial dispute. *Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B) ALAB-409, 5 NRC 1391, 1395 (1977).

EMERGENCY PLANNING: FEDERAL PREEMPTION

The refusal of a local government to adopt or implement a radiological emergency response plan does not, as a matter of law, preclude the issuance of an operating license for a nuclear power plant. A state or local government's refusal to participate may factually preclude a utility from demonstrating that adequate emergency planning exists to protect the public health and safety, thereby acting as a *de facto* veto of the issuance of an operating license. The Commission's rules of practice do not, however, give state and local governments a *de jure* veto over plant operation. The latter rejected interpretation of the Commission's regulations would permit state and local governments to regulate radiological hazards and would therefore be inconsistent with §§271 and 274 of the Atomic Energy Act of 1954, as amended.

STATE AND LOCAL REGULATION: FEDERAL PREEMPTION

In enacting §§271 and 274 of the Atomic Energy Act of 1954, Congress intended to reserve to the federal government the exclusive power to regulate matters of radiological health and safety in connection with the construction and operation of a nuclear power plant; Congress did not intend to further limit the power of states to regulate activities "other than protection against radiation hazards" associated with those areas over which the NRC had complete control. *Pacific Legal Foundation v. State Energy Resources Conservation and Development Commission*, 659 F.2d 903, 921 (9th Cir. 1981), affirmed in *Pacific Gas & Electric Co. v. State Energy Resources Conservation and Development Commission*, — U.S. — , 75 L. Ed. 2d 752 (April 20, 1983).

STATE AND LOCAL REGULATION: FEDERAL PREEMPTION

A state or local government may not independently develop standards for radiological emergency response plans. The development of emergency planning standards is a part of the regulation of radiological health and safety which is preempted from state and local regulation by federal law. The establishment of dual state and federal emergency planning and preparedness requirements would clearly permit states to regulate matters of radiological health and safety, which is clearly forbidden by the Atomic Energy Act of 1954, as amended.

MEMORANDUM AND ORDER DENYING SUFFOLK COUNTY'S MOTION TO TERMINATE THE SHOREHAM OPERATING LICENSE PROCEEDING

By this memorandum and order, we deny Suffolk County's February 23, 1983 motion to terminate this proceeding. We conclude that under the Commission's regulations and applicable federal statutes, an applicant for an operating license should be permitted the opportunity to prove that the state of offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, even when a local county government in the plume exposure pathway emergency planning zone declines either to prepare or to implement a radiological emergency response plan.

Lest this decision be misinterpreted, we emphasize at the outset that our ruling is limited to the narrow legal issue of whether a county's refusal to prepare or implement a radiological emergency response plan operates as a veto, precluding as a matter of law the issuance of a full power operating license for a nuclear power

plant. In holding that it does not, we do not reach the factual question of whether the Long Island Lighting Company (LILCO) is capable of providing that degree of offsite emergency preparedness necessary to entitle it to a full power license without the cooperation of Suffolk County (the County). That factual question will now be litigated before this Board. We decide at this time only that LILCO is entitled to the opportunity to attempt to make such a factual showing.

We believe that the County's motion presents significant legal and policy questions which could affect the basic structure of this proceeding in a pervasive manner. We therefore conclude that the public interest would be best served by our referral of this decision to the Atomic Safety and Licensing Appeal Board for its interlocutory review. We recognize, of course, that should the Commission itself wish to immediately review this decision, it possesses the authority to do so. 10 CFR §2.785(d); *see, e.g., Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-82-27, 16 NRC 883 (1982). By a companion order issued this date, we refer the ruling in this order to the Appeal Board. "Memorandum and Order Referring Denial of Suffolk County's Motion to Terminate to the Appeal Board and Certifying Low-Power License Question to the Commission (Through the Appeal Board)," LBP-83-21, 17 NRC 593 (1983).

I. BACKGROUND

The briefs submitted by the parties at this Board's request set forth the factual context of the County's motion in great detail. Based upon these briefs and the Board's personal knowledge of what has transpired, we summarize the factual and procedural background in Appendix A, attached to and published with this order. That appendix is lengthier than a normal exposition of the background in an effort to apprise the Appeal Board and the Commission reasonably, but fully, of the factual and procedural context. We believe it to be of potential assistance to those bodies for us to do so.

As detailed in the appendix, the salient facts are that the local governmental entity with jurisdiction over all of the plume exposure pathway emergency planning zone (EPZ), Suffolk County, New York, has resolved that it will not adopt or implement a local emergency plan and also that adequate emergency preparedness cannot be implemented through any plan in the event of a radiological emergency at the Shoreham plant. Even beyond this, the County has resolved to take all actions necessary to mandate that no other governmental agency, State or Federal, shall take any actions inconsistent with the County's conclusion that no radiological emergency plan would be adequate. County Legislature Resolution No. 111-1983, included as Ex. 3 to the County's Supplemental Brief.

There is an overall New York State emergency plan. However, the State plan normally depends upon the appropriate local entity, in this instance the County, for development of the necessary local planning elements of the overall plan. To date,

New York State has not indicated that it would take any action to compensate at the local planning level for the absence of a County plan. Indeed, in a press release (discussed in Appendix A to this order), the Governor of New York appears to state that, at least for now, the State would not do so. County Sup. Br., at Ex. 5. We do not know on this record whether the situation is static or dynamic. In any event, for purposes of our ruling, we assume that the State will not take action to compensate at the local level for the absence of a County plan. The briefs and other filings before us on this issue consist of:

- a) Suffolk County Motion to Terminate (February 23, 1983);
- b) Suffolk County Supplemental Brief (County Sup. Br.) (March 4, 1983);
- c) Brief of Town of Southampton (Southampton Br.) (March 17, 1983);
- d) Memorandum of Shoreham Opponents Coalition and North Shore Committee (SOC/NSC Br.) (March 17, 1983);
- e) LILCO Brief (LILCO Br.) (March 17, 1983);
- f) Brief of Robert Abrams, N.Y.S. Attorney General (Attorney General's Br.) (March 17, 1983);
- g) Letter of David Axelrod, Chairman N.Y.S. Disaster Preparedness Commission, to Administrative Judge Lawrence Brenner, Chairman Shoreham ASLB, US NRC, attached to letter of Matthew J. Kelly, N.Y.S. Public Service Commission, dated March 18, 1983 (Axelrod letter) (undated);
- h) NRC Staff Brief (Staff Br.) (March 25, 1983);
- i) Suffolk County Reply Brief (County Reply Br.) (March 29, 1983);
- j) LILCO Answer to County Reply Brief (LILCO Answer) (April 1, 1983).

It appears that all of these documents have also been filed with the Appeal Board and the Commission.

LILCO and the NRC Staff oppose the County's motion. The private intervenors, the Town of Southampton, and the New York State Attorney General, who is not a party before us, support the County. The letter from the Chairman of the New York State Disaster Preparedness Commission (DPC) was filed as a purported answer to questions we addressed to the State. It, on behalf of the State, appears to take a view on some matters which is inconsistent with the *amicus* brief filed by the Attorney General.¹

¹ Presumably, the New York State Attorney General styles his filing as an "*amicus* brief," because his is not the State office which long ago appeared in this proceeding and professed to be the authorized representative of the State. The State of New York has been admitted in this proceeding, pursuant to 10 CFR §2.715(c), through the New York State Atomic Energy Council (now superseded by the State Energy Office). Dr. Axelrod's letter must also be considered by this Board to represent the views of the

(Continued)

This matter, and the other briefs, are discussed in further detail in the procedural background section of Appendix A to this order.

II. DISCUSSION OF LEGAL ISSUES

For the reasons set forth below, the Board finds that when the pertinent sections of the Commission's emergency planning regulations, 10 CFR §§50.33(g), 50.47(a) and 50.47(c)(1), are read together and in the light of Section 109 of the 1980 NRC Authorization Act³ and Section 5 of the 1982-83 NRC Authorization Act,⁴ they do not require the existence of a Suffolk County government approved offsite radiological emergency response plan for the issuance of an operating license. The County's decision neither to adopt nor to implement such a plan therefore does not require the termination of this proceeding as a *matter of law*.

A. The Commission's Regulations

The County, NSC, SOC, Southampton and the New York State Attorney General are united in the conclusion that 10 CFR §§50.33(g) and 50.47(a) require the submission of local government radiological response plans as a prerequisite to the issuance of a full power operating license. Furthermore, they assert that while 10 CFR §50.47(c)(1) permits a utility to show that appropriate actions can be taken to compensate for deficiencies in an existing County plan, it would not permit a utility to attempt to compensate for the complete absence of a County plan. The NRC Staff and LILCO assert a number of reasons why they believe these conclusions to be incorrect.

1. Background Documents

The County and its supporters cite various authorities in support of their regulatory interpretations. We wish to clarify at the outset our reasons for refusing

State of New York. Regrettably, this letter is terse and largely non-responsive to the questions raised in our February 28, 1983 "Memorandum Requesting Submission of Views of New York State on Emergency Planning" (unpublished). It was therefore remarkably unenlightening.

While we recognize that NRC licensing proceedings regarding Shoreham may potentially concern issues of interest to any number of governmental entities of the State, we require henceforth, pursuant to our authority to regulate the conduct of this proceeding, 10 CFR §2.718, that the State of New York select one entity to consolidate and represent its interests before us. In this proceeding we do not suffer from either a paucity of issues or litigants; we have adequate inter-party disputes to resolve and do not intend to resolve intramural disputes among agencies of the State.

The State therefore is expected to take steps in the future to clarify which State entity will participate in this proceeding to represent the position of the State.

³ Pub. L. No. 96-295, §109, 94 Stat. 780, 783 (1980).

⁴ Pub. L. No. 97-415, §5, 96 Stat. 2067, 2069 (1983).

to rely on certain of these authorities as indicating the Commission's intent in promulgating its emergency planning regulations.

The County asserts that "NUREG-0654 confirms the plain meaning of the NRC's regulations that a RERP [radiological emergency response plan] adopted and implemented by the local governmental entity is required by 10 CFR §50.47." County Sup. Br., at 22. In its opinion, the Commission's emergency planning regulations "specifically embrace" NUREG-0654, presumably referring to the mention of that document in note 1 of 10 CFR §50.47(b). That footnote states that the planning standards enumerated in Section 50.47(b) "are addressed by specific criteria in [an interim version of] NUREG-0654. . . ." The County therefore apparently reads NUREG-0654's contemplated allocation of emergency planning responsibilities between the utility and state and local governments as being incorporated by reference as part of the regulatory requirements of Section 50.47(b).

We disagree. The criteria described in NUREG-0654 were intended to serve solely as regulatory guidance, not regulatory requirements. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-698, 16 NRC 1290, 1298-99 (1982) ("TMI"), *affirming* LBP-81-59, 14 NRC 1211, 1460 (1981).⁵ Indeed, the Commission's mere reference to NUREG-0654 in a footnote to 10 CFR §50.47 would have been insufficient to incorporate that document by reference as a part of a federal regulation, had the Commission so intended.⁶

In the absence of other evidence, adherence to NUREG-0654 may be sufficient to demonstrate compliance with the regulatory requirements of 10 CFR §50.47(b). However, such adherence is not required, because regulatory guides are not intended to serve as substitutes for regulations. *TMI*, ALAB-698, *supra*, 16 NRC at 1298-99. "Methods and solutions different from those set out in the guides will be acceptable if they provide a basis for the findings requisite to the issuance or continuance of a permit or license by the Commission." *Id.* at 1299, *quoting Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-644, 13 NRC 903, 937 (1981).⁷ "Compliance with NUREG-0654 . . . is

⁵ See also 10 CFR Part 50, Appendix E, n.1; NRC Staff Regulatory Guide 1.101, Rev. 2 (October, 1981), specifically endorsing and incorporating by reference the criteria and recommendations in NUREG-0654 as "generally acceptable methods for complying" with the standards in 10 CFR §50.47.

⁶ Pursuant to Section 3(a)(1) of the Administrative Procedure Act, 5 U.S.C. §552(a)(1), as implemented by the regulations of the Office of the Federal Register, 1 CFR Part 51, no material may be incorporated into a rule by reference unless the agency expressly intends such a result, 1 CFR §51.9; requests and receives the approval of the Director of the Office of Federal Register, 1 CFR §§51.1, 51.3; and the *Federal Register* notice indicates such specific approval, 1 CFR §51.9. The NRC emergency planning rules include neither such a designation nor any express intention that NUREG-0654 be incorporated by reference.

⁷ See also NRC Staff Regulatory Guide 1.101, Rev. 2, at 1.101-2, *supra*, stating that NUREG-0654 will be used as a basis for evaluating the adequacy of emergency plans and preparedness of applicants for a license to operate a nuclear power reactor, "[e]xcept in those cases in which the applicant or licensee proposes acceptable alternative practices or methods for complying with specified portions of the Commission's regulations. . . ."

thus not required by the Commission's emergency planning regulations." *TMI*, ALAB-698, 16 NRC at 1299. Therefore, it is inappropriate to rely on NUREG-0654 to determine the essential requirements of these regulations.

As authority for its construction of the Commission's emergency planning regulations, the County also references selected portions of the Rogovin Report,⁸ the Kemeny Commission Report,⁹ House Report No. 96-413¹⁰ and a Government Accounting Office study,¹¹ asserting that "[t]he NRC relied heavily on these studies and reports in preparing and later in adopting its emergency planning regulations. 44 Fed. Reg. 75,169." County Sup. Br., at 18.

The Commission does indeed generally reference each of these documents (without citation to specific pages) in the Statement of Considerations accompanying its December 19, 1979 proposed emergency planning rules at the *Federal Register* page cited by the County. The Commission describes these documents as making "important contributions" on the state of emergency planning around nuclear facilities, and states that "[t]he proposed rule meets many of the concerns discussed in the above mentioned reports." 44 Fed. Reg. at 75,169. The Commission also apparently refers to these documents in the Statement of Considerations for its final rule, 45 Fed. Reg. 55,402, 55,403 (August 19, 1980) as forming part of its basis for promulgating these rules, but does not cite them by name.

Based on the description of these documents appearing in the Commission's proposed and final rules, however, we can only speculate which concerns raised in these reports the Commission believed to be addressed by its proposed rules. We see no basis for concluding that the passages drawn from these documents by the County evidence specific requirements intended by the Commission in enacting 10 CFR §§50.33(g) and 50.47(a). In fact, the majority of those passages referenced by the County are addressed more to the general need for improved emergency planning capability for nuclear power plants than they are to the question of whether a plant should be licensed in the absence of a County sponsored plan. To the extent they also indicate that the expected course would be for the appropriate local government to be heavily involved in proposing a local offsite plan to be reviewed as part of the NRC licensing process, there is no dispute of that point.

While we view these documents as generally forming *a part* of the basis for the Commission's conclusion that more stringent emergency planning and preparedness requirements should be adopted for nuclear power plants, we do not believe the Commission suggested these documents to be so linked to its proposed rules

⁸ M. Rogovin, *Three Mile Island: A Report To The Commissioners*, at 131-132 (1979). County Sup. Br., at 18-19.

⁹ J. Kemeny, *Report of the President's Commission On The Accident At Three Mile Island*, at 76 (1979). County Sup. Br., at 19-20.

¹⁰ *Emergency Planning Around U.S. Nuclear Power Plants: Nuclear Regulatory Commission Oversight*, H.R. Rep. No. 413, 96th Cong. 1st Sess. 51-52 (1979). County Sup. Br., at 19.

¹¹ GAO Report, EMD-78-110, *Areas Around Nuclear Facilities Should Be Better Prepared for Radiological Emergencies* (March 30, 1979). County Sup. Br., at 20.

that it intended that specific quotations from these documents be relied upon in interpreting its emergency planning regulations.

2. *The Parties' Arguments*

The County and its supporters assert that the plain language of 10 CFR §§50.33(g) and 50.47(a) mandate the existence of a County offsite radiological emergency response plan as a prerequisite for the issuance of a full power license. Section 50.33(g) provides, in pertinent part:

(g) If the application is for an operating license for a nuclear power reactor, the applicant shall submit radiological emergency response plans of *State and local governmental entities* in the United States that are wholly or partially within the plume exposure pathway Emergency Planning Zone (EPZ), as well as the plans of State governments wholly or partially within the ingestion pathway EPZ (footnotes omitted) (emphasis added).

* * *

The County reads this reference to the plans of "local government entities" as precluding NRC consideration of an offsite plan sponsored by a utility. County Sup. Br., at 15.

The County views section 50.47(a) as establishing a similar requirement. Pursuant to 10 CFR §50.47(a)(1), no operating license for a nuclear power reactor will be issued unless the NRC determines that the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Section 50.47(a)(2) provides, in pertinent part:

(2) The NRC will base its finding on a review of the Federal Emergency Management Agency (FEMA) findings and determinations as to whether State and *local emergency plans* are adequate and whether there is reasonable assurance that they can be implemented, and on the NRC assessment as to whether the applicant's onsite emergency plans are adequate and whether there is reasonable assurance that they can be implemented (emphasis added).

* * *

As read by the County, this provision specifically requires the existence of a local government-sponsored offsite plan for purposes of FEMA findings and determinations, and thus for the Commission to make an ultimate determination on the adequacy of onsite and offsite preparedness. County Sup. Br., at 16-17.

The County also states that the exceptions to the Commission's emergency planning regulations provided by Section 50.47(c)(1) are immaterial to the present situation. County Sup. Br., at 25-28. Section 50.47(c)(1) provides:

(c)(1) Failure to meet the applicable standards set forth in paragraph (b) of this section may result in the Commission declining to issue an operating

license; however, the applicant will have an opportunity to demonstrate to the satisfaction of the Commission that deficiencies in the plans are not significant for the plant in question, that adequate interim compensating actions have been or will be taken promptly, or that there are other compelling reasons to permit plant operation.

The County asserts that the "plain meaning" of this regulation is to permit an applicant to show that the failure of a state or local government offsite plan, or the applicant's onsite plan, to meet one of the 16 planning standards incorporated in 10 CFR §50.47(b) need not lead to the denial of an operating license, provided that adequate compensating measures are provided for in another plan. In the County's view, this provision cannot be relied upon as a basis for the issuance of an operating license in the complete absence of a local government plan as it does not exempt an applicant from the requirements of Sections 50.33(g) and 50.47(a).

LILCO advances a number of reasons in support of its view that the County has interpreted the Commission's emergency planning regulations incorrectly. LILCO states that a "sensible" reading of Section 50.33(g) would be that an applicant is required to submit the plans of a local governmental entity¹² only if such plans exist. Additionally, LILCO argues that the County incorrectly reads Section 50.47(a)(2) in that this regulation requires the NRC to review the findings of FEMA on offsite preparedness based on FEMA's review of "State and local emergency plans," not "State and local *government* plans." LILCO Br., at 64, 68-71. LILCO reads this distinction between the language of Sections 50.33(g) and 50.47(a)(2) as indicating the specific intent of the Commission that a privately prepared local plan could be considered for the purposes of Section 50.47.

LILCO also asserts that a local government plan is not a prerequisite for applying Section 50.47(c)(1). LILCO Br., at 65, 71-74. LILCO believes that interpreting Section 50.47(c)(1) in the manner urged by the County would have the effect of giving a local government the power to veto, as a matter of law, the operation of a nuclear power plant, as it would preclude an applicant from ever being able to show any basis for permitting operation if a local government did not agree to participate in emergency planning matters. LILCO Br., at 74-79. Furthermore, LILCO asserts that such an interpretation would violate §§271 and 274 of the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2018 and 2021) and would thus violate the principle that regulations should not be construed in such a way as to call into question their validity. LILCO Br., at 65, 80-93.

The NRC Staff agrees with the interpretation of Sections 50.47(a)(2) and (c)(1) asserted by LILCO. The Staff further takes the position that the phrase "emergency response plans of State and local governmental entities" within the plume exposure

¹² LILCO suggests that because its own offsite plan was originally prepared in large part by the Suffolk County government, it might be viewed as a plan "of" the County government for purposes of Section 50.33(g), at least where there is no other County plan. LILCO Br. at 66, n.18. We find this argument specious.

EPZ is included in Section 50.33(g) as a description of the entities which would have to be encompassed by an emergency plan, not as a requirement that the plan be sponsored and implemented by a government.¹³ The Staff also urges that Sections 50.33(g) and 50.47(a)(2) must be read together with Section 50.47(c)(1), which it believes permits consideration of a utility sponsored offsite plan. Staff Br., at 14.

3. *The Board's Decision*

We believe that many interpretations of the Commission's emergency planning regulations urged on us by the parties do not fully reflect the Commission's intent. We reject the view of LILCO and the Staff that Section 50.33(g) read by itself requires the filing of local government offsite emergency plans only if such plans exist. Such an interpretation would be contrary to the plain meaning of Section 50.33(g) and in conflict with the overall regulatory scheme of 10 CFR Part 50, which generally sets forth mandatory requirements for the issuance of a construction permit or an operating license. Indeed, Section 50.33 is entitled "Contents of applications; general information;," and begins with the overall preamble "Each application shall state:"¹⁴

Our view that Section 50.33(g) read in isolation requires the filing of an offsite emergency plan sponsored by the appropriate local government, does not mean, however, that we adopt the views of the County and its supporters that the absence of such a plan requires the denial of an operating license as a matter of law, or that

¹³ The Staff does not explain the apparent inconsistency between this interpretation of the quoted phrase and the word structure of the rest of the sentence in Section 50.33(g) from which the phrase is extracted, viz.: ". . . as well as the plans of State governments wholly or partially within the ingestion pathway EPZ" (emphasis added).

¹⁴ LILCO's analogy of this regulation to an Internal Revenue regulation requiring taxpayers to report rental income only if the taxpayer has rental income is inapposite. (LILCO Br., at 67.) Part 50 of the NRC regulations is not directed to the general population such that only some provisions will apply to some classes of people. Rather, Part 50, as entitled, is directed to "Domestic Licensing of Production and Utilization Facilities." Its provisions, including the subsections of Section 50.33, generally use a prefatory "If" clause to specify when a provision applies to less than all classes of facilities licensed under Part 50. Indeed, Section 50.33(g) begins "If the application is for an operating license for a nuclear power reactor, . . ." to designate the affected class. To be truly analogous, LILCO's hypothetical would require that one posit a tax regulation as stating "All taxpayers with property which was rented shall report rental income." When adjusted for symmetry, LILCO's analogy defeats LILCO's point.

LILCO also argues that the County's interpretation that Section 50.33(g) mandates plans sponsored by local governmental entities proves too much, because there may be, as in this case, many local governmental entities within the EPZ. LILCO Br., at 67-68. We agree with the County's reply that for purposes of Section 50.33(g), only the appropriate local governments with requisite emergency planning responsibilities pursuant to the hierarchy of governments within a particular EPZ need be considered. No one has argued in this case that the appropriate local entity is one other than Suffolk County. However, other local governments would not be precluded from providing compensating measures if the most appropriate local government does not sponsor a plan.

the regulations require that an applicant obtain an exemption from the regulations before a license may be issued.

As noted by the County (County Sup. Br., at 20), the Statement of Considerations in support of the Commission's December 19, 1979 proposed rules states that "[b]oth versions of the proposed amendments call for State and local government emergency response plans to be submitted to and concurred in by the NRC as a condition of operating license issuance." 44 Fed. Reg. 75,167, at 75,168, Cols. 2-3 (1979). This reference to "both versions of the proposed amendments" relates to the fact that the Commission had proposed two alternative versions of its rules for both currently operating nuclear power plants (proposed Section 50.54(s) and (t), 44 Fed. Reg. at 75,171) and for the issuance of new operating licenses (proposed Section 50.47, 44 Fed. Reg. at 75,170-71).

Even though the Commission described the submission of state and local emergency response plans as "a condition of operating license issuance" under these proposed rules, neither alternative proposed by the Commission would have made denial of an operating license application or shutdown of an operating nuclear power plant mandatory upon the failure of an applicant or licensee to submit the required emergency plans. As the Commission noted in the paragraph immediately following the language quoted by the County from the Statement of Considerations to the proposed rules:

Under one alternative being considered, the proposed rule would require a determination on continued operation of plants where relevant State and local emergency response plans have not received NRC concurrence. Shutdown of a reactor would not follow automatically in every case. Under the other alternative proposal, shutdown of the reactor would be required automatically where the appropriate State and local emergency response plans have not received NRC concurrence within the prescribed time periods. However, the Commission could grant an exemption to this requirement if the licensee can demonstrate to the satisfaction of the Commission that the deficiencies in the plan are not significant for the plant in question, that alternative compensating actions have been or will be taken promptly, or that there are other compelling reasons. If there is no concurrence and the plant is shut down, then the plant must remain shut down until such an exemption is granted or until concurrence is obtained (emphasis added).

44 Fed. Reg. at 75,168, Col. 3.

That the Commission did not intend to deny the issuance of an operating license, even in the absence of the plans required to be filed by Section 50.33(g), is made even more plain by an examination of the two versions of Section 50.47(a) proposed by the Commission. As originally proposed, Section 50.47(a) stated:

[Alternative A: (a) No operating license for a nuclear power reactor will be issued *unless the emergency response plans submitted by the applicant*

in accordance with §50.33(g) have been reviewed and concurred in by the NRC. In the absence of one or more concurred-in plans, the applicant will have an opportunity to demonstrate to the satisfaction of the Commission that deficiencies in the plans are not significant for the plant in question, that alternative compensating actions have been or will be taken promptly, or that there are other compelling reasons to permit operation.] OR

[Alternative B: (a) No operating license for a nuclear power reactor will be issued *unless the emergency response plans submitted by the applicant in accordance with §50.33(g) have been reviewed and concurred in by the NRC. An applicant may request an exemption from this requirement based upon a demonstration by the applicant that any deficiencies in the plans are not significant for the plant in question, that alternative compensating actions have been or will be taken promptly, or that there are other compelling reasons to permit operation. No such operating license will be issued unless NRC finds that appropriate protective actions, including evacuation when necessary, can be taken for any reasonably anticipated population within the plume exposure EPZ]* (footnotes omitted) (emphasis added).

44 Fed. Reg. at 75,170-71.

These proposed versions of Section 50.47 clearly establish that the Commission contemplated permitting an applicant the opportunity to demonstrate that issuance of an operating license is warranted, even in the absence of a plan required by Section 50.33. While proposed "Alternative B" would have required that an applicant seek an exemption from the requirements of Section 50.33, "Alternative A" permitted the applicant this opportunity without the need for formal application for an exemption.

In promulgating its final emergency planning regulations, the Commission noted that ". . . the Commission chose a text for Sections 50.47 and 50.54(s) and (t) that is similar to, but less restrictive than, alternative A in the proposed rule." 45 Fed. Reg. 55,406, Col. 3. It also observed that "[t]hese rules are consistent with the approach outlined by FEMA and NRC in a Memorandum of Understanding (45 Fed. Reg. 5847, January 24, 1980)." 45 Fed. Reg. 55,402-403. The final version of Section 50.47 was thus intended both to establish formally FEMA review of emergency plans as a part of the NRC approval process (Section 50.47(a)) and to incorporate a "less restrictive" version of the provisions of "Alternative A" of the proposed rule. (10 CFR §50.47(c)(1)). Rather than have the NRC review and "concur" in the plans required to be filed pursuant to Section 50.33(g), as originally proposed in "Alternative A," the final rule requires that the NRC make a finding as to the adequacy of onsite and offsite preparedness based on FEMA's determination of whether state and local emergency plans are adequate and capable of being implemented, and on the NRC's assessment of whether the applicant's onsite emergency plans are adequate and capable of being implemented.

We therefore read the final version of Section 50.47(a) as merely bifurcating the initial review of those plans required to be filed under Section 50.33(g) between FEMA and the NRC.¹⁵ We also conclude, as further detailed below, that Section 50.47(c)(1) should be read to permit alternative planning arrangements “in the absence of one or more” of the plans required to be filed under 50.33(g), as had originally been contemplated under proposed “Alternative A,” since the Commission states that the final rule is “less restrictive” than “Alternative A.”¹⁶

The County and its supporters, however, do not interpret Section 50.47(c)(1) as permitting the factual consideration of a utility sponsored offsite plan as a basis for the issuance of an operating license “in the absence of” any one of those plans required by Section 50.33(g). No party specifically raised the point that the final version of Section 50.47(c)(1) does not explicitly state that its provisions may apply “in the absence of one or more” of the plans required by Section 50.33(g), as had “Alternative A,” even though the Commission described this section as being “less restrictive” than that proposed Alternative.

In the view of the County, the Commission was both aware of the possibility that state and local government action might prevent the operation of a nuclear plant and explicitly determined that the decision of how best to protect the public, including the possibility of plant shutdowns “should be left to the State and local governmental authorities.” County Sup. Br., at 24.

We agree with the County that the Commission was most certainly aware of the possibility that, *as a factual matter*, state or local government action or inaction might prevent the operation of a nuclear plant. However, we do not believe that the Commission intended to grant state or local governments legal authority to

¹⁵ We are hesitant to assume the punctiliousness of word choice which the Staff and LILCO read into the Commission’s omission of the word “government” from the reference to “State and local emergency plans” in Section 50.47(a)(2). Their argument is reinforced by the omission from the final rule of the reference to submission of plans “in accordance with §50.33(g).” However, as the County notes at page 17 of its supplemental brief, the Statement of Considerations to the NRC’s final rule defines the Commission’s decision on the adequacy of onsite and offsite preparedness as “a finding in the licensing process as to the overall and integrated state of preparedness.” 45 Fed. Reg. at 55,407, col. 2. The “overall state of emergency preparedness” is defined as the “integration of licensee’s emergency preparedness as determined by the NRC and of the State/local governments as determined by FEMA and reviewed by NRC.” 45 Fed. Reg. at 55,406, col. 2. *See also* 45 Fed. Reg. 55,407, cols. 2-3, which, in giving the description of the plan approval process which will take place under the final regulations, closely tracks the language of Section 50.47(a)(2), but describes the plans as “State and local government emergency response plans” (emphasis added).

Therefore, while we believe that the Commission could have purposefully omitted the word “government” from Section 50.47(a)(2), in contemplation of FEMA’s review of state and local plans not sponsored by the appropriate government, we find no basis for such a construction in the Commission’s administrative rulemaking record. However, in view of our interpretation of Section 50.47(c)(1), we reach, in effect, the same result advocated by the Staff and LILCO, albeit not by reading 50.47(a)(2) in isolation.

¹⁶ Even “Alternative B,” which presumably the Commission would describe as more restrictive than the adopted rules, would have permitted this showing, albeit by the procedural route of a request for exemption.

regulate nuclear power, other than the power to develop, if they choose to, offsite radiological emergency response plans based on NRC promulgated guidelines.

As noted by the County (County Sup. Br., at 23-24), the NRC Staff stated in SECY-80-275, June 3, 1980, Enclosure L, "Analysis of ACRS Comments (on the Commission's December 19, 1979 proposed rule)" at 9, that both the Staff and the Commission were aware that the proposed rule potentially gave a "third party defacto (sic) veto power" to state and local government authorities. However, as noted by LILCO (LILCO Br., at 83-84), a "*de facto* veto power" means only that in the absence of a state or local government plan, a utility might not be able to demonstrate factually the existence of sufficient emergency response capability to entitle it to the issuance of an operating license; no "*de jure* veto power" was given to state or local governments by the proposed rule, making issuance of an operating license impossible as a matter of law in the absence of a state or local government sponsored plan. In fact, as discussed above, *both* proposed versions of Section 50.47(a) established procedures whereby an operating license might be issued in the absence of a State or local plan.

Nor do we find support in the other authorities cited by the County for its conclusion that the Commission's final regulations were intended to give state and local governments a *de jure* veto power over plant operation based on their refusal to adopt or to implement an emergency plan. The County's reliance (County Sup. Br., at 24) on language from the Staff's draft "Environmental Assessment for Effective Changes to 10 CFR Part 50; Emergency Planning Requirements for Nuclear Power Plants," at 27 (June 3, 1980), Enclosure I to SECY-80-275, is misplaced as a basis for interpretation of Section 50.47(c)(1). This document discusses only the likely environmental impact of the Commission's new emergency planning rules in situations "where identified deficiencies persist, when the deficiencies in the plan are significant for the plant in question, when compensating actions have not or will not be taken, or when there are no other compelling reasons for license issuance or continued operation," thereby requiring plant shutdown or the denial of an operating license application. *Id.* at 4.¹⁷ In other words, this document only notes the possible impacts in fact, of state and local governments on the possible need for plant shutdown *after* resort to Section 50.47(c)(1) has already proved to be unavailing. This is consistent with the two sentences immediately preceding the excerpt from the document quoted by the County. Encl. I to SECY-80-275, at 26 (NUREG-0685, at 28).

¹⁷ This document was subsequently published as NUREG-0685. The excerpt quoted by the County appears at page 28 of this publication. "Environmental Assessment for Effective Changes to 10 CFR Part 50 and Appendix E to 10 CFR Part 50; Emergency Planning Requirements for Nuclear Power Plants" (August, 1980). The final version of this document does not substantively change the language relied upon by the County, but adds to the above quoted language the additional circumstance "and (e) no other appropriate enforcement actions can be taken. . . ." *Id.* at 4.

A similar analysis applies to the County's quotation (Sup. Br., at 24-25) of language from the Statement of Considerations to the Commission's final rule on the effect of a state or local government's power to prohibit plant operation "through inaction of State and local governments or an inability to comply with these rules." 45 Fed. Reg. at 55,404, Col. 1. The Commission states later in the same paragraph quoted by the County that "[r]elative to applying this rule in actual practice however, the Commission need not shut down a facility until all factors have been thoroughly examined." Therefore, the language cited by the County also is not relevant to an interpretation of the meaning of Section 50.47(c)(1), as it reaches only the question of what happens when, even after resort to this section, the facts do not justify the issuance of an operating license for, or the continued operation of, a nuclear power plant.

We find there to be no basis for reading Section 50.47(c)(1) as narrowly as the County and its supporters do. As noted by the Staff (Staff Br., at 16), the plain language of the rule does not establish a hierarchy of deficiencies such that major deficiencies in one plan, or even that plan's absence, should be viewed as rendering other emergency planning efforts ineffective as a matter of law. The standard established by the rule asks only whether the deficiencies found are significant for the plant in question, whether the proposed interim measures are sufficient to compensate for the deficiencies found, or whether there are other compelling reasons to permit plant operation.

In our view, the Commission clearly contemplated the possibility of considering a utility sponsored offsite emergency plan under Section 50.47(c)(1) if a state or local government determined that it would not adopt or implement a plan of its own. In the Statement of Considerations to its final rule, the Commission stated:

In deciding whether to permit reactor operation in the face of some deficiencies, the Commission will examine among other factors whether the deficiencies, (sic) are significant for the reactor in question, whether adequate interim compensatory actions have been or will be taken promptly, or whether other compelling reasons exist for reactor operation. In determining the sufficiency of "adequate interim compensatory actions" under this rule, the Commission will examine State plans, local plans, and *licensee plans* to determine whether features of one plan can compensate for deficiencies in another plan so that the level of protection for the public health and safety is adequate. *This interpretation is consistent with the provisions of the NRC Authorization Act for fiscal year 1980, Pub. L. 96-295* (emphasis added).

45 Fed. Reg. at 55,403, Col. 1.

At another point in that same document, the Commission explained its determination to adopt a final rule containing language "less restrictive than" that contained in "Alternative A" of its December 19, 1979 proposed rules:

Rather than providing for the shutdown of the reactor as the only enforcement action and prescribing specific preconditions for the shutdown remedy, the final rule makes clear that for emergency planning rules, like all other rules, reactor shutdown as outlined in the rule is but one of a number of possible enforcement actions and many factors should be considered in determining whether it is an appropriate action in a given case. This Commission choice is consistent with most of the comments received from State and local governments and is *consistent with the provisions of Section 109 of the NRC fiscal year 1980 Authorization Act* (emphasis added).

45 Fed. Reg. 55,406-07. See also 45 Fed. Reg. 55,402, Col. 3 to same effect.

As we explain in greater detail in the discussion below of the Authorization Acts, we interpret these quotations as evidencing the Commission's intent to permit the same degree of flexibility in the issuance of an operating license under Section 50.47(c)(1) as is permitted under Section 109 of the Commission's 1980 Authorization Act. That act clearly permits Commission consideration of a utility sponsored offsite emergency plan.

While we agree with the County that apparently no previous NRC decision has interpreted Section 50.47(c)(1) to permit consideration of a utility sponsored offsite plan, we find no support for its view that NRC case law has interpreted Section 50.47(c)(1) to be "immaterial where a required plan does not exist." County Sup. Br., at 28. To the best of our knowledge, this issue has never been raised in those cases which have explicitly discussed Section 50.47(c)(1) to date.¹⁸ Nothing in those opinions, or other cases cited by the County, is contrary to the interpretation which we reach here.

Nor does the Commission's opinion in *Consolidated Edison Co.* (Indian Point, Units 2 and 3), CLI-82-38, 16 NRC 1698 (December 23, 1982), suggest our reading of Section 50.47(c)(1) to be incorrect. To the contrary, it provides support for our view. That case involved the application of 10 CFR §50.54(s)(2) (a provision parallel to Section 50.47(c)(1) but relating to *operating* reactors) to a situation where certain previously identified planning deficiencies had not been corrected within 120 days of their identification.¹⁹

¹⁸ *Southern California Edison Co.* (San Onofre, Units 2 and 3), CLI-82-14, 16 NRC 24 (July 16, 1982); ALAB-717, 17 NRC 346 (March 4, 1983); ALAB-680, 16 NRC 127 (July 16, 1982); LBP-82-39, 15 NRC 1163 (1982); LBP-82-3, 15 NRC 61 (1982); *Pacific Gas and Electric Co.* (Diablo Canyon, Units 1 and 2), CLI-81-22, 14 NRC 598 (1981) (Additional Views of Commissioner Ahearn); LBP-81-21, 14 NRC 107 (1981); *Metropolitan Edison Co.* (Three Mile Island, Unit 1), LBP-81-59, 14 NRC 1211 (1981).

¹⁹ Section 50.54(s)(2) provides a four-month grace period from the time deficiencies are identified until the time the Commission must decide whether shutdown or any other enforcement action is appropriate. Other than this grace period, the factors to be considered in determining appropriate enforcement actions under Section 50.47(c)(1) and that section are the same.

In determining whether shutdown or other enforcement action was required, the Commission stated that NRC regulations permit but do not mandate immediate shutdown of operating power plants where identified deficiencies exist in emergency planning and preparedness. The Commission noted that it had rejected a mandatory shutdown formula when it adopted its emergency planning regulations. 16 NRC at 1703. The Commission also observed that the decision of an appropriate enforcement action was to be guided by a balancing of factors including whether the deficiencies are significant for the plant in question, whether adequate interim compensating actions have been or will be taken promptly and whether there are other compelling reasons for continued operation. 16 NRC at 1699.

The County states that the Commission reached its decision not to order the shutdown of Indian Point Units 2 and 3, despite deficiencies which included the fact that no emergency plan existed for one county in part of the plume exposure pathway EPZ, because the Commission viewed the existence of compensatory state plans and the prediction of prompt completion of the absent county plan to represent mitigating circumstances. County Sup. Br., at 29. Based on this precedent, the County concludes that as it has itself decided neither to adopt nor implement an emergency plan, "the strong indication of record is that a majority of the Commission would not permit operation of Shoreham." County Sup. Br., at 30.

The County's discussion of the *Indian Point* decision does not support its legal conclusion that Section 50.47(c)(1) does not permit consideration of the LILCO sponsored offsite plan. This is because the balancing of those factors enumerated under Section 50.47(c)(1) is a factual determination — the very factual determination made by the Commission in *Indian Point* on an interim basis and which the Commission stated it would shortly reconsider in light of subsequent *factual* events stemming in part from actions by Rockland County.

Indeed, we believe the Commission's *Indian Point* decision to demonstrate that as a matter of law, we could not grant the County's motion to terminate this proceeding, based solely on its Resolution No. 111-1983, as such a determination could only be made after a factual inquiry pursuant to Section 50.47(c)(1).²⁰ Whether an evidentiary hearing is actually required for this inquiry, as distinguished from the possibility that a party could move for summary disposition of some or all contentions, depends upon the material facts marshaled by the parties in support of their positions.

²⁰ We note that an additional factor considered by the Commission in determining that shutdown was not an appropriate enforcement action in *Indian Point* was that all remaining emergency planning problems in that case related to the responsibilities of state and local governmental entities. Thus there was "no question here of penalizing licensees for violations or other improper conduct on their part." 16 NRC at 1703.

B. The NRC's Emergency Planning Regulations Are Consistent with Its 1980 and 1982/83 Authorization Acts

1. The 1980 Authorization Act

Pursuant to Section 109(a) of the NRC Authorization Act for fiscal year 1980, Pub. L. No. 96-295, 94 Stat. 780 (1980), the Commission was precluded from using any funds authorized by that act to take actions leading to the issuance of an operating license for a "utilization facility"²¹ unless the Commission first determines that (1) there exists a state or local emergency preparedness plan which provides for responding to accidents at the facility concerned and which complies with the Commission's guidelines for such plans or (2) in the absence of such a plan, that there exists a state, local or utility plan which provides reasonable assurance that public health and safety is not endangered by operation of the facility concerned.

Section 109(b)(1) required that the Commission promulgate regulations to effectuate this requirement:

(b) Of the amounts authorized to be appropriated under section 101(a). such sums as may be necessary shall be used by the Nuclear Regulatory Commission to —

(1) establish by rule —

(A) standards for State radiological emergency response plans, developed in consultation with the Director of the Federal Emergency Management Agency, and other appropriate agencies, which provide for the response to a radiological emergency involving any utilization facility,

(B) a requirement that —

(i) the Commission will issue operating licenses for utilization facilities only if the Commission determines that —

(I) there exists a State or local radiological emergency response plan which provides for responding to any radiological emergency at the facility concerned and which complies with the Commission's standards for such plans under subparagraph (A), or

²¹ Section 109(a) defines "utilization facility" as "a facility required to be licensed under Section 103 or 104b of the Atomic Energy Act of 1954." LILCO seeks a commercial operating license for Shoreham pursuant to Section 103 of that act. 42 U.S.C. §2133.

(II) in the absence of a plan which satisfies the requirements of subclause (I), there exists a State, local, or utility plan which provides reasonable assurance that public health and safety is not endangered by operation of the facility concerned, and

* * *

Clearly and unambiguously this subsection of Section 109 provides that the Commission "shall" use such sums as necessary to promulgate rules establishing a requirement that issuance of an operating license be conditioned upon the existence of a state or local radiological emergency response plan complying with standards promulgated by the Commission, or in the absence of such a plan, that there exists a state, local or utility plan which provides reasonable assurance that public health and safety is not endangered by the operation of the facility concerned. It is "not necessary" to look beyond the words of a statute itself when construing the language of an act which is plain and unambiguous on its face. *TVA v. Hill*, 437 U.S. 153, 184, n.29 (1978). However, we note that House Conference Report No. 96-1070 (96th Cong., 2d Sess.) (June 4, 1980) states the congressional purpose in enacting this legislation as follows:

The conferees sought to avoid penalizing an applicant for an operating license if a State or locality does not submit an emergency response plan to the NRC for review or if the submitted plan does not satisfy all the guidelines or rules. In the absence of a State or local plan that complies with the guidelines or rules, the compromise permits NRC to issue an operating license if it determines that a State, local, or utility plan, *such as the emergency preparedness plan submitted by the applicant*, provides reasonable assurance that the public health and safety is not endangered by operation of the facility (emphasis added).

Id. at 27, reprinted in 1980 U.S. Code Cong. & Ad. News 2260, 2270-2271.

We therefore find that Congress intended to authorize the NRC to consider the offsite plan sponsored by LILCO, in the absence of a County approved plan, in making a determination whether the status of emergency preparedness provides reasonable assurance that the public would not be endangered by commercial operation of the Shoreham nuclear power plant.

The County and its supporters assert, however, that in promulgating Section 50.47(c)(1) of its emergency planning regulations, the Commission did not fully implement the power granted to it under Section 109 of the 1980 Authorization Act. They argue that Section 109 established only the minimum emergency planning requirements under which Congress would permit the NRC to issue an operating license. In their view, the Commission was free to adopt more stringent standards for the issuance of an operating license *and did so*. The County therefore

interprets the Commission's repeated statement that these regulations are "consistent" with the 1980 Authorization Act as only a statement by the Commission that its more stringent regulations are not in contradiction to any requirement of that act. County Sup. Br., at 3-4, 30-34.

Based on the context of the Commission's statements that its regulations are "consistent with" the 1980 Authorization Act (and based on our rejection above of other County arguments as to why the Commission's regulations should be read as precluding resort to LILCO's plan to compensate for the absence of a state plan), we conclude that the "plain meaning" of the Commission's statement that its regulations are "consistent with" the 1980 Authorization Act is that its regulations are to be read as fully implementing the licensing flexibility provided by Section 109 of that act. In our view, the County has failed to establish any clear or convincing basis upon which we could conclude that the Commission standards were intended to be more restrictive than the requirements that Congress established for issuance of an operating license.

For example, the County references several statements by former NRC General Counsel, Leonard Bickwit, in the transcripts of the Commission's open meetings²² which, the County asserts, demonstrate that Section 50.47(c)(1) was not intended to be as flexible as Section 109 of the 1980 Authorization Act would have permitted. County Sup. Br., at 32-34.

In the referenced quotations, Mr. Bickwit states his legal opinion that Section 109 specified only minimum requirements and "therefore the Commission is free from a legal standpoint to be as stringent as it chooses to be under the law." "Discussion and Vote on Emergency Preparedness Rule" (NRC Open Meeting), July 23, 1980, Tr. 5 (hereafter "July 23, 1980 Open Meeting"). The Commission did not conform with requests from the nuclear industry that the text of Section 50.47(c)(1) be altered to track the language of Section 109. From this, the County concludes that the Commission's statements that its regulations were consistent with Section 109 means only that the compensatory balancing permitted by Section 50.47(c)(1) is within the umbrella of authority permitted by Section 109, albeit more restrictive than Section 109. Specifically, the County argues that

²² Pursuant to 10 CFR §9.103:

. . . An open meeting is not part of the formal or informal record of decision of the matters discussed therein except as otherwise required by law. Statements of views or expressions of opinion made by Commissioners or NRC employees at open meetings are not intended to represent final determinations or beliefs. Such statements may not be pleaded, cited, or relied upon before the Commission or in any proceeding under part 2 of these regulations (10 CFR Part 2) except as the Commission may direct. . . .

In adopting its final rule, the Commission directed that the transcripts of the public meetings at which these final rules were discussed "shall be part of the administrative record in this rulemaking. However, the transcripts have not been reviewed for accuracy and, therefore, are only an informal record of the matters discussed." 45 Fed. Reg. 55,402. Nothing in the *Federal Register* notice suggests that the Commission intended to change the rule that these quotations "are not intended to represent final determinations or beliefs."

Section 50.47(c)(1) does not implement the flexibility authorized by Congress in Section 109 to consider a utility sponsored offsite plan in the absence of a County sponsored one.

When Mr. Bickwit's July 23, 1980 comment is read in context, however, it is clear that this is not what the Commission meant when it stated its rules to be consistent with the 1980 Authorization Act:

Mr. Bickwit: . . . I guess it was approximately two weeks ago I had some telephone calls from the Senate Nuclear Regulation Subcommittee Staff . . . expressing concern that the proposed final rule as they read it conceivably was not consistent with Congressional intent as it regarded the licensing of new plants.

* * *

Their concern was that under the rule as drafted it was not clear to them that the Commission contemplated that in the absence of a plan, of a state or local plan which fully complied with the requirements of the rule that the Commission intended to look at the utility's plan to see whether that plan could compensate for the deficiencies of the state and local plans.

They said it was a central feature of the agreement reached in conference that that would be the case.

Chairman Ahearn: Their concern was that our rule was too harsh?

Mr. Bickwit: That is true.

Chairman Ahearn: Their interpretation of the Congressional action was that a more flexible rule was intended by the Congress?

Mr. Bickwit: That is correct. I told them, as I have told the Commission, that the way our office has read the legislation [is] that the legislation provides for minimum requirements for a rule and therefore the Commission is free from a legal standpoint to be as stringent as it chooses to be under the law. They disagreed with that assessment.

* * *

[After suggesting to congressional staff members that members of the Conference Committee express their views to the Commission by letter] they suggested that an alternative arrangement might be possible. This followed from my pointing out to them that there was a phrase in the Commission's rule which I felt would make that rule consistent with the Congressional intent as they understood it. That phrase states that the state and local plan need not comply with the requirements in the rule if alternative compensatory actions are taken with respect to the deficiencies.

I told them that I believed it was the Commission's view that one of the alternative compensatory actions that might be looked at would be the actions taken by a utility in any kind of utility plan that might compensate for the deficiencies. I asked them if the Commission were to include language that specifically stated that intent it would [sic] make the rule consistent in their view with the intent of the Congress as they saw it, and they said yes.

[July 23, 1980 Open Meeting, Tr. 4-7.]

Mr. Bickwit reiterated his opinion that neither the 1980 Authorization Act nor the opinions of these congressional staff members could legally preclude the Commission from adopting more stringent requirements than those in Section 109 of the act, but then stated:

However, if it is the Commission's view that alternative compensatory actions would include a look at the utility's plan to see whether that plan was in fact compensatory, then I would suggest stating that in the supplementary information associated with the rule. I have proposed some language which you have before you as Enclosure 1.

[*Id.* at 7-8]

While "Enclosure 1" is not incorporated in this transcript, the document is later quoted in part (Tr. 11), and thereafter approved by the Commission. Tr. 135. The language quoted at transcript page 11 makes clear that "Enclosure 1" added the language to the Statement of Considerations, which we have quoted above, stating that "In determining the sufficiency of 'adequate interim compensatory actions' under this rule, the Commission will examine state plans, local plans and licensee plans. . . ." See p. 622, *supra*, quoting 45 Fed. Reg. at 55,403.

The County's reliance on Mr. Bickwit's statement as supporting its conclusions therefore is clearly misplaced. Indeed, we believe the above exchange to be among the strongest indications in the Commission's administrative rulemaking record that the Commission did indeed intend to permit consideration of a utility sponsored plan in the absence of a state or local plan, in accordance with the 1980 Authorization Act.²³ Accordingly, we conclude that the Commission's adoption of its final emergency planning rules was intended to and did fully implement the

²³ We do not believe the remarks of Commissioner Hendrie quoted by the County (County Sup. Br., at 27-28) to be contrary to this conclusion. When viewed in context, it is apparent that Commissioner Hendrie's statement that "I can't see looking at a plant in which there is effectively nothing out there in the way of emergency planning" was made in the context of a discussion of the phrase "other compelling circumstances" in Section 50.47(c)(1). What Commissioner Hendrie said was that he could not see licensing a plant in the absence of any emergency planning based solely on the "compelling circumstance" of a need for power, not that he could not consider licensing a plant based on a utility-sponsored offsite plan in the absence of a local government-sponsored plan. July 23, 1980 Open Meeting, Tr. 87-88.

licensing flexibility provided by Section 109 of the NRC fiscal year 1980 Authorization Act.²⁴

2. The 1982/83 Authorization Act

The 1982/83 NRC Authorization Act, Pub. L. No. 97-415, 96 Stat. 2067 (1983), contains a provision similar to Section 109 of the 1980 Authorization Act. Section 5 of the 1982/83 act states:

Of the amounts authorized to be appropriated under section 1, the Nuclear Regulatory Commission may use such sums as may be necessary, in the absence of a State or local emergency preparedness plan which has been approved by the Federal Emergency Management Agency, to issue an operating license (including a temporary operating license under section 192 of the Atomic Energy Act of 1954, as amended by section 11 of this Act) for a nuclear power reactor, if it determines that there exists a State, local or utility plan which provides reasonable assurance that public health and safety is not endangered by operation of the facility concerned.

The County asserts that Section 5 of the 1982/83 Authorization Act and Section 109 of the 1980 Authorization Act "are identical in purpose and intent." County Sup. Br., at 32. As noted previously, the County interprets the emergency planning regulations promulgated pursuant to the 1980 Act as not permitting

²⁴ We deem SOC's and NSC's reliance on quotations from a 1981 Senate subcommittee hearing (*Radiological Emergency Planning and Preparedness: Hearing Before the Subcommittee on Nuclear Regulation of the Senate Committee on Environment and Public Works, 97th Cong., 1st Sess. (1981)*) as indications of the Commission's intent in promulgating its emergency planning regulations in 1980, to be inappropriate. While we believe this document could be viewed as part of the legislative history of Section 5 of the 1982/83 Authorization Act, such *post hoc* statements may not be relied upon in interpreting the Commission's regulations. Cf. *Weinberger v. Rossi*, 456 U.S. 25, 102 S. Ct. 1510, 71 L.Ed. 715, 724 (1982). (Post-enactment statements of a congressional committee are not entitled to much weight as evidence of legislative intent at the time the statute was enacted.)

Furthermore, based on our examination of this document, we find it clear that Counsel for SOC and NSC either have taken out of context or "selectively edited" many of the quotations to the extent of distorting their meaning. For example, SOC and NSC quote Commissioner Hendrie as stating that the Commission may have to reconsider the language of its emergency planning regulations. SOC/NSC Br., at 8-9. They omit from the middle of Commissioner Hendrie's quotation his statement that he reads the Commission's emergency planning regulations as providing the same flexibility as did Section 109 of the 1980 Authorization Act. He also states, "I think it would have been nice if it had been a little more explicit, because you could also not read it that way out of the regulation." Emergency Planning Hearing, *supra*, at 12. Commissioner Hendrie's prescient anticipation of intervenors' arguments before us, notwithstanding the addition of Mr. Bickwitt's clear language in the Statement of Considerations, is noteworthy.

As the Appeal Board once stated when a party had distorted the meaning of the Commission's regulations by omitting relevant language from its citations:

An administrative adjudicatory body, no less than a court, has every right to expect total abstinence from such practices upon the part of those who appear before it. Put another way, we should be free to assume that, in a brief or other submission, nothing will be excised from a quoted passage unless its lack of relevance to the question under discussion is beyond substantial dispute.

Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B), ALAB-409, 5 NRC 1391, 1395 (1977).

consideration of a utility sponsored offsite plan in the absence of a local government plan. As the Commission has promulgated no new emergency planning regulations since the enactment of the 1982/83 Authorization Act, the County concludes that Congress' enactment of Section 5 is of no effect to this proceeding. *Id.* at 4-6. Since we have already rejected the County's interpretation of the Commission's emergency planning regulations, *supra*, we do not restate our reasoning here in rejecting this view.

Southampton, NSC and SOC agree with the County's interpretations of Section 109, and the Commission's regulations (Southampton Br., at 5-6; SOC/NSC Br., at 6-7). Furthermore, in an effort to refute views previously expressed on the record by the Staff and LILCO that Section 5 of the 1982/83 act would permit the issuance of an operating license for Shoreham even in the absence of a County plan (*see* Tr. 20,249-51), these intervenors analyze the legislative history of the 1982/83 act to demonstrate that this act does not *mandate* consideration of the LILCO offsite plan.²⁵

As we have already concluded that the Commission did intend to permit consideration of a utility sponsored offsite plan in the absence of a local plan when it promulgated 10 CFR §50.47(c)(1) pursuant to Section 109 of the 1980 act, it is unnecessary to determine whether Section 5 of the current authorization act would have mandated this same result. It is sufficient to note that there is no doubt, as recognized by intervenors' "permissive" interpretation of Section 5, that it does not undo the Commission's implementation of Section 109 through 10 CFR §50.47(c)(1), which we have found to be the case.²⁶

²⁵ The Staff apparently misses the thrust of the argument of SOC, NSC and Southampton when it states that the Staff does not dispute that the authority granted in Section 109 and Section 5 of the authorization acts, and implemented in 10 CFR §50.47(c)(1) is "discretionary." Staff Br., at 21, n.9. These intervenors assert that the Commission's implementation by regulations of Section 109 of the 1980 act, as implemented through the Commission's regulations, does not permit consideration of the LILCO offsite plan and that Section 5 of the 1982/83 act does not mandate consideration of this plan, in the absence of a County plan, in making the discretionary decision under 10 CFR §50.47(c)(1).

Intervenors note that Section 109 of the 1980 act states affirmatively that the Commission "shall" promulgate regulations to implement its requirements, while Section 5 of the 1982/83 act states merely that the Commission "may" issue an operating license in accordance with its terms. Thus, intervenors' reference to Section 5 as being "permissive" is intended to characterize the nature of the Commission's obligation under that act to consider any utility sponsored plan, not the decision making process whereby the Commission would determine whether such a plan would sufficiently compensate for planning deficiencies so as to allow the issuance of an operating license.

As intervenors read the Commission's regulations to currently preclude consideration of a utility plan, a finding that Section 5 was permissive, not mandatory, would mean that a utility sponsored offsite plan, such as LILCO's, could only be considered if the NRC first amended its regulations. Since we find the Commission's regulations, as now written, to permit consideration of a utility sponsored local plan, a finding that the language of Section 5 is "permissive" would mean only that a rule change would be necessary to preclude the NRC from considering a utility's offsite plan under Section 50.47(c)(1).

²⁶ We agree with these intervenors that both the language of Section 5 itself and the Conference Report which accompanied it, H.R. Rep. No. 97-884, 97th Cong., 2d Sess. (1982) are stated in "permissive" terms: (Section 5) "[T]he Nuclear Regulatory Commission *may* use such funds as may be necessary . . . to issue an operating license. . . ."; (Conference Report at 27) "This authority *allows* the

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C. Preemption

LILCO asserts that the County has attempted to impermissibly regulate matters of radiological health and safety exclusively reserved to the NRC under the Atomic Energy Act of 1954, as amended. While LILCO does not appear to contest the County's power under federal law to decline to adopt or implement its own offsite emergency plan, it does assert that the County has impermissibly intruded into areas reserved under federal law for NRC regulation in that the County: (1) attempts to pass judgment on the adequacy of the LILCO offsite plan; (2) attempts to conclude that no offsite radiological emergency plan could adequately protect the area around Shoreham; and (3) attempts to ensure that no state or federal actions will be taken which are inconsistent with the conclusions reached by the County. LILCO Br., at 90-92. See County Resolution No. 111-1983, County Sup. Br., Ex. 3, at 5 and Appendix A to this Order, *infra*, at 651.

The Staff agrees with LILCO's assessment that County Legislature Resolution No. 111-1983 attempts to regulate matters preempted by federal law and concludes that this Board is in no way bound by these County findings. Staff Br., at 7-12. The Staff also notes that the County's determination that emergency planning is impossible for Shoreham "is based upon an assumption by the County that an area within a 20-mile radius around the plant must be evacuated." Staff Br., at 10. The Staff states that this assumption is in conflict with the approximate ten-mile plume exposure pathway emergency planning zone (EPZ) established by 10 CFR §50.47(c)(2) of the Commission's regulations.²⁷ The Staff also states that the County's adoption of a 20-mile radius EPZ for its draft plan would require that an

Commission . . . to issue an operating license. . . ." (emphasis added). We also agree that Section 302 of the Senate version of the authorization act (S. 1207, 97 Cong., 1st Sess.) contained express language mandating that the Commission's regulations be interpreted in accordance with this section, while the language of Section 10 of the House Version (H. 2330, 97th Cong., 1st Sess.) which became Section 5 of the authorization act, did not contain such a requirement.

We note, however, that the House Conference Report states, at 27, that although technical differences exist between the language of these two bills "the intent of both houses was the same." Indeed both the House Report accompanying H. 2330 (H.R. Rep. No. 97-22, Part II, 97th Cong., 1st Sess. at 17-18) and the Senate Report accompanying S. 1207 (Sen. Rep. No. 97-113, 97th Cong., 1st Sess. at 27) state that their purpose is to clarify potential legal ambiguities in the Commission's regulations and to require that the Commission's regulations be interpreted in a manner consistent with Section 109 of Pub. L. No. 96-295.

²⁷ Section 50.47(c)(2) states, in pertinent part:

(2) Generally, the plume exposure pathway EPZ for nuclear power plants shall consist of an area about 10 miles (16 km) in radius. . . . The exact size and configuration of the EPZs surrounding a particular nuclear power reactor shall be determined in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries.

In March 1982, this Board dismissed, as a challenge to the regulations, two SOC contentions alleging that the plume exposure pathway and ingestion pathway EPZs should be established, *ab initio*, based on a new probabilistic risk assessment and consequence analysis which should be done for Shoreham. We stated that we would consider proposed contentions that adjustments to the 10-mile EPZ would be necessary based on those factors enumerated in 50.47(c)(2). We also stated that we would consider whether persons outside of and to the east of an approximate 10-mile EPZ would choose to

(Continued)

emergency plan be adequate to evacuate many times the number of persons which would have to be evacuated from a 10-mile radius EPZ around Shoreham.

In its reply brief, at 3-5, the County states that it is not the County's position that the NRC is bound by any of the findings in County Legislature Resolution No. 111-1983 other than the County's determination that the County itself will neither adopt nor implement an offsite emergency response plan for Shoreham. The County acknowledges that Congress has preempted many aspects of nuclear power regulation and states that the County has no power to regulate matters of radiological health and safety or to license nuclear plants, and has made no attempt to do so. Instead, the County states that it "has simply done what it has a right to do: determine that, for reasons of public health and safety, it will not adopt or implement a response plan." County Reply Br., at 5.

We find this attempted distinction by the County to be a sophism. It is disingenuous for the County to take the position that County Legislature Resolution No. 111-1983 does not attempt to make its findings binding on the NRC. The concluding paragraph of this resolution states:

RESOLVED, that since no radiological emergency plan can protect the health, welfare, [and] safety of Suffolk County residents and, since no radiological emergency plan shall be adopted or implemented by Suffolk County, the County Executive is hereby directed to take all actions necessary to assure that actions taken by any other governmental agency, be it State or Federal, are consistent with the decisions mandated by this Resolution.

County Sup. Br., Ex. 3, at 5.

We would have found it to be clear from the wording of the resolution itself and the context of the above-quoted language²⁸ that the County Legislature intended that the NRC be made to follow all of its "decisions mandated" — including that "no radiological emergency plan can protect . . . Suffolk County residents." This intent also is stated clearly in the February 17, 1983 Draft Report of the Suffolk County Legislature, "Radiological Emergency Response Plan for the Shoreham Nuclear Power Reactor" (LILCO Br., Att. 8), which states, at 41 ("page 22 — Conclusions"): "Given their responsibilities and proximity, the Legislature believes that both the State and Federal governments should defer to the County's

evacuate and would do so by entering the EPZ, and whether that would require planning for a larger EPZ. See "Memorandum and Order Confirming Rulings Made at the Conference of Parties," LBP-82-19, 15 NRC 601, 618 (1982). It appears that the County's assumption of the necessity for evacuation planning for a 20-mile radius EPZ is based largely on its own *ad hoc* assessment of radiological risk. It therefore appears to constitute the very challenge to the Commission's regulations which we would not permit in litigation before us.

²⁸ The additional paragraphs at p. 5 of the resolution setting forth those matters "RESOLVED" by the County provide instructive context.

judgment as to what is in the best interests of its citizens and their public health and safety.”

In addition, the County's actions belie its sophistic distinction. It would present no problem of preemption for the County, after holding its own hearings, to present the facts in a litigation before us in support of its belief that an offsite emergency preparedness plan which satisfies the *NRC* regulations cannot be implemented. Pursuant to the regulations, the *NRC* (initially, by delegation of authority, through this Board) would make the determination based on the evidentiary record before us. 10 CFR §50.47(a). This is not the course chosen to date by the County. Beyond that, the County has stated that it would not permit its resources (*e.g.*, police) to perform any functions in support of any emergency plan — presumably including even a plan which could meet the *NRC*'s regulations, but for the refusal of the County to allow its personnel to assist in its implementation. County Resolution 111-1983, County Br., Ex. 3; County Reply Br., at 14. Stated bluntly, it appears that the County is attempting to preclude the possibility that an emergency preparedness plan meeting the Commission's regulations can be developed and implemented.²⁹ It is difficult to imagine a clearer attempt at “preemption in reverse” by the County.

At this juncture, the County has properly exercised its right to ask for a legal ruling that a County sponsored plan is essential to issuance of an *NRC* operating license. (We do not here pause to consider whether the County should have sought this ruling earlier than it did to minimize delay of this proceeding.) We have ruled by this order that the County is incorrect, and that the factual litigation should now proceed. The County is entitled to litigate vigorously its view that no emergency plan for Shoreham is devisable which can be implemented to meet the Commission's regulations. Perhaps part of the County's factual case would be that specific elements of its resources are not capable of performing specific aspects of necessary functions, *e.g.*, traffic control in some locations, during a radiological emergency. This would be the proper use of the hearing process before us. This would be much different, however, from a position by the County that it *will not permit* its personnel and other resources to be used to assist in implementing any emergency plan, in order to effectuate its desired result that Shoreham not be found to satisfy the *NRC*'s requirements for an operating license.

As noted, we cannot interpret the County's resolution as benignly as the County does. We agree with the County's conclusion that the *NRC* is not bound by any of the findings in Resolution No. 111-1983 other than the factual circumstance that the County will not adopt any offsite emergency response plan for Shoreham.

²⁹ We voice no opinion at this time on LILCO's belief that there is applicable New York State law which would prohibit or override the County's stated intent to withhold participation of its police and other resources in an emergency preparedness plan.

Since we believe that the result which the County advocates before us — termination of the proceeding as a matter of law due to the County's resolution — would be an impermissible regulation by the County of radiological health and safety in violation of the preemptive federal authority over such matters, we set forth our analysis of this issue below.

The preemption doctrine results from the interplay between the "Supremacy Clause" of the United States Constitution, Art. VI, Cl. 2, which makes the Federal Constitution, laws and treaties the supreme law of the land, and the Tenth Amendment to the Constitution, reserving to the states and to the people the exercise of those powers not either delegated to the federal government by the Constitution or preempted from state or local regulation by federal law.

A determination that Congress intended to preempt state and local regulation of a particular subject matter may be based on express statutory language, *Jones v. Rath Packing Co.*, 430 U.S. 519, 530-31 (1977), or a conflict between federal and state requirements making compliance with both impossible. *Florida Lime & Avocado Growers, Inc. v. Paul*, 373 U.S. 132, 142-143 (1963). Furthermore, federal preclusion of dual federal and state regulation may be implied based on (1) the statute, when read in the light of its legislative history, *id.*, 373 U.S. at 147-150; (2) the pervasiveness of the federal regulatory scheme as authorized and directed by the legislation and as carried into effect by the federal administrative agency, *Pennsylvania v. Nelson*, 350 U.S. 497, 502-504 (1956); (3) the nature of the subject matter regulated by the federal statute and the determination that it is one which demands "exclusive federal regulation in order to achieve uniformity vital to national interests," *Florida Lime & Avocado Growers, supra*, 373 U.S. at 143-144; or (4) the conclusion that "under the circumstances of [a] particular case [state] law stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress." *See generally Northern States Power Co. v. State of Minnesota*, 447 F.2d 1143, 1146-50 (8th Cir. 1971), *aff'd mem.*, 405 U.S. 1035 (1972).

As the Staff and LILCO observe, the Atomic Energy Act of 1954, as amended, consistently has been interpreted by federal courts to demonstrate the congressional intent to both explicitly and implicitly preempt the field of nuclear licensing and regulation. It has been held to do this by both establishing a pervasive federal regulatory scheme, *see, e.g., Northern States Power, supra*, 447 F.2d at 1147, and by explicitly stating where regulatory responsibility was intended to be divided between the federal government and the states. *Id.* at 1148-1152; *see also Pacific Legal Foundation v. State Energy Resources Conservation and Development Commission*, 659 F.2d 903 (9th Cir. 1981), *cert. denied*, 000 U.S. 000, 102 S. Ct. 2959, *affirmed in Pacific Gas & Electric Co. v. State Energy Resources Conservation and Development Commission*, 000 U.S. 000, No. 81-1945 (April 20, 1983); *County of Suffolk v. Long Island Lighting Co.*, 554 F. Supp. 339, 403-08 (E.D.N.Y. 1983).

The two sections of the Atomic Energy Act which are most significant in defining the powers granted to and limitations placed on the state and federal governmental regulatory authority are Section 271, 42 U.S.C. §2018, and Section 274, 42 U.S.C. §2021. Section 271 provides:

SEC. 271. AGENCY JURISDICTION. — Nothing in this Act shall be construed to affect the authority or regulations of any Federal, State, or local agency with respect to the generation, sale, or transmission of electric power produced through the use of nuclear facilities licensed by the Commission: *Provided*, That this section shall not be deemed to confer upon any Federal, State, or local agency any authority to regulate, control, or restrict any activities of the Commission.

This section has been interpreted as effectuating Congressional intent to preserve the states' authority to regulate the electricity produced by nuclear power plants to the same extent such regulation was permitted of electricity produced by other means, *e.g.*, the setting of electrical rates. *See Pacific Legal Foundation, supra*, 659 F.2d at 920 and legislative materials therein cited.

By enacting Section 274, Congress undertook to clarify the respective responsibilities of the states and the Commission regarding the control of byproduct, source and special nuclear materials and to establish programs for cooperation and an orderly regulatory pattern between the states and the Commission with regard to the regulation of radiation hazards associated with the use of these materials. Pursuant to Section 274(b) and (d), Congress authorized the NRC to discontinue its regulatory authority associated with byproduct, source and special nuclear material in quantities not sufficient to form a critical mass. This discontinuation of authority includes the regulation of radiation hazards and is contingent upon the NRC entering into an agreement with the Governor of a State that has a program for the control of the radiation hazards of such materials in the state which is adequate to protect the public health and safety.

Section 274(c) states, in pertinent part, however:

c. No agreement entered into pursuant to subsection b. shall provide for discontinuance of any authority and the Commission shall retain authority and responsibility with respect to regulation of —

- (1) the construction and operation of any production or utilization facility;
- (2) the export from or import into the United States of byproduct, source, or special nuclear material, or of any production or utilization facility;

* * *

As interpreted by the Eighth Circuit Court of Appeals in *Northern States Power, supra*, 447 F.2d at 1149, Section 274 prohibits the Commission from discontinuing its authority and responsibility with respect to the regulation of certain

specified activities, including "the construction and operation of any production or utilization facility." This would include a nuclear power plant such as Shoreham.

Furthermore, pursuant to Section 274(k):

k. Nothing in this section shall be construed to affect the authority of any State or local agency to regulate activities for purposes other than protection against radiation hazards.

It is therefore clear that in enacting Section 274(c), Congress intended to reserve to the Federal government the exclusive power to regulate matters of radiological health and safety in connection with the construction and operation of a nuclear power plant, while not further limiting the power of the states to regulate activities, "other than protection against radiation hazards," associated with those areas over which the NRC has complete control. See *Pacific Legal Foundation, supra*, 659 F.2d at 921 (state statutory provisions imposing moratorium on new nuclear plant construction until method of waste disposal exists and requiring utilities to include at least three alternative sites in its notice of intention to construct nuclear power plants held directed towards purposes other than regulation of radiological hazards and thus not preempted); *Northern States Power, supra*, 447 F.2d at 1153 (state attempt to regulate radioactive releases from nuclear power plants held preempted as attempt to regulate radiation hazards); *County of Suffolk, supra*, 554 F.Supp. at 405 (County law suit alleging defects in design and construction of Shoreham plant as common law causes of action dismissed as matters preempted by both state (PSC rate authority) and federal law).

As discussed above, we find it to be clear that both the manner in which the County developed its emergency plan (e.g., developing planning standards and assumptions independently, rather than following NRC guidelines), and the basis of its decision to neither adopt nor implement a County plan (see County Legislature Resolution No. 111-1983, County Sup. Br., at Ex. 3), were premised upon County determinations about the radiological health and safety aspects of the operation of the Shoreham plant, and expressed the County's intent to preclude implementation of any plan, presumably even one which might otherwise be found by the NRC to satisfy the applicable NRC regulations.

In light of our analysis above of those matters precluded from state and local regulation by the Atomic Energy Act of 1954, as amended, we believe that the only basis on which the County could claim that it was not preempted by the Atomic Energy Act from making such decisions would be if such regulation by the County were authorized, either explicitly or implicitly, by Section 109 of the 1980 NRC Authorization Act, Pub. L. No. 96-295 §109, 94 Stat. 780, 783-785 (1980).³¹ Section 109, however, does not give states or local governments any express or

³¹ Congress expressed its intent that Section 5 of the current 1982-83 NRC Authorization Act was being enacted to "reaffirm" the purposes of Section 109 of the 1980 Act. Conference Report, H.R. Rep. No. 97-884 at 27, 9th Cong., 1st Sess. (1982).

implied power to regulate matters of radiological health and safety. Indeed, the only express powers given by that act are those given to the Commission.

Under that act, the Commission is required to establish by rule "standards for state radiological emergency response plans . . . [developed in consultation with FEMA and other appropriate agencies] . . . which provide for the response to a radiological emergency involving any utilization facility. . ." Section 109(b)(1)(A). The Commission is also directed to promulgate rules that permit issuance of an operating license for a utilization facility only if the Commission determines that

there exists a State or local radiological emergency response plan which provides for responding to any radiological emergency at the facility concerned *and which complies with the Commission's standards for such plans under subparagraph (A)* [Section 109(b)(1)(B)(i)(I) (emphasis added); *see also* Section 109(a)(1)(B)]

or in the absence of such a plan, that there exists a state, local or utility plan which provides reasonable assurance that public health and safety is not endangered by operation of the facility concerned. Section 109(b)(1)(B).

Furthermore, pursuant to Section 109(b)(2)(5), the Commission is given the authority to review and assess the adequacy of plans and other preparations made by states, including the ability of the states involved to carry out evacuations during an emergency. As part of this review and assessment, the Commission is required to make a determination

of the maximum zone in the vicinity of each such facility for which evacuation of individuals is feasible at various different times corresponding to the representative warning times for various different types of accidents [Section 109(c)].

Implicitly, this act of Congress permits state and local governments to draft radiological emergency response plans in accordance with those rules promulgated by the NRC. It does not legally require that state and local governments develop such emergency plans. However, the ability of any response plan to protect the health and safety of the public is a determination to be made by the NRC (in conjunction with FEMA), not by state and local governments. Therefore, a decision to neither adopt nor implement a radiological emergency response plan based on a state or local government's assessment of what the public health and safety requires is clearly precluded by federal law. Such a determination, particularly when accompanied by a finding that "no local radiological emergency response plan can protect the health, welfare and safety of Suffolk County residents," is clearly an attempt to regulate matters of radiological health and safety related to "the construction and operation of . . . [a] utilization facility," and is thus preempted from state and local regulation by Section 274(c)(1) of the Atomic Energy Act of 1954. 42 U.S.C. §2021(c).

Where Congress has intended to permit state regulation of matters of radiological health and safety, it has stated this intention in clear and unambiguous terms. This was the case when Congress amended the Atomic Energy Act of 1954 by adding Section 274, 42 U.S.C. §2021. This was demonstrated again in Congress' recent enactment of the Nuclear Waste Policy Act of 1982, 42 U.S.C. §§10,101 *et seq.* Sections 101 and 116 of that Act, 42 U.S.C. §§10,101 and 10,136, specifically describe the participation of states in waste repository siting decisions, including a state's authority to submit a "notice of disapproval" of a designated site within its borders.

Nothing in Section 109 or its legislative history indicates any intention of Congress to permit a state or local government to prepare a radiological emergency response plan based on its own assessment of the radiation hazard which it believes to be presented by a nuclear power plant. Nor is there any intention indicated to permit a state or local government to decide that it will not prepare a plan based on its independent analysis and decision that no emergency response plan could be adequate. Such an interpretation of this act would permit state and local governments to establish markedly varying emergency planning requirements from plant to plant, depending on the state or local governments' views of how much planning is necessary to permit operation.

We believe Congress recognized the need for greater uniformity of standards for emergency planning when it empowered the NRC to both establish such standards and to review and assess state and local government plans in accordance with those standards in conjunction with FEMA. We also find that the establishment of dual state and federal emergency planning and preparedness requirements which the County advocates would permit a state or local government to establish standards so high as to potentially preclude the operation of a nuclear power plant without reference to whether federal standards could be met; such a result would be in clear contradiction to Congress' purposes in enacting the Atomic Energy Act of 1954.³²

We believe Congress intended to allow state and local governments the authority to draft their own emergency plans so as to permit them the flexibility to determine how their own emergency resources and personnel could best be utilized to protect the public health and safety in the event of a radiological emergency. However, we do not read Section 109 of the 1980 NRC Authorization Act to permit them either to develop standards different from those established by the NRC for assessing the radiological risk which may exist, or to determine whether

³² We also believe that interpreting the Commission's regulations in the manner urged by the County would result in our finding that the Commission has impermissibly delegated the authority to exercise a *de jure* veto power to state and local governments based on their own interpretation of what the radiological health and safety of the public requires. Regulations should be interpreted both to effectuate their purposes and to be consistent with the requirements of law. *United States v. Larionoff*, 431 U.S. 864, 872-873 (1977); *Pennzoil Co. v. Federal Energy Regulatory Commission*, 645 F.2d 360, 383 (5th Cir.), *cert. denied*, 454 U.S. 1142 (1981). Therefore, we believe the County's interpretation of the Commission's regulations to be precluded by federal law.

their planning and response efforts comply with federal standards. Such determinations are ultimately to be made only by the NRC.

Accordingly, we hold that we are not bound by the County's findings on the adequacy of the LILCO offsite plan or the feasibility of developing adequate emergency planning for Shoreham. Our determination that the County has made such findings in contradiction to federal law does not have the effect of requiring the County to adopt or implement an emergency plan for Shoreham. We do not possess the jurisdiction necessary to bring about such a result. However, if the County seeks to have its findings adopted, it must litigate before us the facts which it believes support its view that it is not *feasible* to implement emergency preparedness actions which would meet NRC regulatory requirements in the event of a radiological emergency at the Shoreham nuclear power plant. The right of the County to litigate whether necessary emergency actions can be taken may be distinguishable from the circumstance of a governmental litigant before us which simply refuses to take otherwise feasible actions.

III. FUTURE PROCEEDINGS

A. Schedule for Filing Contentions and Related Matters

LILCO has informed us that it will supplement its offsite emergency plan with its proposed alternative means for implementing the plan without the County's resources. It expects to file this new portion of its plan by early May, 1983. Tr. 20,990-91. LILCO is directed to file a memorandum of the date its revised plan is received by the parties.

Intervenors, and participating governmental entities wishing to have issues litigated, shall file Phase II (offsite) draft emergency planning contentions directed to alleged deficiencies in the LILCO offsite radiological emergency plan (including any alleged lack of necessary coordination with the overall New York State plan) so as to be received by the Board and other parties three weeks from the date of receipt of LILCO's revised plan. Two weeks later, the final proposed contentions and the LILCO and NRC Staff responses to their admissibility shall be received by the Board and the parties. As was required for the Phase I emergency planning contentions, Phase II contentions of all intervenors and governmental participants shall be consolidated in one filing. Each contention shall indicate which parties will participate in its litigation.

Prior to the filing of the final contentions and the responses to them, all participating parties are directed to confer intensively on matters such as the scope, basis, specificity and admissibility of the draft contentions, whether additional discovery is necessary, the schedule for NRC Staff and FEMA review and the sequence and schedule for litigation of the contentions. The parties should also

confer prior to the filing of the draft contentions to facilitate the focusing of subsequent discussions.

A prehearing conference will be scheduled for a date shortly after the receipt of the final contentions and responses. Subjects taken up at the conference will include the admissibility of the contentions, whether additional discovery is necessary or desirable (such as the taking of depositions), the schedule for filing written direct testimony, and the order in which these contentions will be litigated. It is expected that any necessary updated informal discovery of documents and exchanges of information will essentially be completed by the time of the prehearing conference.

At the time of its response to the final proposed contentions, the NRC Staff shall set forth the status of and schedule for any then remaining major milestones in the review by FEMA and the Staff of the LILCO offsite plan and any relevant aspects of the overall State plan. This review schedule will be discussed at the prehearing conference. The NRC Staff and FEMA are hereby forewarned that absent special circumstances, the Board intends to employ its powers diligently to regulate the proceeding and to report on administrative scheduling matters to the Commission to enforce the NRC Staff and FEMA review schedule set forth, to the extent it is approved by us at the prehearing conference. This is to assure that the schedule may thereafter be relied on for the subsequent course of the proceeding.

B. Scope of Contentions

Contentions shall be stated with reasonable basis and specificity, as required by 10 CFR §2.714, and shall reference both specific portions of the LILCO plan alleged to be deficient and specific sections of the NRC regulations and the guidance of NUREG-0654 which are allegedly not complied with by the LILCO plan. The Board contemplates using the provisions of NUREG-0654 as guidance in the litigation of these contentions. Consistent with our prior discussion, parties are free to litigate the proposition that particular factual guidance in NUREG-0654 is either not necessary or not sufficient for the Shoreham facility to comply with the Commission's regulations. However, we will entertain no contentions inconsistent with this order. For example, we will not entertain contentions premised solely on the absence of a Suffolk County approved plan.

Among other matters, we will entertain contentions regarding LILCO's ability to implement its offsite emergency plan. Such contentions, however, also must be narrowly drawn and reference specific sections of the plan which LILCO is allegedly unable to implement. A contention stating simply that LILCO's entire plan is not capable of implementation, based upon the County's refusal to implement any plan, would be overly broad.

We do not at this time rule upon LILCO's suggestion, supported by the Staff, that Phase II litigation be split into several phases, considering first, deficiencies in

the LILCO plan itself and second, LILCO's ability to implement this plan. We do not adopt the County's position that LILCO's proposal is "pure fantasy." However, it is premature at this time for us to determine the efficacy of adopting such a procedure. Accordingly, this matter shall be discussed among the parties in the context of the proposed contentions. Intervenor shall set forth their position at the time of filing their final proposed contentions, and LILCO and the NRC Staff shall do so in their responses. Any other proposals for the sequence and schedule for litigation of the contentions shall be included in these filings.

We will not consider any contention addressed to Phase I emergency planning matters. While we have at times described the scope of Phase I matters using such shorthand terms as "onsite matters" or "LILCO's actions under its onsite plan," we consistently noted that we wished to litigate during Phase I all matters which were at that time capable of final resolution in advance of the then pending preparation of a local offsite plan by Suffolk County. See "Confirmatory Order Regarding Emergency Planning Issues" (unpublished), April 5, 1982, slip op. at 2-4; "Prehearing Conference Order" (unpublished), April 20, 1982, slip op. at 7 (setting forth the list of appropriate subjects); "Prehearing Conference Order (Phase I — Emergency Planning)" (unpublished), July 27, 1982, slip op. 1-2; Tr. 746-747, 7223-7226. Therefore, Phase I emergency planning was defined to include not only onsite matters, but also matters such as gaps in siren coverage within 10 miles of the Shoreham plant, notification of and communications with offsite response organizations, arrangements and training for offsite assistance resources needed onsite (e.g., medical and fire services), and assessment and monitoring by LILCO of actual or potential onsite and offsite radiological releases and doses.

Accordingly, we will not consider any contention addressing LILCO's onsite plan or other matters which either were the subject of a previously admitted Phase I emergency planning contention or clearly were within the permissible scope of the Phase I emergency planning litigation. See Appendix B to our September 7, 1982 "Supplemental Prehearing Conference Order (Phase I — Emergency Planning)," issued separately from that order and dated October 4, 1982,³³ and the list of subjects in the order of April 20, 1982, *supra* (slip op. at 7). This is because the parties remain bound by any stipulation regarding Phase I contentions which was approved by the Board, see Stipulations ff. Tr. 14,719, as well as by our order dismissing the remaining Phase I contentions "with prejudice" due to intervenors' intentional default in refusing to proceed with the examinations before hearing as ordered by the Board. See "Memorandum and Order Confirming Sanctions for

³³ These contentions are, of course, to be interpreted in accordance with any limitations or explications provided in our July 27, 1982 "Prehearing Conference Order" (unpublished) and our September 7, 1982 "Supplemental Prehearing Conference Order," LBP-82-75, 16 NRC 986 (1982).

Intervenors' Refusal to Comply with Order to Participate in Prehearing Examinations," LBP-82-115, 16 NRC 1923 (1982).

The Town of Southampton was not a participant in this proceeding at the time of our consideration of Phase I issues. However, it was admitted solely to participate in offsite emergency planning matters and subject to the limitation that it "take this proceeding as it finds it." "Memorandum and Order Ruling on Town of Southampton's Notice of Intent to Participate as an Interested Municipality Pursuant to 10 CFR §2.715(c)," LBP-83-13, 17 NRC 469, 471 (1982). Accordingly, it too is precluded from raising any contentions relating to Phase I matters.

For the reasons stated above, the County's motion to terminate the proceeding is denied. By separate order issued today, the ruling denying the County's motion to terminate is being referred to the Appeal Board. The consideration of offsite emergency planning matters will proceed on the schedule set forth in this order.

It is so ORDERED.

THE ATOMIC SAFETY AND
LICENSING BOARD

Lawrence Brenner, Chairman
ADMINISTRATIVE JUDGE

Dr. James H. Carpenter
ADMINISTRATIVE JUDGE

Dr. Peter A. Morris
ADMINISTRATIVE JUDGE

Bethesda, Maryland
April 20, 1983

**APPENDIX A TO LBP-83-22
FACTUAL AND PROCEDURAL BACKGROUND**

I. FACTUAL BACKGROUND

Prior to its recent decision to neither approve nor implement an offsite radiological emergency response plan for Shoreham, Suffolk County for a number of years had either supported the construction of the Shoreham facility, or had at least indicated its willingness to participate in offsite emergency planning matters, while litigating various health and safety issues, including emergency planning, as an intervenor. Former Suffolk County Executive, H. Lee Dennison, made a limited appearance before the Shoreham construction permit licensing board in 1970 to urge that LILCO be permitted to construct Shoreham. C.P. Tr. 209-216. The initial decision of that licensing board concluded that LILCO had complied with the then existing requirements for emergency planning under 10 CFR Part 50 Appendix E (1971), which required that contacts and arrangements be made with local, state and federal governmental agencies with responsibility for coping with emergencies. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-73-13, 6 AEC 271, 285 (1973), *affirmed*, ALAB-156, 6 AEC 831, 851 (1973).

Cooperation between the County and LILCO with regard to emergency preparedness continued during the remainder of the 1970s, resulting in a "Memorandum of Understanding" (MOU) being signed by LILCO and former Suffolk County Executive, John Klein, on December 28, 1979. LILCO Br., Attachment 2. This MOU outlined the revised responsibilities of Suffolk County and LILCO in the wake of the accident at Three Mile Island and the NRC's proposal of its new emergency planning regulations on December 19, 1979. 44 Fed. Reg. 75,167, *et seq.* The transmittal letter from Mr. Klein (LILCO Br., Att. 2) indicates that he had signed the MOU after the addition of a clause permitting termination by either party on 10 days notice. The letter states that then County Executive-elect Peter Cohalan agreed to this.

On September 18, 1981, representatives of LILCO and Suffolk County signed a contract in which the County agreed to produce a revised radiological emergency response plan within six months at a cost of \$245,000 to be paid by LILCO. This contract was accepted by the County Legislature (Resolution No. 694-1981). LILCO Br., Att. 3; County Sup. Br., at Ex. 1.

Pursuant to the terms of this agreement, the County agreed to prepare both a draft and final County plan, integrate the plan with State and LILCO plans, develop implementing procedures, prepare and distribute public education materials, provide expert witness testimony concerning planning work and train emergency planning personnel in coordination with the State and LILCO. In accordance with the provisions of this contract, LILCO paid the Suffolk County

Planning Department \$150,000 as the first installment on this contract, with the balance of \$95,000 to be paid upon completion of the plan on March 18, 1982.

Prior to the completion of this plan, however, the County returned this downpayment to LILCO in March, 1982. County Sup. Br., at Ex. 1. The County's position is that it took this action because, based on the advice of special counsel in the Shoreham operating license proceedings, it believed that an apparent conflict of interest existed in accepting payment from LILCO for the development of an emergency plan. County Legislature Resolution No. 262-1982, March 23, 1982, County Br., Ex. 1; LILCO Br., at 30. LILCO states that although it has received a check from the County for \$150,000, it has not cashed it and "regards the contract as still in effect." LILCO Br., at 30, n.5. Pursuant to an order of this Board,¹ the County submitted its March 10, 1982 draft of the plan produced under the contract with LILCO to the Board and parties on March 30, 1982.

By that same March 23, 1982 Resolution No. 262-1982, County Br., Ex. 1, the County authorized the development of what was to become a markedly different new radiological response plan. A "Steering Committee" was appointed by the County Executive to supervise the development of this new plan, and the Board was informed that the materials contained in the draft County plan dated March 10, 1982 "are to be considered resource data which may or may not be used, in whole or part, by the persons who are preparing the County emergency plan under the oversight of the Steering Committee."² Resolution No. 262-1982 also provided:

RESOLVED, that only after said plan is approved by the Suffolk County Legislature, shall it be submitted to the Federal Emergency Management Agency and the Nuclear Regulatory Commission for purposes of any findings, determinations, rulings, reviews, or hearings [sic — "hearings"?] by such Federal agencies.

The County's original estimate was that its revamped emergency plan would not be completed by the Committee until September 15, 1982, after which it would first be reviewed by the County Executive and then submitted to the County Legislature for approval. Letter, March 30, 1982, Counsel for County to Board. Based on its belief that the County's delay in submitting its emergency plan could delay greatly the conduct of these proceedings, the Board directed that litigation would proceed on those emergency planning matters then ripe for litigation. These "Phase I" issues were primarily those involving onsite emergency planning, with those offsite elements which could be litigated without waiting for a County plan.³

¹ See "Memorandum and Order Confirming Rulings Made at the Conference of Parties (Regarding Remaining Objections to Admissibility of Contentions and Establishment of Hearing Schedule)" LBP-82-19, 15 NRC 601, 619 (1982).

² See letter to Board from H. Brown, Counsel for County, dated April 19, 1982.

³ See generally "Confirmatory Order Regarding Emergency Planning Issues" (unpublished) April 5, 1982; "Prehearing Conference Order" (unpublished) April 20, 1982; "Prehearing Conference Order (Phase I Emergency Planning)" (unpublished) July 27, 1982; "Supplemental Prehearing Conference

(Continued)

On November 19, 1982, this Board issued an order directing that the parties conduct their initial cross-examination, redirect and recross-examination of the pre-filed written testimony on "Phase I" emergency planning contentions by means of public prehearing depositions. The details of the procedure ordered by the Board and our reasons for adopting that procedure are discussed in our "Memorandum and Order Ruling on Licensing Board Authority to Direct That Initial Examination of the Pre-Filed Testimony be Conducted by Means of Prehearing Examinations," LBP-82-107, 16 NRC 1667 (1982).

Prior to our issuance of that order, we had discussed the proposed procedure on the record on a number of occasions and solicited briefs from the parties addressing the propriety of that procedure. The County, as well as the other intervenors, objected to the adoption of this procedure as being contrary to section 189 of the Atomic Energy Act, 42 U.S.C §2239, and threatened that they would take no part in any hearings employing this procedural device. For this reason, we specifically provided in our November 19 order that a party both refusing to cross-examine by the procedure directed by the Board and refusing to make its own witnesses available for cross-examination by the other parties could be deemed, based on the extent of any such default, to have effectively abandoned the contentions in controversy. 16 NRC at 1682.

The intervenors, including the County, continued to refuse to participate under the procedure ordered by the Board. Accordingly, those of intervenors' consolidated Phase I emergency planning contentions which had not been settled were dismissed with prejudice. See "Memorandum and Order Confirming Ruling on Sanctions for Intervenors' Refusal to Comply with Order to Participate in Prehearing Examinations," LBP-82-115, 16 NRC 1923 (1982).

Through written and on-the-record oral reports of the parties, the Board had come to understand that the County and its experts were preparing the new County plan without consultation with LILCO, the State of New York, the Federal Emergency Management Agency (FEMA) or the NRC Staff. Therefore, the Board requested that the County describe those mechanisms being employed "to assure that there was an integrated approach to the development" of emergency response plans for Shoreham, stating in particular whether any NRC Staff, FEMA, or LILCO representatives had contributed to the integrated approach to emergency planning which the County had professed to embrace. Tr. 8904-6.

The County's August 20, 1982 "Response to the Board's Inquiry with Respect to Integrated Planning" stated only that it was "impossible" to integrate its plan with LILCO's "in the atmosphere of contentiousness" surrounding Phase I of the

Order (Phase I Emergency Planning)" LBP-82-75, 16 NRC 986 (1982), and the admitted contentions listed in Appendix B (unpublished) to this order, issued separately on October 4, 1982.

We discuss the scope of "Phase I" issues more fully in the "Scope of Contentions" section near the end of the order to which this Appendix is attached.

emergency planning litigation and suggested that "harmonious integration can be attempted if consideration of all emergency planning issues were deferred until after the County's plan is developed." The County's response was silent as to any attempts made to coordinate its planning efforts with those of the State, the FEMA or the NRC Staff.

During the same general time frame that Phase I contentions were being filed, LILCO, after meetings with New York State officials, submitted the March 10, 1982 draft offsite plan abandoned by Suffolk County to the New York State Disaster Preparedness Commission (DPC) for review. The May 10, 1982 transmittal letter accompanying this plan noted that the County had refused to endorse it. The plan was reviewed by the State and returned to LILCO with comments. LILCO Br., at 59-60 and Att. 11.

The County strongly objected to LILCO's actions in submitting this plan to the State as being tantamount to the "usurpation of the County's inherent right and duty to protect the health, safety and welfare of the County's citizens." County Sup. Br., at 13 and Exs. 2 and 4. In the meantime, the estimated date for submission of a final draft of the County's offsite plan slipped from September to the latter part of November, 1982.

In the fall of 1982, LILCO resubmitted the March 10, 1982 draft Suffolk County plan, as amended by LILCO based on the previous State comments, to the State DPC for its approval. On December 7, 1982, however, one day before a DPC hearing to consider the LILCO offsite plan, Suffolk County commenced an action against the DPC in a New York State court, seeking to prevent DPC review or approval of the plan. On that date, the County obtained a temporary restraining order precluding the DPC meeting until a preliminary injunction hearing could be held.

On December 15, 1982, the County, New York State and LILCO agreed upon a stipulation in the State court case which provided that the DPC would refrain from further action on the LILCO-submitted plan until February 23, 1983. If the County did not approve its new offsite plan for Shoreham by that date, the DPC would then be permitted to review the LILCO offsite plan and forward it to FEMA, if approved.⁴ LILCO Br., at 60-61 and Stipulation, at 6.

In late November, 1982, the County's consultants completed their work on the new County plan. The County states that:

Their efforts focused particularly on the well-established lessons of the accident at Three Mile Island and on the planning and preparedness problems caused by the special circumstances and conditions present on Long Island, such as the Island's elongated narrow shape, its severely

⁴ The stipulation also provided, at 7, that the State and LILCO would be given an extension of time until February 23 in which to file pleadings responsive to the County's petition. The Board has not been informed whether this case is still pending, or whether it has been terminated in light of recent statements by the Governor of New York State. See this Appendix, *infra*, at 652.

limited roadway system, its quickly changing wind patterns, and its local demographic features.

County Sup. Br., at 10-11.

LILCO asserts, however, that the County's November, 1982 plan really "contains very little if any information that is site specific to Shoreham or Long Island." LILCO Br., at 39. In its view, the most distinguishing features of the plan are that it provides for a 20-mile emergency planning zone for protective actions to be taken on behalf of the population (including evacuation) and that it requires much additional "development." LILCO Br., at 38-39.

The November, 1982 draft plan was submitted to the County Legislature on December 2, 1982, and in January, 1983, the Legislature held public hearings. LILCO presented testimony at those hearings which was critical of the County's new offsite plan and which described the plan LILCO had submitted to the State.⁵

On February 17, 1983, the Suffolk County Legislature adopted Resolution No. 111-1983, which stated:

RESOLVED, that the Draft County plan submitted to the County Legislature on December 2, 1982, if implemented, would not protect the health, welfare, and safety of Suffolk County residents and thus is not approved and will not be implemented;

After reaching a similarly worded conclusion as to the plan which LILCO had submitted to the State DPC, the Legislature's resolution concludes:

RESOLVED, that since no local radiological emergency response plan for a serious nuclear accident at Shoreham will protect the health, welfare, and safety of Suffolk County residents, and since the preparation and implementation of any such plan would be misleading to the public by indicating to County residents that their health, welfare, and safety are being protected when, in fact, such is not the case, the County's radiological emergency planning process is hereby terminated, and no local radiological emergency plan for response to an accident at the Shoreham plant shall be adopted or implemented; and be it further

RESOLVED, that since no radiological emergency plan can protect the health, welfare, [and] safety of Suffolk County residents and, since no radiological emergency plan shall be adopted or implemented by Suffolk County, the County Executive is hereby directed to take all actions necessary to assure that actions taken by any other governmental agency, be it State or Federal, are consistent with the decisions mandated by this Resolution.

See County Sup. Br., at Ex. 3.

⁵ LILCO alleges certain improprieties, such as bias, in the County's legislative processes. LILCO Br., at 53-58. This is not a proper forum in which to seek review of such matters.

On February 17, 1983, New York State Governor Cuomo issued a public statement announcing that he was directing the State DPC to "refrain from forwarding to Washington any proposed offsite emergency evacuation plan for the proposed Shoreham nuclear power plant." Stating that "[t]he participation and cooperation of local government is essential if a workable plan is to be developed," the Governor concluded that he would not impose any independently developed State plan upon Suffolk County. The Governor also recognized that the ultimate determination of acceptability of an emergency plan rests with the federal government. The statement concludes by announcing that: "The State stands ready and willing to cooperate in any way possible with both Suffolk County and the Long Island Lighting Company to develop an adequate and implementable evacuation plan for Shoreham." County Br., Ex. 5.

II. PROCEDURAL BACKGROUND

On February 23, 1983, Suffolk County filed with this Board its "Motion to Terminate the Shoreham Operating License Proceeding," together with a motion requesting that this Board promptly certify its motion to terminate to the Commission for decision. In response to our on-the-record request (Tr. 20,275) and subsequent confirmatory order,⁶ the County filed a supplemental brief on March 4, 1983. This brief explained in greater detail the legal issues which the County believes should be resolved promptly since they are asserted to be capable of rendering moot the need for factual emergency planning litigation.

The centerpiece of the County's efforts to terminate this proceeding is Suffolk County Legislature Resolution No. 111-1983. County Sup. Br., Ex. 3. As quoted above, that resolution provides that the County will neither prepare nor implement an offsite radiological emergency preparedness plan. The County's motion concludes that the County's refusal to participate in emergency planning for Shoreham prevents LILCO from complying with 10 C.F.R. §§50.33(g) and 50.47, thereby effectively precluding this Board from ever finding that the state of emergency preparedness at Shoreham is such as to permit authorization of the issuance of a full power operating license.

The County also takes the position that nothing in Section 5 of the NRC's current authorization act, Pub. L. No. 97-415, §5, 96 Stat. 2067, (1983), Section 109 of the NRC's 1980 Authorization Act, Pub. L. No. 96-295, 94 Stat. 780 (1980), or 10 C.F.R. §50.47(c)(1) of the Commission's emergency planning regulations would permit the grant of a license to Shoreham in the absence of the County approved plan.

⁶ See "Confirmatory Memorandum and Order Directing the Submission of Briefs Addressing Suffolk County's Motion to Terminate This Proceeding" (unpublished) (February 28, 1983) (hereinafter "Confirmatory Order").

On March 18, 1983, pursuant to our order, pleadings responsive to the County's motions were filed by the Town of Southampton (Southampton), jointly by intervenors Shoreham Opponents Coalition (SOC) and the North Shore Committee Against Nuclear and Thermal Pollution (NSC), and by LILCO.

Both Southampton's brief and the joint brief of SOC and NSC endorse the arguments made by the County in support of its motions and make additional arguments that this Board has no legal authority under the NRC Authorization Acts for fiscal years 1980 and 1982-83 to issue an operating license for Shoreham.

LILCO's brief states that the County, through both its motion to terminate and its decision to neither prepare nor implement an emergency plan, is seeking to exercise a veto power over the issuance of an operating license for Shoreham. LILCO asserts that permitting the County to exercise such a veto power would be the equivalent of permitting it to determine and regulate the radiological health and safety of Shoreham, a matter preempted from state and local regulation by the Atomic Energy Act of 1954, as amended, 42 U.S.C. §§2011, *et seq.*

In LILCO's view, neither the Commission's 1980 and 1982-83 Authorization Acts, nor the emergency planning regulations promulgated by the Commission pursuant to those acts, were intended to permit the County to exercise such a veto power. LILCO states that both of these authorization acts permit the NRC to consider a utility drafted offsite emergency plan in making a finding as to the status of offsite emergency preparedness and asserts that 10 CFR §50.47(c)(1) of the Commission's regulations was intended to effectuate this statutory authority.

LILCO further states that even if this Board determines that the filing of local government offsite emergency plans is required by Sections 50.33(g) and 50.47, it is entitled to have an opportunity (at some unspecified future time) to show that it qualifies for an exception from these regulations pursuant to 10 CFR §§2.758(b) and 50.12(a). It also asserts that it believes itself to be eligible for a low-power license under 10 CFR §50.57(c), "notwithstanding the County's refusal to have an emergency plan." LILCO Br., at 96. *See* our "Memorandum and Order Referring Denial of Suffolk County's Motion to Terminate to the Appeal Board and Certifying Low-Power License Question to the Commission (Through the Appeal Board)," LBP-83-21, 17 NRC 593, issued simultaneously with this decision.

This Board also received on March 18, 1983, the "Motion of Robert Abrams, Attorney General of the State of New York, for leave to file a brief as Amicus Curiae," together with copies of that brief. The Attorney General concludes that while Section 5 of Pub. L. No. 97-415 would permit the licensing of a nuclear plant based on a utility's offsite plan, such an action is contrary to the NRC's current regulations. We note that this position taken by the Attorney General is inconsistent with the view apparently adopted by New York State's Public Service Commission (PSC) and Disaster Preparedness Commission (DPC). *See* Letter of David Axelrod, DPC, to Administrative Judge Lawrence Brenner, ASLB, U.S.

NRC; at 2, (undated), attached to Letter of Matthew J. Kelly, PSC, to Lawrence Brenner, dated March 18, 1983.

As directed, the NRC Staff submitted a brief on March 25, 1983, addressing those matters raised by all briefs previously filed, as well as the Staff's plans for reviewing LILCO's offsite plan should the Board deny the County's motion to terminate the proceeding. The Staff takes the position that the County's motion should be denied. It asserts that the 1980 and 1982-83 NRC Authorization Acts and the Commission's regulations allow the NRC to review a substitute offsite plan submitted by a state or a utility in the absence of a county offsite emergency plan. It further asserts that the Commission is not bound by the County's determination that *no adequate emergency plan can be developed for Shoreham*, as Federal law gives the NRC exclusive jurisdiction to make such decisions and preempts such a state or local determination.

On March 29, 1983, the County submitted to the Board a petition for leave to file a reply brief, accompanied by a copy of its proposed reply brief. On April 1, 1983, LILCO submitted an answer to Suffolk County's petition for leave to file a reply brief, by which LILCO does not object to the County's filing of a reply brief. LILCO's answer goes on briefly to attempt to correct what LILCO believes to be mischaracterizations by the County of the arguments in LILCO's original brief.

In the circumstances of this proceeding, and to assist in minimizing the need for additional briefing before the Appeal Board on our referral, we accept and take into account the contents of the County's reply brief and LILCO's answer to the County's request for leave to file the reply in our ruling.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Charles Bechhoefer, Chairman
Dr. George C. Anderson
Ralph S. Decker**

In the Matter of

**Docket Nos. 50-409-FTOL
50-409-SC
(ASLBP Nos. 78-368-05-OL
80-445-01-SC)**

**DAIRYLAND POWER COOPERATIVE
(La Crosse Bolling Water Reactor)**

April 21, 1983

The Licensing Board resolves the only outstanding issue in the show-cause proceeding involving the potential for liquefaction at the La Crosse site and determines that the Safe Shutdown Earthquake utilized by the NRC Staff is appropriate for evaluating that question.

SEISMIC & GEOLOGIC CRITERIA: APPLICABLE STANDARDS

The Commission's currently applicable standards for determining the geologic and seismic aspects of a site, which appear in 10 CFR Part 100, Appendix A, were proposed in 1971 and adopted late in 1973 and are not applicable to a plant initially authorized to operate in 1967.

SAFETY GOALS: USE IN ADJUDICATORY PROCEEDINGS

The qualitative goals and quantitative design objectives included in the Commission's March, 1983 preliminary policy statement on safety goals for nuclear power plants are not to be used in the licensing process or to be litigated in

hearings; conformance with regulatory requirements is to continue to be the exclusive licensing basis for plants. But where no particular regulations are applicable in a given subject area, it is both useful and consistent with the foregoing use limitations to refer to the performance design objectives in ascertaining the reasonableness of the methodologies used to evaluate the adequacy of the reactor in that area.

TECHNICAL ISSUE DISCUSSED

Safe-shutdown earthquake.

INITIAL DECISION

(Safe Shutdown Earthquake for Liquefaction Purposes)

This consolidated proceeding involves both (1) the application by Dairyland Power Cooperative (Applicant or DPC) to replace its current Provisional Operating License DPR-45 with a full-term operating license (FTOL) for the La Crosse Boiling Water Reactor (LACBWR), a 50 MWe boiling water reactor located on the Mississippi River about 20 miles south of La Crosse, Wisconsin, and (2) a show-cause order dated February 25, 1980, which concerned the potential for liquefaction at the LACBWR site. The operating license application and the show-cause order were originally considered in separate proceedings, which were consolidated by our Memorandum and Order dated August 19, 1981, LBP-81-31, 14 NRC 375. The background of this consolidated proceeding is set forth in our Memorandum and Order dated August 2, 1982, LBP-82-58, 16 NRC 512, 514-18, as well as in our Partial Initial Decision of February 24, 1981, LBP-81-7, 13 NRC 257, 260-63, and will not be repeated here.

As is reflected in both LBP-81-7 and LBP-82-58, there is only one issue remaining to be decided with respect to the show-cause proceeding: the size of the safe-shutdown earthquake (SSE) which is to be used in determining whether there is liquefaction potential at the LACBWR site. (This was the only show-cause issue left undecided when we consolidated the two proceedings.) We treat that issue in this opinion. For the reasons hereafter set forth, we conclude that the SSE utilized by the Staff in its SER in the show-cause proceeding and by us in our Partial Initial Decision (LBP-81-7) is appropriate for evaluating the liquefaction potential at La Crosse.

I. DESCRIPTION OF THE ISSUE

In our Partial Initial Decision in the show-cause proceeding, we determined that liquefaction under pile supported structures was not a problem for an earthquake

up to magnitude 5.5 with a peak ground acceleration of 0.12g or less. For that reason, we held that the dewatering system suggested by the show-cause order need not be installed at that time. (We did approve the installation of a dedicated safe shutdown system to provide emergency cooling water in the event an earthquake producing ground acceleration of up to 0.12g caused damage to the crib house and underground piping.) LBP-81-7, *supra*, 13 NRC at 279.

In that decision, however, we stressed that the appropriate SSE for the LACBWR site had never been formally determined and that the findings regarding liquefaction potential were only valid if the SSE were no larger than magnitude 5.0-5.5 with peak ground acceleration at the site no greater than 0.12g. This was the SSE assumed by the Staff as a basis for issuing the show-cause order.

Earlier in the proceeding, it had come to our attention that the SSE utilized by the Staff for another reactor (Tyrene) less than 100 miles from LACBWR was an intensity MM VII-VIII earthquake analyzed as producing ground acceleration at the Tyrene site of 0.20g. Because the Staff had not made any final determination of an SSE for the LACBWR site — indeed, prior to the future issuance of its SEP report and its SER based thereon, it still will not have done so¹ — we raised as an issue in this proceeding the appropriate size of the SSE and the ground acceleration at the site which it could produce.²

Prior to our Partial Initial Decision, we took evidence as to the seismic hazard of earthquakes producing ground acceleration at the LACBWR site greater than 0.12g and the concomitant risk of operating LACBWR prior to a final determination of the appropriate SSE. In our Partial Initial Decision, we determined that the risk presented by such operation was no greater, and possibly less, than the risk represented by the temporary operation permitted by the show-cause order *pendente lite*. We therefore concluded that there was reasonable assurance that continued operation without a dewatering system pending our resolution of the SSE question would not endanger the health and safety of the public. LBP-81-7, *supra*, 13 NRC at 279.

To resolve the SSE question, the NRC Staff submitted an affidavit of four Staff members on January 28, 1982.³ Neither DPC nor any intervenor took advantage of the opportunity we provided to comment on that affidavit. As a result of certain apparent inconsistencies in the affidavit, the Board posed certain questions related

¹ The Staff's safety review of the FTOL application is based on the results of its Systematic Evaluation Program (SEP), which is still not complete for LACBWR.

² Prehearing Conference Order, LBP-80-26, 12 NRC 367, 376-379 (1980), *affirmed*, ALAB-618, 12 NRC 551 (1980), review declined by Commission, letter dated April 21, 1981 from the Secretary of the Commission to DPC's counsel.

³ Affidavit of Robert E. Jackson (Branch Chief, Geosciences Branch, Div. of Engineering, NRR), Jeffrey K. Kimball (Seismologist/ Geophysicist, Geosciences Branch, Div. of Engineering, NRR), Leon Reiter (Section Leader, Seismology Section, Geosciences Branch, Division of Engineering, NRR), and William Russell (Branch Chief, Systematic Evaluation Program Branch, Div. of Licensing, NRR) (hereinafter Staff Aff. I).

to the affidavit and, in addition, asked other questions concerning the regulatory status of the method of review adopted by the Staff. Memorandum dated July 2, 1982 (unpublished). The Staff responded to the latter questions in a filing dated July 30, 1982, and it filed additional affidavits on August 18, 1982.⁴ As with the earlier affidavit, neither DPC nor any intervenor availed itself of the opportunity we provided for responding to the additional affidavits and other material provided by the Staff.

We have reviewed the Staff affidavits and, together with the hearing record developed on December 16-17, 1980, we regard the record adequate to determine the appropriate SSE to be utilized to assess the potential for liquefaction at the LACBWR site.

II. DETERMINATION OF SAFE SHUTDOWN EARTHQUAKE FOR ASSESSING LIQUEFACTION POTENTIAL AT LACBWR

A. Legal Standards

The Commission's currently applicable standards for determining the geologic and seismic aspects of a site, which must be taken into account in establishing the design basis for a plant, appear in 10 CFR Part 100, Appendix A. Those regulations were proposed in 1971 and adopted late in 1973 (38 Fed. Reg. 31279, November 13, 1973). LACBWR was initially authorized to operate in 1967 and hence was not licensed pursuant to the requirements of Appendix A. At the time, the Commission (then the AEC) had no specific seismic criteria (comparable to Appendix A) applicable to reactors; conformance with the Uniform Building Code was deemed to be sufficient (Levin, Tr. 318). Moreover, the Commission did not make Appendix A applicable to reactors authorized to operate at the time of its issuance (38 Fed. Reg. 31279), nor has it used its backfitting authority (*see* 10 CFR §50.109) to apply it to such reactors. For those reasons, the requirements of Appendix A need not be applied to this reactor. *Cf. General Electric Co. (Vallecitos Nuclear Center)*, LBP-82-64, 16 NRC 596, 698 (1982); *acq.*, ALAB-720, 17 NRC 397, 399, fn.3 (1983).

In its safety review of LACBWR, the Staff is using the results obtained from its SEP. As indicated in the material provided us by the Staff on July 30, 1982, and by Staff Aff. III, the overall program (and the proposal to apply it to LACBWR, among others) was initially presented for Commission approval in 1976 (SECY-76-545) and was approved by the Commission on November 15, 1977. The Commission requested periodic status reports. The SEP methodology for

⁴ Affidavit of Messrs. Reiter and Kimball (hereinafter Staff Aff. II); affidavit of Mr. Russell (Staff Aff. III).

quantifying seismic parameters was explained to the Commission during a briefing session on May 6, 1980 (*see* Tr. 14-23 of that session, which has been provided to us by the Staff).

In addition, the Staff advises that the Commission is aware that the Site Specific Spectra Program documented in NUREG/CR-1582, Vols. 2-5, is a state-of-the-art program to develop a realistic estimate of the seismic hazard (reanalysis spectra) for SEP plants (Staff Aff. III, p. 2).⁵ Although the Commission (as of August 1982) had not yet approved specifically the SEP approach to definition of seismic hazard, it is expected to review formally the application of the SEP seismic methodology to LACBWR this Spring (*id.* at 4).

Based on this material, we believe that the Staff had an adequate basis to perform its seismic review of LACBWR under the methodology it developed for the SEP (*i.e.*, the Site Specific Spectra Program).

B. Safe Shutdown Earthquake for Tyrone

The Staff has explained the way the Tyrone SSE (characterized by a peak acceleration of 0.20g) was determined and why it is not necessarily incompatible with the SSE producing peak acceleration of 0.12g which has been used by DPC and the Staff to analyze the liquefaction potential at La Crosse. As a new reactor, Tyrone was subject to the requirements of Appendix A to 10 CFR Part 100. In the Tyrone SER (NUREG-75/102, October 1975), the Staff considered the intensity VII-VIII Anna, Ohio earthquake of 1937 as the largest earthquake in the Central Stable Region (in which both Tyrone and La Crosse are located) which could not be reasonably associated with known geologic structure.⁶ That earthquake was calculated under Appendix A criteria to produce a peak ground acceleration at the Tyrone site of 0.20g. Since Tyrone was a SNUPPS (Standardized Nuclear Unit Power Plant System) plant which used 0.20g as its design basis, the Tyrone Applicant chose 0.20g peak acceleration for the standard design of Tyrone. However, that Applicant had proposed the use of 0.14g for the non-standard portion of the plant. The Staff recommended the use of 0.20g for all safety related features of the plant, for conservatism, and the Applicant apparently did not object. Staff Aff. I, at pp. 2-3, 4.

Furthermore, the Staff, both in the past and currently, recognizes that significant variations exist in historic seismicity within the Central Stable Region. Based on the low level of seismicity in the vicinity of the Tyrone site, had the Applicant given sufficient supportive bases, the Staff indicated that it might have considered

⁵ Volumes 2 and 3 of NUREG/CR-1582 were entered into evidence as Staff Exhs. 6 and 7 (Tr. 155). Volumes 4 and 5 were subsequently provided by the Staff to the Board and all parties.

⁶ An intensity VII earthquake is roughly equivalent to a magnitude 5.0-5.5 earthquake (Reiter, Tr. 167).

acceptable an intensity lower than MMI VII-VIII, and a peak ground acceleration lower than 0.20g, for the design of the Tyrone plant. However, the requisite supporting data were never submitted by the Tyrone Applicant. The Staff reviewed the Tyrone application on the basis of the information submitted to it. *Id.* at 4-5, 9.

In other cases, applicants subject to Appendix A have provided sufficient information to justify selection of a tectonic sub-region or zone within the Central Stable Region and thus the use of an earthquake of lesser intensity than the Anna, Ohio earthquake. For example, the Staff approved an SSE producing peak ground acceleration of 0.12g for both the Wolf Creek plant located in Kansas and the Black Fox site in eastern Oklahoma. Staff Aff. I, Attachment 1. In 1973-74, Dames and Moore completed a similar study for La Crosse in which a smaller sub-region with a maximum random earthquake of intensity VI was proposed.⁷ Using methods available in 1973, Dames and Moore estimated acceleration of 0.12g at the ground surface.⁸ Although the 1974 Dames and Moore study was submitted to the Staff in support of Dairyland's full term operating license application, the Staff has never to our knowledge explicitly accepted that study nor approved the SSE it recommends. However, throughout these proceedings, the Staff has consistently maintained that a 5.0-5.5 magnitude or intensity VII earthquake is appropriate for La Crosse and that, using the relationship proposed by Trifunac and Brady, this earthquake produces a peak acceleration of 0.12g at the site.⁹

We conclude that, because of the particular circumstances which we have outlined, the acceptance at Tyrone of an SSE with 0.20g peak acceleration does not dictate use of a similar SSE for this facility, despite the close proximity to Tyrone.

C. The SEP Methodology

The Systematic Evaluation Program (SEP) is an ongoing effort by the Staff to re-evaluate eleven early nuclear plants (including La Crosse) in light of current standards. To determine the capability of the soils underlying these plants to withstand shaking caused by earthquakes without detrimental effects such as liquefaction, it is first necessary to specify the expected ground motion. For this purpose, the Staff is using the results of a method developed for the Staff by the

⁷ Seismic Evaluation of the La Crosse Boiling Water Reactor, SS-1162, January 11, 1974, p. 5; see also attachment 5 to Staff Aff. I, p. 1 of enclosed SER.

⁸ An intensity VI earthquake occurring at or near the site would result in a peak ground acceleration of 0.06g according to a March 21, 1980 Dames and Moore report "Response to NRC Concerns on Liquefaction Potential at La Crosse Boiling Water Reactor (LACBWR) Site Near Genoa, Vernon County, Wisconsin" (attachment to Licensee's Answer to Order to Show Cause, dated March 25, 1980), at p. 5.

⁹ Show Cause Order, Staff Aff. II, pp. 2-4; SER fol. Tr. 96, pp. 2-3, 5; Staff Aff. I, Attachment 3, p. 17.

TERA Corporation under the technical direction of the Lawrence Livermore National Laboratory.¹⁰ This approach, the Uniform Hazard Methodology (UHM), differs from the method prescribed by Appendix A to 10 CFR Part 100 for earthquakes which cannot be reasonably associated with known geologic structure.¹¹

The UHM incorporates two important features.¹² First, unlike Appendix A, the UHM does not assume that the largest earthquake in the tectonic region occurs at or near the site. Rather it considers earthquakes of all reasonable magnitudes and assumes that they occur randomly in time and space. Therefore it is necessary to develop a cumulative density distribution function based on historical evidence. Greeves, Tr. 187. Moreover, a means of considering attenuation over the distance separating the site from the randomly located epicenter is required (Reiter Testimony, ff. Tr. 85, pp. 3-6; Tr. 173-174). One then integrates over the whole of an appropriate zone for some arbitrary period of time — 1,000 years for the SEP program. The ultimate result is response spectra covering the range of frequencies important in evaluating the ability of soils, structures and equipment to withstand shaking. At very high frequencies, the response spectra become asymptotic to the peak ground surface acceleration. Greeves, Tr. 188-191.

The second important feature is that the input parameters for the UHM (as mentioned in the preceding paragraph) have been determined from an extensive and systematic polling of ten or more leading authorities in seismology of the eastern and central United States (Reiter, Tr. 156-165).¹³

The Staff believes that the UHM is potentially superior to deterministic methods since it reflects more accurately the true seismicity in which a site is located.¹⁴ We agree. The results of the UHM have now been applied to all eleven nuclear plants under review in the SEP. For La Crosse, the UHM gave a result for peak ground surface acceleration of 0.09g.¹⁵ However, the Staff concluded that no UHM spectra should be allowed to fall below the mean value for actual historic spectra. For La Crosse, that raised the peak ground surface acceleration to 0.11g and the Staff has adopted that value for LACBWR.¹⁶

¹⁰ The SEP investigation also extends to the plant structures and equipment, of course, for which a complete response spectrum is required. The same SEP methodology is used for that purpose. Here, however, we confine ourselves to ground motion which can be characterized primarily in terms of peak ground surface acceleration.

¹¹ Testimony in these proceedings has used various nomenclatures for the UHM, including Site Specific Spectra. (See attachments 2 and 3 to Staff Aff. I for examples.) In this decision we do not use the Site Specific Spectra terminology since entirely different methods conforming strictly to Appendix A have been used for plants such as Wolf Creek, Black Fox and La Crosse to develop response spectra which are also site specific.

¹² See NUREG/CR-1582, Vol. 2 (Staff Exh. 6) for a more detailed description of the UHM.

¹³ See also Attachment 3 to Staff Aff. I (which is also Staff Exh. 4), pp. 5-6.

¹⁴ *Id.* p. 15; Staff Aff. I, p. 6.

¹⁵ Staff Aff. I., Attachment 3, Fig. 10; Greeves, Tr. 188-189; Reiter Testimony, ff. Tr. 85, p. 3.

¹⁶ Staff Aff. I, Attachment 2; Reiter, Tr. 174-175.

D. The Choice of 1000 Year Spectra

Although the spectra used in the SEP are labeled 1,000 year spectra, the Staff believes that due to conservatism in the UHM, the actual return times could be as much as 10,000 years.¹⁷ A Dames and Moore study using a similar methodology found the return time for a 0.12g or greater earthquake to be 10,000 years with a range of 6,000 to 15,000 years.¹⁸ The difference can be traced to different input parameters, notably the low magnitude cut-off to the density distribution function which Dames and Moore set at 5.0 (vs. 4.25 for the TERA analysis) on the basis that liquefaction is not known to have occurred at magnitudes lower than 5.0. McGuire, Tr. 339; Greeves, Tr. 112-13.

In March 1983 the Nuclear Regulatory Commission published a preliminary policy statement on safety goals for nuclear power plants. 48 Fed. Reg. 10772 (March 14, 1983).¹⁹ Therein, the Commission announced, *inter alia*, the following plant performance design objective:

The likelihood of a nuclear reactor accident that results in a large-scale core-melt should normally be less than one in 10,000 per year of reactor operation.

48 Fed. Reg. at 10775.²⁰ As we have seen, the Staff's probability estimate of an earthquake resulting in peak ground acceleration of 0.11g or higher is at least as low as one in 1,000 per year and could be an order of magnitude lower. Dames and Moore's best estimate that a 0.12g or higher earthquake could occur at La Crosse is one in 10,000 per year. Hence, the earthquake occurrence probability estimates alone essentially provide a basis for meeting the Commission's design objective as far as liquefaction potential is concerned.

In addition, exceedence of these peak ground accelerations (0.11g or 0.12g) does not necessarily lead to liquefaction because of significant factors of safety under pile-supported buildings important to nuclear safety.²¹ Moreover, there are several

¹⁷ Staff Aff. I, Attachment 3, at p. 11-13; Reiter, Tr. 168-169.

¹⁸ McGuire, Tr. 308, 344; see also Attachment 4 to Staff Aff. I, at p. 9.

¹⁹ The policy statement is subject to change after a two year evaluation period. The qualitative goals and quantitative design objectives are not to be used in the licensing process or to be litigated in hearings; conformance with regulatory requirements is to continue to be the exclusive licensing basis for plants. *Id.* at 10775. Nonetheless, where, as here, no particular regulations prescribe the seismic and geological evaluation of the site, we regard it as both useful and consistent with the foregoing use limitations to refer to the performance design objectives in ascertaining the reasonableness of the methodologies used to develop the SSE for this reactor. *Cf.* "Proposed Commission Policy Statement on Severe Accidents and Related Views on Nuclear Reactor Regulation," where the Commission observed that use of the policy statement on safety goals is to be limited to uses such as "examining proposed and existing regulatory requirements," 48 Fed. Reg. 16014, 16015 (April 13, 1983).

²⁰ In February, 1982, the Commission had published for comment a proposed policy statement. That proposal provided guidance with respect to evaluating large-scale core-melts in identical terms with the design objective quoted above. 47 Fed. Reg. 7023, 7026 (February 17, 1982).

²¹ A Dames and Moore report entitled "Liquefaction Potential at La Crosse Boiling Water (LACBWR) Site Near Genoa, Vernon County, Wisconsin," September 1979, concluded that a "threshold liquefaction resistance level for the LACBWR site corresponds to an SSE producing an acceleration between 0.18g and 0.20g at the ground surface." See Show Cause Order, Part II.

additional barriers against large-scale core-melt. Even should some degree of liquefaction occur, the pilings would continue to offer foundation support. Greeves, Tr. 233. Disruption of the reactor and other safety related buildings would have to be so severe as to render emergency cooling systems ineffective (Levin, Tr. 222-23; Greeves/Levin, Tr. 231-32).²² Although not yet quantified and currently unquantifiable, the failure probability of these additional barriers to core-melt combined with the already low probability of occurrence of earthquakes larger than 0.12g gives the Board ample assurance that core-melt probability due to liquefaction at La Crosse is extremely remote and well below the Commission's preliminary design objective.

E. Comparison of UHM with Other Methodologies

After having selected the SSE for new reactors derived by the essentially deterministic methods of Appendix A, the Staff has often been asked to estimate the probability that the SSE will be exceeded. In general, the answer turns out to lie in the range of 10^{-3} to 10^{-4} per year, *i.e.*, to be characterized by a return time on the order of 1,000 to 10,000 years. Reiter, Tr. 168-169. Hence the exceedence probability derived by the UHM method is not inconsistent with the exceedence probability of an SSE determined pursuant to Appendix A.

As one method of exploring the validity of the Uniform Hazard Methodology, the results using UHM were compared with those derived from deterministic methods for nine of the eleven SEP plants located in the eastern and central United States. Intensities for the earthquake assumed to occur at or near the five sites located in the central U.S. were constant and somewhat higher (Intensity VII-VIII) than the Staff had heretofore taken as conservative for La Crosse (Intensity VII). The resultant peak ground acceleration for all five sites was the same, *viz.*, 132 cm/sec² which translates to 0.135g.²³ According to the Staff, this somewhat higher result is overly conservative because it does not reflect the fact that La Crosse lies in an area of low seismicity and low seismic hazard in the Central Stable Region.²⁴ We see no flaw in that judgment. We also agree with the Staff that differences on the order of 0.01g are not significant and are lost within the scatter of estimation techniques.²⁵ Moreover, we are aware of other factors in addition to those already discussed which would mitigate the effects of liquefaction, should it occur. Among other things, LACBWR is a very small reactor producing only about four percent of the power of a modern reactor, with correspondingly lower fission

²² In addition, the fuel cladding, primary coolant boundary and containment would have to be breached before core inventories could be released.

²³ Attachment 3 to Staff Aff. I, pp. 14-16, and Tables 1 and 2.

²⁴ *Id.* at p. 15; Staff Aff. II, p. 3 (response to Question 3).

²⁵ Staff Aff. II, p. 4.

product inventories, lower power densities, and consequently lower fission product release even in case of severe core damage. Therefore, even were liquefaction to occur at the LACBWR site, it would present a lower overall risk of adverse impacts than would a larger reactor.

F. Conclusions

We agree with the Staff's conclusion (Staff Aff. I, p. 9) that, based on the methodologies used in the SEP seismic review, the SSE of 0.12g used to anchor a Regulatory Guide 1.60 design spectra which was used for evaluation of the liquefaction potential for the LACBWR site, is an adequate and conservative description of the size of the SSE for that site. Our conclusion (as our review) is limited at this time to liquefaction at the LACBWR site and does not extend to other seismic parameters which have not yet been reviewed by us.

Based on all the evidence before us and the factual findings and conclusions reached here and in our previous Partial Initial Decision (LBP-81-7, *supra*), we conclude that a dewatering system need not be installed at the LACBWR site to preclude liquefaction and any concomitant adverse effect on public health and safety.

III. ORDER

Based on the foregoing, it is, this 21st day of April, 1983, hereby ORDERED

1. That Dairyland Power Cooperative is neither required to submit a detailed design proposal for, nor to make operational, a site dewatering system to preclude the occurrence of liquefaction in the event of an earthquake with peak ground surface accelerations of 0.12g or less, as proposed by the Order to Show Cause, dated February 25, 1980;

2. That, in accordance with 10 CFR §§2.760, 2.762, 2.764,²⁶ 2.785, and 2.786, this Initial Decision shall become effective immediately and shall constitute, with respect to the matters covered herein, the final action of the Commission thirty (30) days after the date of issuance hereof, subject to any review pursuant to the Commission's Rules of Practice.

Exceptions to this Initial Decision may be filed by any party within ten (10) days after service of this Initial Decision. A brief in support of the exceptions shall be filed within thirty (30) days thereafter (forty (40) days in the case of the NRC

²⁶ The immediate-effectiveness review by the Commission under 10 CFR §2.764 is not required for either type of proceeding under consideration here.

Staff). Within thirty (30) days of the filing and service of the brief of the appellant (forty (40) days in the case of the NRC Staff), any other party may file a brief in support of, or in opposition to, the exceptions.

**THE ATOMIC SAFETY AND
LICENSING BOARD**

**Charles Bechhoefer, Chairman
ADMINISTRATIVE JUDGE**

**Dr. George C. Anderson
ADMINISTRATIVE JUDGE**

**Ralph S. Decker
ADMINISTRATIVE JUDGE**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**John H Frye, III, Chairman
Dr. Emmeth A. Luebke
Glenn O. Bright**

In the Matter of

**Docket No. 50-142-OL
(Proposed Renewal of
Facility License)**

**THE REGENTS OF THE UNIVERSITY
OF CALIFORNIA
(UCLA Research Reactor)**

April 22, 1983

The Licensing Board grants UCLA's and Staff's motions for summary disposition of Contention XVIII (financial qualifications), holding that the University of California is clearly qualified to operate and decommission the reactor. UCLA's and Staff's motions for summary disposition of Contention II (class of license) are denied. The Board refuses as a matter of law to accept UCLA's accounting method, in which more than 50% of the costs of the reactor may be charged against less than 50% of its use under 10 CFR §50.22. An alternate board member is appointed to assist in determining how much the reactor has been used for commercial, as opposed to academic, purposes.

RULES OF PRACTICE: CLASS OF LICENSE

Section 104 of the Atomic Energy Act, as implemented by 10 CFR §50.22, requires that the costs of operating a reactor be apportioned according to its use in order to determine whether a Class 103 license is required.

MEMORANDUM AND ORDER

(Ruling on Motions for Summary Disposition of Contentions II [Class of License] and XVIII [Financial Qualifications])

On September 1 and 3, 1982, Staff and Applicant respectively moved for summary disposition of virtually all admitted contentions in this proceeding, including Contention II (Class of License) and Contention XVIII (Financial Qualifications). Following certain objections from CBG, we instituted a bifurcated procedure for responses to these motions in the hope of providing a more manageable way of dealing with them. The considerations leading to this procedure are recited in our Memorandum and Order of October 22, 1982 (LBP-82-93, 16 NRC 1391). Motions for reconsideration of this Memorandum and Order were filed and disposed of in our unpublished Memorandum and Order of November 10, 1983.

The bifurcated procedure has resulted in some confusion with regard to the proper procedures for disposing of motions for summary disposition. The parties are reminded that bifurcation of responses to motions for summary disposition is no more than that. It simply required that a party's response to the facts alleged in the motion be separated from its legal brief. Burdens are not shifted, nor are standards for deciding motions changed. The purpose of the bifurcated response was to permit the Board and parties to initially focus their attention on factual disputes before addressing legal issues.

Following CBG's factual response to the motions, we concluded that ". . . most of the premises and assumptions underlying the fundamental UCLA and Staff position that this reactor is inherently safe are disputed." We went on to detail the disputes which we found to exist. (*See* unpublished Memorandum and Order of February 8, 1983.) Consequently, we denied the motions with respect to Contentions V, XIX, VIII, XV, XII, and XIV.

In the course of the prehearing conference of February 23, 1983, UCLA requested that we take up the motions with respect to Contentions II and XVIII. We agreed to do so and requested legal responses from opponents. CBG objected to this, pointing out that no ruling had been made with respect to existence of disputes and asserting that because a dispute would preclude a grant of the motions, such a ruling was necessary. In our Prehearing Conference Memorandum and Order of March 23, we provided our ruling with respect to disputes, indicated to CBG that, in accord with 10 CFR §2.749(d), only disputes as to material facts require that result, and again called for legal responses from opponents. In so doing, we pointed out that we were not convinced that there were disputes as to material facts which would require hearing and indicated that opponents of the motions should address this proposition. CBG and Santa Monica have filed their responses.

In its response, CBG raises two procedural objections. First, CBG views the Board's Order requiring its response as impermissibly shifting the burden to it to affirmatively show that summary disposition should not be granted. Such is not the case. If anything, the procedure followed by the Board has given CBG a better opportunity to address the movant's case for summary disposition than would have been the situation had the bifurcated procedure not been adopted. It is in fact not dissimilar from relief sought by CBG. (*Cf.* LBP-82-93, *supra*, 16 NRC 1391, 1395 (1982).)

Second, CBG expresses some concern that our intent may be to make findings with respect to disputed facts. Such is not the case.

CONTENTION II — CLASS OF LICENSE

This Contention asserts that UCLA has applied for the wrong license. CBG takes the position that, because more than 50% of reactor funding and more than 50% of reactor usage have been devoted to the sale of services, rather than research and education, the reactor is not properly licensable under §104 of the Atomic Energy Act. CBG's position would require licensing under §103 of the Act pertaining to commercial licenses.

UCLA, in its motion, maintains that its reactor is properly licensable under §104. This position is based on the assertion that the reactor is maintained by UCLA for educational purposes. Any commercial use of the reactor is, according to UCLA, purely incidental. In support of this position, UCLA notes the 1971 amendment, to §§102, 103, and 104 of the Act. Those amendments had the effect of ending the AEC's practice of licensing power reactors under §104(b) and requiring that such reactors be licensed under §103. UCLA points to the legislative history of these amendments which recognized that some universities licensed under §104(c) sometimes used their reactors for commercial purposes. The legislative history notes that such "insubstantial" use was not to require licensing under §103 absent a Commission determination otherwise.

UCLA then examines the Commission's regulations under this provision of the law, 10 CFR §§50.21 and 50.22. UCLA seems to take the position that the amendments to these regulations which followed the amendments to the Act indicate that university training reactors licenses under §104(c) would continue to receive such treatment, but that certain other research reactors — those used to produce radioisotopes for sale or for neutron radiography on a commercial basis — might not.

The affidavits and other materials submitted in support of UCLA's motion take the position that the sole reason for maintaining the reactor is to support the educational and research purposes of the School of Engineering and Applied Science, and that any commercial use is therefore incidental. Consequently, UCLA views the costs of commercial services as those costs which might be

avoided if the service were not rendered. These costs are costs of student reactor operators, utilities, and supplies. Thus, UCLA's accounting for the costs of the commercial operation during 1980, when such use was greatest, amounts to 2% of the overall costs of the facility. The affidavits point out that this practice is consistent with accounting practices applicable to commercial use of other UCLA facilities and that such commercial use may not interfere with academic use, nor may services be provided which are otherwise available to the public (Rebok affidavit, ¶6).

Staff also moved for summary disposition of this Contention. Staff takes the position that the Contention is fatally flawed because it focuses on the sources of funding for the reactor and the proposition of hours of use for commercial as opposed to academic purposes, rather than costs. Staff also supports UCLA's accounting for the costs of commercial operation.

CBG vigorously attacks these positions:

CBG has shown, and will show further herein, that the activities, utilization, function, and purpose of the UCLA reactor have radically altered since the original class 104 license was granted, and that the purposes for which the license was originally granted (research and education) have become almost non-existent, replaced instead with virtually exclusively commercial activity, in violation of the requirements for class 104 licenses. CBG will show that the commercial activity admitted by the Applicant exceeds by an order of magnitude the educational functions of the reactor, and that considerably *more* than 50% of the use of the reactor is, by Applicant's own admission, commercial (which the Applicant now calls "extramural.") (CBG Response to Prehearing Conference Memorandum and Order, p.10.)

Starting from this point, CBG also traces the legislative history of the 1971 amendments to §§103 and 104 of the Atomic Energy Act and their implementing regulations. CBG concludes that a situation contemplated in those amendments and implementing regulation — a Class 104(c) reactor used for industrial and commercial purposes to a significant extent — is presented by the UCLA reactor.

CBG next analyzes UCLA's accounting method, concluding that this method presents an absurd situation. Under CBG's factual assumptions, the UCLA accounting method results in some 2% of the cost of the reactor being charged against some 65% of the use. CBG maintains that, under this accounting method, any educational or research use, no matter how small, could justify Class 104(c) status no matter how large the commercial use. Santa Monica shares CBG's views.

CBG concludes its discussion with a consideration of the practical consequences of Class 103 as opposed to Class 104 status. Among these consequences CBG finds:

1. Higher license and inspection fees;
2. Price-Anderson insurance coverage;

3. Mandatory ACRS review of the application;
4. Mandatory antitrust review of the application which would serve to protect commercial firms providing the same services from unfair competition from UCLA;
5. An alteration of the NEPA cost-benefit consideration;
6. More stringent safety standards would be applicable; and
7. More stringent ALARA standards would be applicable.

In our March 23 Prehearing Conference Memorandum and Order, we set forth our conclusions regarding disputes. These disputes center on two points. The first concerns the proper accounting method to apply. The second concerns the amount of reactor operating time which has been devoted to commercial as opposed to educational and research purposes. In our Memorandum and Order, we indicated that the first dispute seemed to be more one concerning the proper interpretation of the law and regulations and hence involved a question of law or perhaps a mixed question of law and fact. The relevance and materiality of the second dispute, which is clearly one of fact, depends upon the resolution of the first dispute.

We find that the first dispute involves a question of law and that CBG's interpretation of 10 CFR §50.22 is correct. As CBG points out, UCLA's interpretation leads to an absurdity. Section 50.22 states that, if the reactor is *used* so that more than 50% of its *costs* are attributable to commercial activity, then it is to be licensed under §103 of the Act. Clearly, this does not contemplate that more than 50% of the costs may be attributable to less than 50% of the use. In promulgating this provision, the Atomic Energy Commission noted that it would not affect Class 104(c) status for nonprofit educational licensees whose reactors are used for education and training because those reactors are not used for commercial purposes.

Our conclusion is also supported by the legislative history of the 1971 amendments to §104 of the Act. On this issue, the Joint Committee on Atomic Energy stated:

The committee is aware that university-licensees under subsection 104 c., and other licensees under subsections 104 a. or 104 c., sometimes use these reactors for industrial or commercial purposes. It is the intention of the committee that such insubstantial use not affect licensing under section 104; however, should the Commission find that any facility so licensed is being used substantially for industrial or commercial purposes, then the Commission shall determine whether such use is sufficiently substantial to entail licensing under section 103. (House Report 91-1470, 1970 U.S. Code Cong. & Adm. News at 5008.)

Section 50.22 constitutes the Commission's determination that if more than 50% of the use of a reactor is for commercial purposes, that reactor must be licensed under §103.

This brings us to the second dispute — has this reactor been devoted to commercial purposes more than 50% of its operating time. As we have indicated, this is clearly a factual dispute. Our interpretation of §50.22 makes this dispute relevant and material to this Contention. Consequently summary disposition must be denied and further proceedings held.

We are of the opinion that these further proceedings should be conducted by an Alternate Board Member pursuant to §2.722(a)(3). The Alternate Member will determine the scope and nature of these proceedings. His report should indicate the extent to which the UCLA Argonaut UTR has been used for commercial and for educational and research purposes. His report should also, taking the parties' views into account, contain his recommendations for any relief he deems appropriate in the circumstances.

Pursuant to §2.722(a)(3), the Alternate Board Member's report is advisory only. The Board itself retains final authority with respect to this contention, and will permit the parties, if they so desire, to file exceptions to the Alternate's report.

In a separate Order, we are appointing Judge James A. Laurenson as Alternate Board Member. Judge Laurenson is a permanent Legal Member of the Panel and also serves the Commission as an Administrative Law Judge.

CONTENTION XVIII — FINANCIAL QUALIFICATIONS

UCLA's motion with respect to this contention takes the position that (1) there are no material facts in dispute, (2) the University is financially qualified, and (3) the following assertions of the Contention are not litigable:

- a) UCLA has deferred maintenance for lack of funds. UCLA states the claim is false and that, in any event, it is not precluded from deferring maintenance so long as the Commission's regulations are observed.
- b) Because UCLA is a public institution subject to yearly funding, it cannot reasonably assure that such funding will always be available. UCLA maintains that this position would prevent any public institution from demonstrating financial qualifications.
- c) UCLA has not met the requirements of §50.33(f) of the Regulations. UCLA maintains that it has met these requirements.

Staff, in its motion, takes the position that UCLA is clearly financially qualified.

CBG's opposition to these motions centers on the funding level of the NEL and includes an offer to prove:

1. That important safety modifications have not been made for lack of funds;
2. That insufficient funds have been available for maintenance and repair;
3. That lack of funds has resulted in failure to comply with safety requirements;
4. That lack of funds has resulted in injuries;

5. That the University's financial crisis makes the NEL a likely target for budget cuts; and
6. That UCLA does not approach funding of the NEL from a safety viewpoint, instead making decisions on programmatic grounds.

CBG recognizes that the relative importance of these issues is dependent on the outcome of the hearings on inherent safety, and emphasizes the fact that the financial qualifications issue is a safety issue.

Santa Monica is in general agreement with CBG.

The Board shares CBG's views with regard to the safety significance of these arguments and their relationship to the inherent safety issue. However, we are here examining the financial qualifications of the Applicant, the Regents of the University of California, who annually administer a budget of billions of dollars. (Rebok affidavit accompanying UCLA Motion.) Moreover, as we pointed out in our Prehearing Conference Memorandum and Order, the uncontested facts show that the NEL budget is a small fraction of the School of Engineering and Applied Science budget and a very small fraction of the UCLA budget. We are forced to conclude that CBG's and Santa Monica's concerns and the factual disputes on this matter are irrelevant and immaterial to the issue of the financial qualifications of the Regents. The Regents unquestionably will have sufficient funds available to safely operate and decommission this reactor. Consequently the motions must be granted.

This is not to say that CBG's and Santa Monica's concerns will go unheeded. We believe these concerns are raised by other contentions which directly address points 1 through 4 of CBG's offer of proof in terms of their safety significance rather than in terms of money. At the conclusion of this proceeding, we will have reached definitive conclusions with regard to these matters, conclusions which will, should CBG's position be borne out, require that sufficient funds be supplied or that the reactor be shut down. This is a far more effective means to resolve any such problems.

ORDER

In consideration of the foregoing, it is this 22nd day of April, 1983,
ORDERED

1. UCLA's and Staff's Motions for Summary Disposition of Contention II are denied.
2. UCLA's and Staff's Motions for Summary Disposition of Contention XVIII are granted.

Judge Luebke concurs in this Memorandum and Order but was unavailable to sign it.

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**Glenn O. Bright
ADMINISTRATIVE JUDGE**

**John H Frye, III, Chairman
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland
April 22, 1983**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**James L. Kelley, Chairman
Dr. Richard F. Foster¹**

In the Matter of

**Docket Nos. 50-413
50-414
(ASLBP No. 81-463-01-OL)**

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

April 27, 1983

Intervenor Palmetto Alliance asked the Board to take various "remedial measures" designed to facilitate their communication with the Applicants' employees about quality assurance matters at Catawba. The Board largely denied this request, noting that there was little a Board could do as a practical matter about such communications.

**MEMORANDUM AND ORDER
(Ruling on Palmetto Request for Remedial Measures)**

Introduction

Palmetto Alliance has filed a "Request for Remedial Measures in Light of Duke Power Company Communication with Workers" dated March 30, 1983. We have

¹ Dr. A. Dixon Callihan was not available to consider this matter.

received pleadings in opposition to the request from the Applicants and NRC Staff. The pertinent facts are as follows.

In response to discovery requests from Palmetto, we directed the Applicants to furnish Palmetto with the names and addresses of their present and former quality assurance ("QA") employees and also of employees who have been disciplined or terminated for violating an NRC regulation. The latter category of employees, along with the circumstances surrounding the actions taken against them, were given to Palmetto under a Board-approved protective order.

The Applicants' Communications

On March 22, 1983, the Applicants filed a report with the Board concerning communications they had had with their employees about the information they had disclosed to Palmetto in discovery. Such communications were of two types: (1) letters to individual employees, and (2) face-to-face discussions. Copies of several slightly different letters were filed with the Board. However, the substance of each letter was identical, and was contained in the following three paragraphs:

One of the issues, and a most important one, is that of Quality Assurance. The Intervenor is contending that faulty workmanship has been approved due to Company pressure, providing no assurance that the plant can operate safely. Two former Duke employees, Nolan R. Hoopingarner, II and William R. (Ron) McAfee, are members of the Palmetto Alliance. Each has been identified as a potential witness in this proceeding. We have learned of at least two instances in the past year where one of these individuals has contacted Duke employees at their homes to try to get information relating to Quality Assurance and construction practices.

We are now at the stage in the proceeding where we are required to furnish information to Intervenor. As a part of this process, Duke, over its objection, has been required by the Licensing Board to turn over to the Intervenor the names, addresses, titles, telephone numbers, and dates of employment for all Quality Assurance personnel that have been employed at the Catawba Nuclear Station. The Licensing Board has ordered this done so that Intervenor may contact these previous employees.

This memorandum is to inform you that your name has been disclosed to, and that you may be contacted by, Intervenor. Whether you do or do not talk to Intervenor is solely your own business. However, you should understand that you are under no obligation whatsoever to talk with Intervenor, and you are completely within your rights to refuse to talk with the Intervenor in this proceeding.

The Applicants described their discussions with their employees as follows:

[W]e also have had discussions with employees about questions they have raised concerning discovery, primarily regarding the release of their names

and addresses; we contemplate further discussions as circumstances arise. During these discussions, employees were advised of the ongoing proceeding and how it relates to them. In all instances, Applicants have been mindful of advising employees both of their right to discuss matters with Intervenors free from any intimidation by Duke Power Company and of their right to refuse to discuss matters with Intervenors.

Palmetto charges that the Applicants' letters and discussions were improper and asks for certain remedies to "undo the 'chilling effect' on potential cooperation caused by Duke's contacts and to supply material information on worker rights and responsibilities omitted in Duke's communication." Palmetto Request, p. 2. We will discuss the particulars of this charge and then the requested remedies.

The Employer's Right to Communicate with Its Employees

We stress at the outset that the Applicants are free to communicate with their employees about this pending licensing proceeding. No prior notice to or approval by this Board is required. Indeed, an employer may feel an obligation to communicate when, as here, it is being required to release personal information about its employees to an Intervenor. In the present circumstances, it was entirely appropriate for the Applicants to send a form letter to their QA employees explaining what was being done, and why. It might also be appropriate from time to time for management to speak to groups of employees or to individuals about the case. Thus there are no negative inferences to be drawn from the mere fact that communications have taken place. Now that they have the names and addresses, Palmetto is free to write letters to those same employees, and to have discussions with those who are willing.

Identification of Particular Employees

Turning to the specifics of the Applicants' letter, we agree with Palmetto that it should not have referred by name to former Duke employees Hoopingarner and McAfee. We do not know exactly what the Applicants intended by these references. We agree with part of the Staff's analysis, which we quote, as follows:

The Staff can only speculate as to the reasons why Applicants included in their letters to employees references to the two former employees Hoopingarner and McAfee. One reason could have been to relate the possible past contacts to the likely future contacts by the two former employees. . . . Applicants did not demonstrate any special sensitivity to protecting the privacy of these two individuals. On the other hand, these individuals have provided affidavits in this proceeding, and articles concerning them and their allegations have appeared in the Charlotte Observer

and Rock Hill Evening Herald. Thus, the Applicants have not revealed these individuals' identities.

The Staff goes on to speculate that:

Any notoriety which they may enjoy at the Catawba station preceded the subject Applicant letters to its employees. It is very difficult, therefore, without further information, to conclude that Applicants have violated the privacy of these individuals, or provided the basis for any harassment which they have experienced or may experience.

We disagree in part. Even assuming as we do that the identities of these two employees were already widely known among the Catawba work force, we think that to single them out as "whistleblowers" under the company letterhead creates some additional potential for harassment.

The Staff asserts without qualification that:

Nor do these references in any significant way serve to deter any recipient of these letters from coming forward with any pertinent information on shortcomings in plant quality assurance.

Any firm conclusions about such a subjective matter cannot be drawn on this meager record. An evidentiary hearing on states of mind in the Catawba work force would be required. Without such an evidentiary basis, our own experience indicates the opposite conclusion — *i.e.*, that naming names in this fashion probably will deter others from coming forward because they can visualize their own names in a future letter, with ostracism and harassment following for them.

As we see it, then, identification of specific individuals as being associated with an intervenor carries with it some potential for additional harassment for those named and deterrence of others from speaking out. We weigh these factors against any need the Applicants may have to make such identifications. We find no real need, but at best a marginal benefit to the employee in alerting him that he may be contacted by a particular person. We are therefore exercising our authority under 10 CFR 2.718(a) to direct the Applicants not to make such identifications in future communications to their employees about this case.

The Employee's Right to Cooperate with the Intervenor

Palmetto also contends that the Applicants' letters, "clearly communicate Duke's discouragement of cooperation. . . ." In that regard, the last paragraph of the quoted letter is intended to convey the idea that employees are free to talk to the Intervenor, or not, as they see fit. Ideally, this part of the letter should convey a truly neutral message from employer to employee. We think the present letter falls somewhat short in that respect. The last sentence is redundant and its redundancy appears to imply that the Applicants would prefer their employees not to talk with the Intervenor. In any future letters of this nature, the Applicants should revise the

last sentence, as shown in the footnote,² or draft a more neutral formulation of this paragraph.

We view this as a minor criticism, however. The paragraph does tell an employee that cooperation with Intervenor is "solely your own business." More fundamentally, we recognize that Licensing Board editing, after the fact, of a form letter to employees is unlikely to make any real difference to their perceptions of the situation.³ The employees know that utility management has committed enormous sums of money to the nuclear project and that any substantial delays will be costly. It does not require much perspicacity on the employee's part to conclude that management is not really neutral on the subject of employee cooperation with Intervenor. Recognizing that a perfectly "neutral" and "cooperative" atmosphere among utility management, employees and Intervenor does not exist and cannot be created, we have two realistic concerns in this case: Have the employees been informed about their rights to communicate in confidence to the NRC and to cooperate with intervenors like Palmetto? Second, does Palmetto have reasonable communications access to the employees?

Posting of Information

Here, with one exception noted below, the answer to both questions is "yes." As described in some detail by the Staff (Staff Response, pp. 7-9), the NRC relies primarily upon posting of notices at the site to spell out employees' rights. Such postings have been made at Catawba and, with one exception, appear to cover the areas Palmetto lists as omissions from the form letter. Palmetto Request, pp. 10-11. The postings include information about reports of non-compliance and the NRC's policy of confidentiality for informants, among other matters.

There appears to be one significant omission from the present postings. Section 210 of the Energy Reorganization Act, entitled "Employee Protection," provides a remedy for an employee against discrimination because he has —

- (2) testified or is about to testify in any [NRC licensing] proceeding or;
- (3) assisted or participated or is about to assist or participate in any manner in such a proceeding. . . .

This provision outlaws discrimination against an employee because he has assisted an intervenor, as a witness or otherwise, in a licensing proceeding. It is important

² This sentence should be revised for better balance, as follows:

"However, you should understand that you are under no obligation to talk with Intervenor."

³ Similarly, the Applicants' meetings with their employees, as described above, appear to have been proper. We have some confirmation of this from the Staff as to two meetings. Staff Views, Attachment A, p. 3. Without concluding anything about these particular meetings, however, we recognize that the messages being conveyed in such meetings can be affected as much or more by tone and setting as by the literal words. Thus our practical ability to exercise any effective review of such meetings is very limited.

that nuclear project employees be aware of this statutory protection. The Staff's submission of presently posted information did not include any information about an employee's right to cooperate with an intervenor. The Staff might consider revising its Form 3 or devising a new form to convey this information. In this case, in view of the unfortunate specific identification of two former employees in the Applicant's form letter and its possible effects, we are directing the Applicants to post in prominent places at the Catawba facility copies of the full text of Section 210, along with a non-technical explanation of its terms.

The Intervenors' Access to Employees

As to the matter of access, Palmetto is free to contact the Applicants' QA and other identified employees by any reasonable means, and at any reasonable times, including telephone, mail, or knocking on the door. In our Order of April 6, 1983, we rejected certain proposed restrictions on such contacts. By providing for free access, we take the most practical approach open to us — that of ensuring opportunities for employees to hear both Applicants and Intervenors on whether to become involved in the proceeding.

The Posture of this Matter

The parties take opposing positions on what has been proved in the present posture of this matter. Palmetto contends that the Applicants' letters have had a "chilling effect" on employee cooperation. Request, pp. 2, 10. The Applicants contend that no such "chill" has occurred. Applicants' Response at 4. The Staff seems to agree with the Applicants, saying that "no impropriety has occurred and . . . no remedial action is warranted." Staff Views at 4.

As indicated by our earlier discussion, we do not consider the issues sought to be raised by these pleadings to be either proved or disproved at this juncture. Our analysis of the form letters suggests that they may have caused some "chill" of employee cooperation. We cannot agree with the Applicants and Staff that no chill has occurred.⁴ On the other hand, we do not view the form letters or anything else now before us as proving a deliberate intent by the Applicants to discourage cooperation with the Intervenors. Nevertheless, we are taking certain actions to prevent singling out "whistleblowers" in the future, and to provide employees with more information. We are left with the question whether, considering all the circumstances, we have sufficient cause to set an evidentiary hearing on possible

⁴ This is a factual issue which is shaped by the unusual factual context in which it arises. It cannot be resolved with reference to appellate judicial decisions arising under the First Amendment or the labor laws and presenting different factual contexts.

“chilling” of cooperation and related issues, with the expenditure of time and resources that would involve. On balance, we do not believe that a hearing on this collateral issue would significantly affect the flow of information to the Intervenors and Board or otherwise be in the public interest.

Rulings on Requested Remedies

On the basis of the foregoing discussion, we rule on Palmetto’s requests for remedial action as follows:

1. A Board-ordered opportunity for Palmetto to meet with the Catawba QA employees. Such an opportunity presently exists. Palmetto has only to invite the employees to a meeting. We have no authority to order the employees to go to such a meeting on their free time. We see no reason for a Board order in connection with such a meeting.

2. A Board-ordered, on-site meeting between Catawba employees and a senior NRC Staff official to brief the employees about their rights and responsibilities. Provide for attendance by Palmetto. We leave to the Staff whether meetings of this kind might be a good idea at any reactor site, or at least where, as here, a contention about faulty quality assurance has been admitted by a licensing board. On the basis of the record now before us, we decline to order such a meeting.

3. An official Board notice to be mailed to employees at Applicants’ expense explaining employees’ rights and responsibilities. A Board might have discretion to order this remedy in an appropriate case. The present record does not justify that remedy here. Of course, Palmetto is free to mail such a notice to the employees at its expense.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

James L. Kelley, Chairman
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 27th day of April, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Lawrence Brenner, Chairman
Dr. Richard F. Cole
Dr. Peter A. Morris**

In the Matter of

**Docket Nos. 50-352-OL
50-353-OL**

**PHILADELPHIA ELECTRIC COMPANY
(Limerick Generating Station,
Units 1 and 2)**

April 27, 1983

In a 2-to-1 decision, the Licensing Board holds that it lacks jurisdiction over a motion to reopen the record which was served on the same day that a partial initial decision was issued. The subject addressed in the motion to reopen the record was related to issues decided in an appealable partial initial decision and was not related to other issues still pending before the Licensing Board. The Licensing Board refers the petition to reopen to the Appeal Board.

LICENSING BOARD: JURISDICTION

When a Licensing Board's partial initial decision becomes appealable, jurisdiction over issues decided in the partial initial decision may pass to the Appeal Board without regard to whether unrelated issues remain before the Licensing Board.

RULES OF PRACTICE: MOTION FOR RECONSIDERATION

A motion for reconsideration will be denied if it neither casts a new light on information which has previously been presented to the Board nor points out facts before the Board which the Board has failed to consider.

RULES OF PRACTICE: PETITION TO REOPEN THE RECORD

A petition to reopen the record is sufficiently different from a motion for reconsideration that the jurisdictional rules may differ between the two.

RULES OF PRACTICE: JURISDICTION OF BOARDS

Under NRC regulations, only one Board at a time, acting as the presiding officer, will have jurisdiction over a particular matter.

RULES OF PRACTICE: GUIDANCE FROM JUDICIAL PROCEEDINGS

Because the Appeal Board plays a larger role than do the federal Courts of Appeal in deciding issues of facts, the guidance provided by federal court practice on the question of jurisdiction over a motion to reopen the record is minimal.

RULES OF PRACTICE: PETITION TO REOPEN THE RECORD

Jurisdiction over a petition to reopen the record underlying an issued, appealable partial initial decision lies with the Appeal Board when the motion is unrelated to any matter pending before the Licensing Board. This prevents problems of forum shopping and concurrent jurisdiction.

MEMORANDUM AND ORDER FINDING NO JURISDICTION TO ENTERTAIN DEL-AWARE'S REQUEST TO ADMIT LATE FILED CONTENTION V-26

MAJORITY OPINION BY JUDGE BRENNER IN WHICH JUDGE MORRIS CONCURS

On March 8, 1983, the Licensing Board issued a "Partial Initial Decision (on Supplementary Cooling Water System Contentions)" ("P.I.D."), LBP-83-11, 17 NRC 413 (1983). This P.I.D. disposed of all of the contentions before us advanced by one of the intervenors, Del-Aware Unlimited, Inc. ("Del-Aware"). That same day, Del-Aware served by deposit in the mail a request that the Licensing Board admit late filed contention V-26, which states:

V-26 The parties to the Supreme Court Decree of 1954, 347 U.S. 995 (1954), have just announced the signature of a revised management plan

for the Delaware River, which will reduce the minimum flow objective at Trenton to 2,700 cfs, in "drought warning", and to 2,500 cfs in drought conditions, and have eliminated all minimum flow objectives in times of drought emergency. As a result, the basis of computation of the reliability of the river follower method as utilized by the Appeal Board in its 1975 decision, and utilized by Applicant and the staff witnesses in this proceeding, *i.e.*, the extent of outage of the facility, and the frequency and seasonality of operation of the intake at flows less than 3,000 cfs, have been drastically altered.

As a result, neither the original determination of the viability of the river follower method, nor the applicant's and staff's evidence concerning the impacts of withdrawals at different seasons (especially in the spawning season and the larval stage) properly address the likely impacts.

These matters in combination with those asserted as a basis for Contentions V-22, V-23, V-24 and V-25, compel the admission of a late filed contention to consider and dispose of these critical matters.

(Should it be argued that Merrill Creek will maintain the minimum low flow, Del-Aware points out that its efforts to consider Merrill Creek in this proceeding have consistently been rebuffed; in any event, Merrill Creek would have an increased burden to maintain 3,000 cfs flow, which there is no showing it can do.)

By the terms of this proposed contention and by its supporting petition, Del-Aware is asserting that information which it argues is new and material to the issues litigated in the completed hearing should now be considered. In a letter accompanying its petition for admission of the new contention, Del-Aware requests that the petition also be considered a motion to reopen the record.

On March 17, 1983, the Licensing Board issued an unpublished order directing the Applicant and the Staff to address in their responses to the petition the question of whether the Licensing Board has jurisdiction over Del-Aware's request.¹ The Applicant's Answer was filed on March 29, 1983, and the Staff's Response on April 1, 1983. The Applicant and Staff both address the jurisdictional question (although not in the detail the Licensing Board had expected, given the considerations outlined in its order) and conclude that the Licensing Board has jurisdiction in this matter.

It is clear that a Licensing Board has jurisdiction to entertain a motion to reopen the record served prior to its initial decision. 10 CFR §2.718(j). In *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-699, 16 NRC 1324 (1982), the Appeal Board ruled that a Licensing Board's jurisdiction to reopen the record lapses, at the latest, when exceptions to its last partial initial decision are filed. *Id.* at 1327. The Appeal Board specifically left open, however,

¹ Del-Aware was invited to address the jurisdictional question, but has not done so.

the question of "where jurisdiction lies to rule on a motion to reopen filed after the issuance of the initial decision but before the filing of exceptions." *Id.* at 1327 n.6. As Del-Aware's motion was not served prior to our P.I.D., but was served before the filing of exceptions, the question left open by the Appeal Board must be decided here.

The subject of Del-Aware's proposed late-filed contention is related to its supplementary cooling water system issues decided in our P.I.D. Indeed, we, along with the Applicant and apparently the Staff, agree with Del-Aware that its petition may be viewed as a motion to reopen the record relied on in the P.I.D. Moreover, the issue raised in Del-Aware's petition is unrelated to the remaining contentions (raised by other intervenors) pending before us.

The first question which we must address in deciding whether we have jurisdiction over Del-Aware's motion to reopen, therefore, is the question of whether it is significant that we have issued a partial initial decision on some issues, rather than an initial decision covering all the issues in this case.² We find that it is not.

It is settled law that the Appeal Board does not have jurisdiction to reopen the record on matters as to which the appellate process is complete and a decision is final, notwithstanding the fact that there are other unrelated matters pending before it in the case. See *Florida Power and Light Co.* (St. Lucie Nuclear Power Plant, Unit No. 2), ALAB-579, 11 NRC 223, 225-26 (1980); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-513, 8 NRC 694, 695-96 (1978). The Appeal Board's jurisdiction to entertain new matters is contingent upon there being a nexus between the new matters and the issues remaining before the Appeal Board. *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-551, 9 NRC 704, 707 (1979).

We recognize that these decisions concern the finality of issues which have completed appellate review, whereas in the present case we are addressing issues which are in the process of appellate review. Nevertheless we find that there are substantial reasons why a similar rule should apply to issues decided by the Licensing Board in a partial initial decision. As the Appeal Board has noted, "There must be an end to litigation sometime." *St. Lucie, supra*, 11 NRC at 226. This is as true of Licensing Board adjudication of a particular issue as it is of appellate litigation.

Moreover, the Appeal Board has indicated that, for purposes of appeal, partial initial decisions which decide a major segment of the case or terminate a party's right to participate are final Licensing Board actions on the issues decided. See *Boston Edison Co.* (Pilgrim Nuclear Power Station, Unit 2), ALAB-632, 13 NRC 91, 93 n.2 (1981); *Duke Power Co.* (Perkins Nuclear Station, Units 1, 2 and 3),

² The Appeal Board has suggested that the retention of certain issues by the Licensing Board might play a role in determining whether the Licensing Board has jurisdiction over a motion to reopen. *Duke Power Co.* (Perkins Nuclear Station, Units 1, 2, and 3), ALAB-591, 11 NRC 741, 742 n.3 (1980).

ALAB-597, 11 NRC 870, 871 and n.1 (1980); *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Units 1 and 2), ALAB-301, 2 NRC 853, 854 (1975); *Toledo Edison Co.* (Davis-Besse Nuclear Power Station), ALAB-300, 2 NRC 752, 758 (1975). This test was satisfied, on both counts, by our P.I.D. on Del-Aware's supplementary cooling water issues. If the Licensing Board were to retain jurisdiction over these issues due to its jurisdiction over unrelated issues, the anomalous situation could occur wherein a Licensing Board and an Appeal Board simultaneously had jurisdiction and were addressing the same issues. This would not be a desirable situation and could be avoided if, when a Licensing Board's partial initial decision becomes appealable, jurisdiction over those issues determined in the partial initial decision passes to the Appeal Board without regard to whether unrelated issues remain before the Licensing Board.

We recognize that one early Appeal Board decision apparently held that retention of some issues by the Licensing Board meant that the Licensing Board had jurisdiction to reopen issues on which it had issued a partial initial decision. See *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 2), ALAB-86, 5 AEC 376, 377-78 (1972). We do not, however, believe that this remains the law. It preceded the Appeal Board holdings on the appealability of partial initial decisions. In addition, the Appeal Board subsequently questioned a Licensing Board determination that a Licensing Board had jurisdiction to reopen the record on issues covered by a partial initial decision. In so doing, the Appeal Board said:

Among other things, the Board directed its principal attention to whether it had lost jurisdiction over the entire construction permit proceeding (which it clearly has not). The real question, however, would appear to be whether, by reason of its disposition of the alternate site issue in the February 22 partial initial decision, the Board is now no longer empowered to entertain a new intervention petition which seeks to reopen that very issue.

Perkins, ALAB-597, *supra*, 11 NRC at 874 n.8.

Even on issues as to which the Licensing Board has issued an initial decision, however, the Appeal Board has recognized jurisdiction remaining with the Licensing Board for purposes of reconsideration. See *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-235, 8 AEC 645, 646-47 (1974); see also *Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-659, 14 NRC 983, 985 and n.2 (1981) (Appeal Panel Chairman pursuant to 10 CFR §2.787(b)). It would appear that this jurisdiction exists for only a limited period of time. Petitions for reconsideration of a final Commission decision³ must be filed within ten days of the date of the decision. 10 CFR §2.771(a) (1982). The Appeal Board in *Midland* referred to that rule in determining that a Licensing Board had

³ Decisions upon appellate review within the Commission of initial decisions. This could be either a Commission decision or an Appeal Board decision. See 10 CFR §§2.770, 2.785, 2.786.

jurisdiction for reconsideration. 8 AEC at 646. It therefore appears likely that after ten days the Licensing Board's jurisdiction to consider petitions for reconsideration would terminate unless such a petition had been timely filed. In addition, the Appeal Board has hinted that the filing of exceptions might strip the Licensing Board of jurisdiction to entertain a petition for reconsideration. See *Byron*, ALAB-659, *supra*, 14 NRC at 984 n.1 (1981).⁴

The Applicant argues that an appropriate analogy can be drawn between a petition to reconsider and a petition to reopen the record for purposes of determining whether a Licensing Board has jurisdiction over a motion to reopen. Applicant suggests that Licensing Board familiarity with the record favors jurisdiction with the Licensing Board. Further, the Applicant argues that it would be impractical to require that an Appeal Board be convened to rule on a motion to reopen in a case in which no exceptions are filed. Applicant's Answer at 14. Without analogizing a petition to reopen the record to a petition for reconsideration, the Staff also argues that there are practical reasons for the Licensing Board to assume jurisdiction over this petition to reopen. The Staff cites the Licensing Board's familiarity with the record.⁵

⁴ But see *Perkins*, ALAB-597, *supra*, 11 NRC at 874 n.9 (rejecting argument that ten day time limit of Section 2.771(a) applied to a petition to reconsider an initial decision because that regulation is in its terms applicable solely to final decisions within the Commission's adjudication process). The Appeal Board may wish to clarify the apparent inconsistency between this view in *Perkins* and the earlier and later cases of *Midland*, ALAB-235, *supra*, and *Byron*, ALAB-659, *supra*, as well as whether the filing of exceptions would terminate the jurisdiction of the Licensing Board to consider a petition for reconsideration filed before or after the exceptions, but within the ten day time period.

⁵ The Staff argues that Del-Aware's petition may be regarded as a motion to reconsider the rejection of its penultimate late-filed contention, V-25. As the Staff recognizes, Del-Aware could not have intended the petition to be such a motion. At the time the petition was filed Del-Aware would not have known that Contention V-25 had been rejected. (Contention V-25 was rejected in an order served by deposit in the mail the same day as Del-Aware's petition. See Memorandum and Order — Denying Petitions of Del-Aware for Reconsideration and to Admit a Late Contention (March 8, 1983) (unpublished).) Similarly, Del-Aware would not have known of the Partial Initial Decision of the same date. Hence, Del-Aware would not have been addressing the Board's order and decision or its rationale, as would be expected in a petition for reconsideration.

If the petition were viewed as a motion for reconsideration, however, the Board would deny it. It neither casts a new light on information which had previously been presented to the Board nor points out facts before the Board which the Board failed to consider. Cf. *Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B), ALAB-418, 6 NRC 1, 2 (1977) (denying reconsideration when motion is neither an elaboration upon or refinement of arguments previously advanced). In our Memorandum and Order of March 17, 1983 (unpublished), we explained why the information provided by Del-Aware did not affect our decision on proposed contention V-25. Nor does the information shed new light on the record on which we based our P.I.D. We had already considered the possibility (over Applicant's objections) that Delaware River flows would go below 3000 cfs at times and the possibility that this would affect the alleged impacts of the supplementary cooling water system. See P.I.D., 17 NRC at 425-27; 448-50.

We do not think it appropriate normally to offer a gratuitous ruling on the merits of a matter over which we believe we have no jurisdiction. However, we have proceeded here to state at least summarily our views to avoid the potential procedural morass if the Appeal Board concludes that Del-Aware's motion should have been recast by us as being one for reconsideration over which this Board should have assumed jurisdiction. In addition, we are sensitive to our dissenting colleague's concern that time and effort would be lost if the Appeal Board ultimately determines that this Board has jurisdiction even
(Continued)

We do not believe that motions to reopen the record and motions for reconsideration are so similar that the same rules for jurisdiction must necessarily apply to the two of them. The purposes as well as the timing of the two types of motions differ.

Motions for reconsideration must, by their very nature, be directed to the same deciding tribunal whose reconsideration is being sought. Only that tribunal can be convinced to change its decision. An appellate body could only reverse it. Moreover, reconsideration asks that the deciding body take another look at existing evidence, usually because that evidence had previously been overlooked or misunderstood. Taking a second look at the evidence is, again, something which can only be done by a body which has already evaluated it once.

A motion to reopen the record, on the other hand, seeks to present new evidence and to have a decision made on the basis of all the evidence, including that which is new. It does not necessarily ask that existing evidence be reevaluated. Nor does it necessarily follow a decision. See *Three Mile Island*, ALAB-699, *supra*, 16 NRC at 1326-27. It is clear that in NRC practice the new evidence may be taken and the decision rendered by an Appeal Board, see, e.g., *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876 (1980), as well as by a Licensing Board, see, e.g., *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant, Units 1, 2, 3 and 4), LBP-78-2, 7 NRC 83 (1978).

There remains, however, the argument that nothing prevents us from assuming jurisdiction over the petition to reopen and that there are practical reasons for our doing so. The chief practical reason cited by both the Staff and the Applicant, and by our dissenting colleague, is that the Licensing Board is more familiar with the record than is the Appeal Board. The Appeal Board itself has noted that Licensing Board familiarity with the record is a reason for a Licensing Board to decide in the first instance whether a motion to reopen is meritorious. See *Perkins*, ALAB-597, *supra*, 11 NRC at 874. On the other hand, the Appeal Board has said that once it begins to review the merits of a case (as when exceptions have been filed), it can incorporate in its review any matters pertinent to a request to reopen the record. See *Three Mile Island*, ALAB-699, *supra*, 16 NRC at 1327.

Even in cases where no exceptions are filed, the Appeal Board performs a *sua sponte* review of the record. See *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), ALAB-571, 10 NRC 687, 699 (1979) (Appeal Panel Chairman); *accord*, *Sacramento Municipal Utility District* (Rancho Seco

if Del-Aware's motion is viewed as being one to reopen the record. However, we note that there is always this potential when a lower tribunal rules that it has no jurisdiction, particularly in circumstances of first impression. Therefore, the fact that the appellate body may reach a different conclusion on the question of jurisdiction, and therefore possibly (although not necessarily) refer the matter back to us, should not be the basis for our decision in the first instance. If such reasoning prevailed, a tribunal could never rule that it had no jurisdiction over a motion filed before it.

Nuclear Generating Station), ALAB-655, 14 NRC 799, 803 (1981); *Northern States Power Co.* (Monticello Nuclear Generating Plant, Unit 1), ALAB-611, 12 NRC 301, 303-04 (1980). Therefore, while the Licensing Board may be more familiar with the record immediately after its decision is issued, the Appeal Board will, necessarily, at that time be in the process of familiarizing itself with the record. Because of this, we do not believe that the Licensing Board's familiarity with the record is a particularly significant reason for the Licensing Board to have jurisdiction over a motion to reopen filed after its decision.

It appears that under NRC regulations only one Board at a time, acting as the presiding officer, will have jurisdiction over a particular matter. In other words, once the Appeal Board obtains jurisdiction over a matter, the title of "presiding officer" passes from the Licensing Board to the Appeal Board. See *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), LBP-82-86, 16 NRC 1190, 1193 (1982). Under 10 CFR §2.717(a), the presiding officer's jurisdiction terminates

upon the expiration of the period within which the Commission may direct that the record be certified to it for final decision, or when the Commission renders a final decision, or when the presiding officer shall have withdrawn himself from the case upon considering himself disqualified, whichever is earliest.

Yet it is clear that after the filing of exceptions to a decision the Licensing Board no longer has jurisdiction over the matters in the decision, with the possible exception of a timely filed motion for reconsideration. See *Three Mile Island*, ALAB-699, *supra*. Therefore, the Appeal Board, with jurisdiction, must have become the presiding officer. Assuming that this is correct, and that there can be only one presiding officer with jurisdiction, the question is whether that one presiding officer in this case is the Licensing Board or the Appeal Board.

We have examined federal court practice in seeking to determine where jurisdiction over the present motion should lie. The Federal Rules of Civil Procedure provide that the District Court may grant a new trial on its own initiative or upon a motion filed within ten days after the entry of a judgment. Fed. R. Civ. P. 59. The filing of a motion pursuant to Rule 59 stops the running of the time for filing an appeal of the judgment. Fed. R. App. P. 4(a)(4). In addition, the District Court may, upon motion made within a year of judgment, relieve a party from a final judgment for reasons of newly discovered evidence which by due diligence could not have been discovered in time to move for a new trial under Rule 59(b). Fed. R. Civ. P. 60(b). A motion under Rule 60 does not affect the finality of the judgment, and seemingly would not affect the appellate process. It would, however, appear to require a stronger showing by the party making it than would a motion under Rule 59. 7 T. J. Moore & J. Lucas, *Moore's Federal Practice* ¶60.23[4] (2d ed. 1979).

Federal practice would, therefore, suggest that *all* motions to reopen should be presented to the Licensing Board (like the District Court, the trial level tribunal).

That is patently not the case, however. The Appeal Board has jurisdiction over motions to reopen filed after exceptions, *Three Mile Island*, ALAB-699, *supra*, and may itself conduct evidentiary hearings on a reopened record, *Diablo Canyon*, ALAB-598, *supra*, 11 NRC at 883.

Indeed, the facts that the Appeal Board is not bound by the substantial evidence rule, can make its own factual determinations, *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 402-05 (1976), and can even, as noted above, take evidence distinguish it from the federal Courts of Appeal. It is not unreasonable that the Appeal Board, having a larger role in deciding issues of fact than does a Court of Appeals, should have a larger role in deciding whether to reopen the factual record. Therefore, we consider the guidance provided by the practice of the federal courts, on the particular question before us, to be minimal.⁶

In part because of the Appeal Board's unusually broad power as an appellate body reviewing factual determinations, we have concluded that jurisdiction over a motion to reopen a record not filed before the issuance of an appealable Licensing Board decision based on that record should lie with the Appeal Board. It does not unreasonably burden the Appeal Board to require it to decide such motions to reopen. Whether or not the decision is appealed, the Appeal Board must familiarize itself with the record, since even an unappealed decision is subject to *sua sponte* Appeal Board review.⁷

In addition, if jurisdiction lies with the Appeal Board from the time the decision is filed, there will be no opportunity for parties to "forum shop" with their motions to reopen. Thus, whether a motion to reopen were filed before or after exceptions were filed, jurisdiction over such a motion would belong to the Appeal Board. If the Licensing Board were to have jurisdiction over motions to reopen filed before exceptions and the Appeal Board were to have jurisdiction over motions to reopen filed after exceptions, a party could determine whether jurisdiction over the motion to reopen lay with the Licensing Board or the Appeal Board by filing its exceptions either before or after such a motion. We do not believe that would be a desirable state of affairs.

If jurisdiction moved from the Licensing Board to the Appeal Board with the filing of exceptions by any party, one party's filing of exceptions could control where another party would have to file a motion to reopen. If the party were

⁶ While NRC adjudicatory boards may be guided by the rules and practices of federal courts, judicial procedures should not be imported into our administrative hearings uncritically. Before guidance can be taken from judicial proceedings, there must be inquiry into whether the situations are truly similar. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-379, 5 NRC 565, 568 and n.13 (1977); *see, e.g., Catawba*, ALAB-355, *supra*, 4 NRC at 402-05.

⁷ We consider it unlikely, however, that a party would file a motion to reopen a Licensing Board decision without appealing that decision. Thus, it is unlikely that the Appeal Board will be faced with familiarizing itself with the record in an unappealed case for purposes of deciding a motion to reopen. In the instant case, it appears from Del-Aware's exceptions that the same issue raised by Del-Aware's motion to reopen is being raised as part of Del-Aware's grounds for appeal. *See, e.g.,* Exception 12, Del-Aware's Exceptions (March 21, 1983).

unaware that exceptions had been filed, the motion to reopen might be directed to the wrong Board. If, on the other hand, the factor controlling jurisdiction were whether exceptions had been filed by the party seeking reopening of the record, two parties, only one of which had filed exceptions, could file essentially identical motions to reopen with jurisdiction over one such motion lying with the Licensing Board and jurisdiction over the other resting in the Appeal Board.

Furthermore, in NRC practice it would not appear that filing a motion to reopen automatically stays the time for the filing of exceptions. In the present case, for example, exceptions were filed subsequent to the motion to reopen, and that filing has apparently been accepted by the Appeal Board. Thus while, as in this case, it would seem usual for the Appeal Board to suspend work on the appeal while the Licensing Board decided a motion to reopen (Appeal Board Order, March 25, 1983 (unpublished)), it would be possible for the appeal to move forward while the trial level tribunal is deciding that it must reopen the record. The Appeal Board has noted the problem of proceeding with an appeal on issues which are still, in some form, before the Licensing Board. *See Byron, supra*, ALAB-659, 14 NRC at 984-85 (order tolling period for filing briefs on exceptions pending Licensing Board action on motion for reconsideration). If jurisdiction over the motion to reopen lay with the Appeal Board, the problem of divided jurisdiction over the issue would be avoided.⁸

Based on all of the above, we conclude that jurisdiction over Del-Aware's petition, which we view as a motion to reopen, resides in the Appeal Board and that we are without jurisdiction to act upon that petition.⁹ We therefore refer that petition to the Appeal Board.

⁸ We recognize that our holding means that jurisdiction over a motion to reopen the record will lie with the Appeal Board while jurisdiction over a request for reconsideration will lie with the Licensing Board. (Although as noted, the Appeal Board has intimated that the filing of exceptions might strip the Licensing Board of such jurisdiction.) In a particular instance it may not be immediately apparent whether a motion is, in substance, a motion for reconsideration or a motion to reopen. Therefore, questions could still arise as to where jurisdiction over such a motion properly lies.

However, as noted above, there are differences between the two types of motions. The Board to which a particular motion is addressed can determine the true nature of the motion. If necessary, clarification may be required from the movant. On balance, we find that the potential for confusion between motions to reopen and motions to reconsider is not so great as to outweigh the factors, discussed in this order, which favor Appeal Board jurisdiction over any motion to reopen a record which has been the basis for an appealable partial initial decision.

⁹ The rationale and result would be the same if Del-Aware's petition were viewed as one to add a late contention which is both related to issues decided in an appealable partial initial decision and not related to issues still pending before the Licensing Board.

It is so ORDERED.

FOR THE ATOMIC SAFETY
AND LICENSING BOARD

Lawrence Brenner, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland
April 27, 1983

DISSENTING OPINION OF JUDGE COLE

I cannot agree that the best action is referral to the Appeal Board. For reasons adequately stated in the majority opinion, the Licensing Board should assume jurisdiction and rule on Del-Aware's request. If we do not rule on the motion and the Appeal Board should ultimately determine that the Licensing Board has jurisdiction, considerable time would be lost. If the Appeal Board finds that the Licensing Board does not have jurisdiction, they can make appropriate rulings and judgments but at least they will have the view of the initial triers of fact to assist them in their deliberations.

The majority argues that the Appeal Board is not unreasonably burdened by deciding such motions because it must familiarize itself with the record as part of its *sua sponte* review anyway. I do not agree. We are discussing here the handling of motions filed during the ten day period immediately following the issuance of the Licensing Board's Initial Decision (here a Partial Initial Decision on a discrete issue) — a period when the Appeal Board is initiating its detailed review of the Licensing Board's decision and concurrent with the filing of exceptions to the Initial Decision. (There is no question as to jurisdiction over motions filed after the ten day period allowed for taking exceptions to the Licensing Board's decision.)

During this ten day period, I would not make any distinction between motions to reopen and motions for reconsideration. The Licensing Board, having just concluded a period of intense review and articulation of the record, is better equipped to deal with such motions than the Appeal Board which is in the beginning stages of its *sua sponte* review and preparing for or involved in the detailed review of exceptions to the Licensing Board's Initial Decision.

The Licensing Board should rule and forward its decision for appropriate review. In this particular case, I would deny the petition to reopen for the same reasons the majority of this Board would deny Del-Aware's motion if it were

viewed as one for reconsideration of matters considered in the Partial Initial Decision issued on March 8, 1983. *See* the majority opinion, 17 NRC at 433 n.5.

Dr. Richard F. Cole
ADMINISTRATIVE JUDGE

Bethesda, Maryland
April 27, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before Administrative Law Judge:

James A. Laurenson

In the Matter of

Civil Penalty Proceeding
License No. 42-08456-02
EA 82-45
(ASLBP No. 83-483-01 OT)

CONSOLIDATED X-RAY SERVICE
CORPORATION
P.O. Box 20195
Dallas, Texas 75220

April 28, 1983

The Administrative Law Judge reduces the civil penalty imposed against licensee from \$4,000.00 to \$2,500.

CIVIL PENALTIES: ASSESSMENT

A licensee may be assessed a civil penalty for all violations committed by its employees in the conduct of licensed activity.

CIVIL PENALTIES: ASSESSMENT

A civil Penalty may be assessed where no personal injuries resulted from the violation.

CIVIL PENALTIES: ASSESSMENT

For purposes of reducing the amount of a base civil penalty because of "Prompt Identification and Reporting," the timeliness of reporting a matter to the NRC is

measured from the time the licensee's management knew or should have known of the violation.

CIVIL PENALTIES: ASSESSMENT

The NRC "General Statement of Policy and Procedure for Enforcement Actions," 47 Fed. Reg. 9987, 10 CFR Part 2, Appendix C (March 9, 1982), is not a regulation but is a policy which provides for discretion in the assessment of civil penalties.

CIVIL PENALTIES: ASSESSMENT

In a civil penalty proceeding, the administrative law judge may substitute his judgment for that of the Director of the Office of Inspection and Enforcement and is free to mitigate or remit the assessed penalty. 10 CFR §2.205(f).

CIVIL PENALTIES: ASSESSMENT

The absence of management culpability or negligence is not considered in the determination of a base civil penalty pursuant to the NRC "General Statement of Policy and Procedure for Enforcement Actions," 47 Fed. Reg. 9987, 10 CFR Part 2, Appendix C (March 9, 1982), but such fact is relevant and establishes that licensee is entitled to mitigation or reduction of the base civil penalty.

APPEARANCES

Andrew Grosso, Esq., Richard Hoefling, Esq. and Stephen G. Burns, Esq. for
Staff of Nuclear Regulatory Commission

Hugh Smith, Esq., Schoolfield and Smith for Consolidated X-Ray Service
Corporation

INITIAL DECISION

JURISDICTION AND PROCEDURAL HISTORY

. On January 18, 1982, the Office of Inspection and Enforcement of the Nuclear Regulatory Commission (hereinafter "NRC") conducted an inspection of Con-

solidated X-Ray Service Corporation (hereinafter "Consolidated") at its Woodbridge, New Jersey office. On March 2, 1982, an enforcement conference was held between NRC and Consolidated. On April 12, 1982, NRC issued a Notice of Violation and Proposed Imposition of Civil Penalty in the amount of \$4,000. On May 6 and May 7, 1982, Consolidated responded and opposed the imposition of any civil penalty. Thereafter, on August 6, 1982, the NRC issued an Order Imposing Civil Monetary Penalty in the amount of \$4,000. Consolidated requested a hearing on August 27, 1982. On November 1, 1982, the Nuclear Regulatory Commission ordered that this matter be heard by an administrative law judge. On November 15, 1982, I was designated as the presiding administrative law judge in this matter. On December 3, 1982, a prehearing conference was held by telephone and a Notice of Hearing and Prehearing Order was issued. A hearing was held in Bethesda, Maryland on January 19, 1983. Thereafter, the parties filed briefs with proposed findings of fact and conclusions of law.

ISSUES

The parties stipulated that Consolidated violated 10 CFR §34.23 and Condition 17 of License 42-08456-02. (Stipulations 19-21 and 24, hereinafter S. 19-21, etc.). Therefore, the only remaining issues are whether a civil penalty should be imposed for the violation and, if so, the amount which should be assessed.

APPLICABLE LAW

Section 234 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. §2282, provides for the assessment of civil penalties up to \$100,000 for each violation of the Act "or any rule, regulation, or order issued thereunder, or any term condition, or limitation of any license issued thereunder. . . ."

10 CFR §2.205 specifies the procedures for assessing civil penalties. As pertinent here, that regulation provides that after the hearing the judge shall issue an order "dismissing the proceeding or imposing, mitigating, or remitting the civil penalty." 10 CFR §2.205(f).

At the time of the violation herein, but before the time any penalty was proposed or assessed, there was in effect an "interim policy" which the Nuclear Regulatory Commission designated and published as "Proposed General Statement of Policy and Procedure for Enforcement Actions." 45 Fed. Reg. 66754 (Oct. 7, 1980). However, on March 9, 1982 the Commission published "General Statement of Policy and Procedure for Enforcement Actions." 47 Fed. Reg. 9987 (March 9, 1982). The latter policy was also codified as 10 CFR Part 2, Appendix C. In any event, the parties herein have stipulated "that the enforcement policies, present and

interim, are the standards to be used in deciding the issue in this case. . . ." (T. 13).

STIPULATIONS

The parties entered into 29 stipulations which were received in evidence at the hearing and which are attached hereto, marked as Appendix, and incorporated herein by reference. Pursuant to the stipulations, Consolidated has been licensed since 1962 by the NRC and its predecessor as an industrial user of radioactive by-products material for inspection purposes. (Transcript pages 15-16, hereinafter T. 15-16). It is the holder of NRC license number 42-08456-02. Gary Thomas Kelly was employed by Consolidated as a radiographer (hereinafter "the radiographer"). (S. 2). The radiographer was properly certified and had received the required training. (S. 22). On January 15, 1982, he was assigned to work on radiography of a gas pipeline under construction in Oil City, PA. (S. 3). Shortly after 7 a.m. the radiographer set up his exposure device, a Gamma Century camera containing 24 curies of iridium-192 (hereinafter called "camera"), and made his first exposure. After making the exposure, the radiographer found that the control cable and key were frozen in place while attached to the camera. Thereafter, he forced the guide tube off the camera and inserted the front safety plug in the camera. (S. 4, 15 and Ex. 11). After developing the film in his truck, the radiographer received permission to leave the job site until noon when his next exposure was scheduled. (S. 5). The radiographer then drove away in his truck under conditions as follows: "the camera was not secured to the vehicle, the rear safety plug was not inserted in the camera, . . . the key was left in the camera lock . . . [and] the tailgate of the truck was left down." (S. 5 and 6). After traveling approximately two miles, the radiographer noticed that the camera was not in the truck. (S. 7). The radiographer's attempts to find the camera on and along the road were unavailing. (S. 8). At 12:46 p.m. the radiographer gave notice of the loss of the camera to the following: Oil City Police, Pennsylvania State Police, and Consolidated's home office. (S. 10). At approximately 2 p.m. Consolidated notified NRC Region I of the disappearance of the camera. (S. 18).

At 5:45 p.m., a person notified the Oil City Police that he had the camera in his van. The radiographer accompanied the police to the van where they found the camera in the following condition: "the device was not open. The key was in the lock, the lock was depressed, and the control cables and front plug were attached." (S. 14). The person who had the camera stated that he did not unlock it or crank out the source. *Ibid.* There was no visible damage to the camera and a "Caution Radioactive Materials" label was still attached to the camera. (S. 16).

The parties further agree that 10 CFR §34.23 "requires that locked radiographic exposure devices and storage containers be physically secured to prevent tampering with or removal by unauthorized persons." (S.19). Condition 17 of Con-

solidated's license requires that no device be moved unless all safety plugs are inserted and the device is locked. (S. 20). Consolidated admitted that, contrary to the requirements of 10 CFR §34.23 and Condition 17 of its NRC license, one of its radiographers transported a camera containing 24 curies of iridium-192 under conditions as follow: the rear safety plug was not inserted, the camera was not secured to the vehicle, and, although the camera was locked, the key was left in the lock. (S. 21). The parties agree that Consolidated's ability to pay a civil penalty is not in issue in this proceeding. (S. 25).

ARGUMENTS

NRC contends as follows: Consolidated admits that it violated 10 CFR §34.23 and Condition 17 of its license; under present NRC enforcement policy this is a Severity Level III violation as described in Example C(1) of Supplement VI (or in the alternative, under NRC interim enforcement policy this was a violation described at Example C-1 of Supplement VII) with a base civil penalty of \$4,000; and that upon a consideration of the factors in the enforcement policy which could increase or decrease the base amount of the civil penalty, there is no valid reason to increase or decrease that amount and a civil penalty of \$4,000 should be assessed to serve a remedial purpose.

Consolidated does not contest the fact that the violation occurred. However, it does contend that the \$4,000 civil penalty is unfair and should be remitted in its entirety or, in the alternative, that the penalty should be mitigated or reduced. In support of its contention, Consolidated relies on the absence of management culpability, its prompt reporting of this incident to NRC, its prompt corrective actions after the violation, and the fact that NRC erroneously failed to consider this to be a transportation violation with a significantly smaller base civil penalty.

OPINION

At the outset, I note that the Commission's Order of November 1, 1982 referring this matter for a hearing, directed "That the presiding officer should be guided by the NRC 'General Statement of Policy and Procedure of Enforcement Actions,' 47 Fed. Reg. 9987 (March 9, 1982). . . ." I note this fact because the violation herein admittedly occurred on January 15, 1982 whereas the above policy was not effective until March 9, 1982. In any event, the parties do not assert any significant difference between the two enforcement policies and I have found none.

This Opinion will track the outline submitted by NRC Staff and followed by Consolidated. The issues to be discussed are as follows: (1) the classification of the violation; (2) determination whether a civil penalty is appropriate; (3) determination of the base civil penalty and consideration of adjustment factors; and

(4) consideration of Consolidated's contention that the individual employee should have been cited.

1. Classification of the Violation

There is a conflict between the parties as to the proper classification of the violation. NRC Staff asserts that "the loss of a radiography device was a significant violation that should be classified at Severity Level III under the enforcement policy's supplement for fuel cycle and materials operations." NRC Staff Brief at 9. On the other hand, Consolidated claims that the violation arose out of the loss of the device during transportation and, hence, should be assessed as a "transportation" rather than a "fuel cycle and materials operations" violation. Licensee Brief at 4 and 10. Consolidated does not dispute the classification of Severity Level III. Licensee's Proposed Conclusion of Law No. 5 at 5. The distinction between the two classifications is important because Table 1A-Base Civil Penalties for Industrial Users of Material begins the calculation of a civil penalty at \$8,000 for a "health physics" violation but only \$5,000 for a "transportation" violation.

For present purposes, the issue can be simplified by stating that this is either a "transportation" violation or not. Neither the "Base Civil Penalties" Table nor the Commission's "General Statement of Policy and Procedure for Enforcement Actions," 10 CFR Part 2 (hereinafter General Enforcement Policy) defines the pertinent terms or discusses the problem of proper classification. Consolidated argues that this is a transportation violation because the original Notice of Violation alleged that Condition 17 of its license required that "the device is secured to the vehicle during transportation" and that stipulation 21 herein states, in pertinent part, that "a radiographer in the employ of Consolidated X-Ray, at a field site in Oil City, Pennsylvania, transported a radiographic device. . . ." NRC Staff concedes that transportation was involved in this incident but asserts that the "primary problem was that an industrial user of a radiographic exposure device mishandled and inadequately controlled the device." NRC Brief at 11. NRC Staff goes on to analyze the history of the Transportation Supplement and cites authority for the proposition that the Transportation Supplement was taken from the Department of Transportation (DOT) Regulations and was to deal with "use of defective shipping containers or to improper loading and preparation of purchases for shipment." 44 Fed. Reg. 77136 (Dec. 31, 1979). Staff states that the transportation aspect of the Notice of Violation was deleted by amendment at the time of the hearing because the cited provision has never been formally added to license Condition 17. Reply Brief at 3.

Upon a consideration of the arguments and authorities of the parties on this matter, I find that the NRC Staff is correct in its assertion that the violation in controversy is not a "transportation" violation. While it is true that the device was apparently lost while being transported, the essence of the violation was that the

radiographer lost the device. In other words, he failed to keep proper control of a radioactive source. I find that this was a "fuel cycle and materials operations" violation and that the transportation was only incidental.

2. Is a Civil Penalty Appropriate for This Violation?

The General Enforcement Policy states the following: "Generally, civil penalties are imposed for Severity Level I and II violations, *are considered and usually imposed for Severity Level III violations*, and may be imposed for Severity Level IV violations. . . ." (Emphasis supplied). As noted *supra*, Consolidated concedes that "the violation in this case is properly classified as a Severity Level III violation." Licensee Proposed Conclusion of Law No. 5 at 5.

Consolidated argues that there was no exposure to anyone, the licensee had no previous similar occurrences, the device was recovered without incident, and this matter resulted from a momentary lapse by a fully trained radiographer and such an occurrence could not have been foreseen by the licensee. Licensee's Brief at 13-15. While it would be speculative to draw any conclusions from the record as to why the radiographer lost the device, the foregoing assertions by Consolidated are essentially true. However, these factors, whether considered singly or in combination, are insufficient to demonstrate that no civil penalty should be assessed for this Severity Level III violation.

In *Atlantic Research Corp.*, CLI-80-7, 11 NRC 413, 422 (1980), the Commission stated, "We believe a strong enforcement policy dictates that the licensee be held accountable for all violations committed by its employees in the conduct of the licensed activity." Thus, even the alleged "momentary lapse" of the radiographer is chargeable to Consolidated. Stipulation 28 acknowledges this fact.

Likewise, in *X-Ray Engineering Co.*, CLI-60-11, 1 AEC 553 (1960), the Atomic Energy Commission revoked and terminated a byproduct material license. There, the licensee argued "that its offenses should be regarded as less severe because no personal injuries were incurred thereby." *Id.* at 555. The AEC rejected this argument and stated: "Our statutory obligation to protect the public health and safety is not subject to the condition precedent that actual injuries occur." *Ibid.* Thus, the fact that no person suffered personal injuries in the instant matter is of no relevance in determining whether or not to impose a civil penalty.

I conclude that Consolidated has not established any valid reason to support its contention that no civil penalty should be imposed for this Severity Level III violation.

3. Determination of the Base Civil Penalty and Consideration of Adjustment Factors

Tables 1A and 1B of the General Enforcement Policy list base civil penalties for all violations. 47 Fed. Reg. 9992 (March 9, 1982). I have determined that the instant matter constitutes an industrial users of material (including radiographers) health physics violation at Severity Level III. Thus, Table 1A lists a base civil penalty of \$8,000 for a Severity Level I violation and Table 1B provides that this amount shall be reduced to 50% of the amount listed in Table 1A for a Severity Level III violation. Hence, I find that the base civil penalty for the instant violation is \$4,000.

The General Enforcement Policy provides that the base civil penalty may be adjusted after considering five specific factors. 47 Fed. Reg. 9991 (March 9, 1982). Three of the enumerated factors can only be considered in increasing the amount of the base civil penalty. No one contends that the base civil penalty should be increased in the instant matter so I will not discuss those three factors. However, Consolidated claims that it is entitled to a reduction in the base civil penalty because of the other two factors: (1) prompt identification and reporting and (2) corrective action to prevent recurrence. The General Enforcement Policy provides that each of those factors may result in a reduction of up to 50% of the base civil penalty. 47 Fed. Reg. 9991 (March 9, 1982).

a. *Prompt Identification and Reporting*

The General Enforcement Policy provides as follows:

Reduction of up to 50% of the base civil penalty may be given when a licensee identifies the violation and promptly reports the violation to the NRC. In weighing this factor, consideration will be given to, among other things, the length of time the violation existed prior to discovery, the opportunity available to discover the violation, and the promptness and completeness of any required report. This factor will not be applied to violations which constitute or are identified as a result of overexposures, unplanned releases of radioactivity or other specific, self-disclosing incidents. In addition, no consideration will be given to this factor if the licensee does not take immediate action to correct the problem upon discovery. *Ibid.*

The precise time at which the radiographer lost the camera is not known. However, the parties stipulated that the camera was found in the road by a third person between 9 and 10 a.m. (S. 13). The stipulated facts further show the following: (1) at 12:46 p.m. the radiographer notified Consolidated that the device was missing (S. 10); and (2) at about 2 p.m. Consolidated notified NRC Region I of the lost exposure device. (S.18).

Consolidated claims that it is entitled to a 50% reduction of the base civil penalty because it promptly reported this incident within approximately one hour and fifteen minutes after its notification. NRC Staff claims that Consolidated is not entitled to any reduction for prompt reporting because of the following: (1) the timeliness of the notification should be measured from the time the radiographer discovered it to be missing since his knowledge as an employee is attributable to Consolidated; (2) even the lapse of 1¼ hours, from the time Consolidated management was informed of the loss and reported it to NRC, does not qualify as prompt reporting; and (3) this was a "self-disclosing incident" which precludes any reduction for prompt reporting.

NRC Staff argues that the radiographer was an employee of Consolidated and, since the radiographer was aware of the disappearance for several hours before it was reported, the timeliness of the report should be measured from the time when the radiographer discovered that the device was missing. The only authority cited to support Staff's position is 10 CFR §34.2(b), a regulation defining a "radiographer" to include a person "who is responsible to the licensee for assuring compliance with the requirements of the Commission's regulations and the conditions of the license. . . ." While it is true that a licensee is accountable or liable for all violations committed by its employees in the course of licensed activity, it does not follow that a licensee should be denied a reduction in a base civil penalty simply because its employee failed to report a violation. I believe that the better rule would be to measure the timeliness of reporting a matter to the NRC from the time the licensee's management knew or should have known of the violation. This rule would encourage licensees to promptly report violations. The Staff's proposal would discourage a licensee such as Consolidated in the instant case since several hours had elapsed from the time the radiographer became aware of the disappearance until he notified his office. Applying this rule to the instant matter, it is apparent that the radiographer was working alone and no one at Consolidated knew or should have known of the disappearance of the device until the radiographer reported it.

Before evaluating the passage of 1¼ hours from the time of notice to Consolidated and the time of notice to NRC Staff, it must be determined whether this is a "specific, self-disclosing incident" for which a reduction in the base civil penalty is not available. The term, "specific, self-disclosing incidents" is not defined in the General Enforcement Policy. I invited the parties to address this question in their briefs. Staff submits no authority on this matter but states as follows:

The loss of a radiography camera in the public domain was such a self-disclosing incident. The violation was not difficult to detect as is a subtle defect in complex equipment, nor was it easily concealed. No special inspection by the Licensee was needed to notice the loss. Finally, the lost camera eventually turned up in the hands of members of the general

public. The "self-disclosing" nature of the violation precludes the granting of mitigation for prompt identification and reporting.

NRC Staff Brief at 27.

Consolidated likewise submits no authority on the question but states that: Additionally, NRC argues that this is a violation of a self-disclosing nature. We contend, however, that it is not. At least, NRC has not submitted any evidence to the effect the violation was self-disclosing. The matter is open to speculation from all sides, but the fact remains that the Licensee reported it in no more than one hour and fifteen minutes after its own notification.

Licensee's Brief at 6.

Presumably, a "specific, self-disclosing incident" is one which is obvious and no special credit should be given to a licensee for reporting it to the NRC. I do not find that to be the case here. Again, it is important, as a matter of policy, to encourage licensees to promptly report the disappearance of a radiographic source. An application of the "specific, self-disclosing incident" exception here would defeat that goal. The failure of the Commission and Staff to clearly define a "specific, self-disclosing incident" also precludes its application in this case. Hence, I reject NRC Staff's assertion that this was a "specific, self-disclosing incident."

The final question to be answered in this area is whether Consolidated should be entitled to a reduction in the base civil penalty due to prompt identification and reporting where it reported the disappearance of this device within approximately 1¼ hours after notification. Consolidated offered no evidence at the hearing to explain this delay. Here there was a source containing 24 curies of iridium-192 which was unaccounted for and had been lost on a public road. This presented a potential for causing serious harm to a member of the public. While I would not necessarily require immediate or simultaneous notification of the NRC, under the facts of this case the lapse of 1¼ hours from the time the matter was reported to Consolidated and the time of Consolidated's report to NRC, without explanation by Consolidated, precludes any reduction of the base civil penalty for this factor. This is not intended to infer that Consolidated was derelict in reporting this matter. I only find that Consolidated did not establish "prompt identification and reporting" of the instant violation for purposes of qualifying for a reduced civil penalty.

b. Corrective Action to Prevent Recurrence

The General Enforcement Policy provides as follows:

Recognizing that corrective action is always required to meet regulatory requirements, the promptness and extent to which the licensee takes corrective action, including actions to prevent recurrence, may be considered in modifying the civil penalty to be assessed. Unusually prompt and extensive corrective action may result in reducing the proposed civil

penalty as much as 50% of the base value shown in Table 1. On the other hand, the civil penalty may be increased as much as 25% of the base value if initiation of corrective action is not prompt or if the corrective action is only minimally acceptable. In weighing this factor consideration will be given to, among other things, the timeliness of the corrective action, degrees of licensee initiative, and comprehensiveness of the corrective action — such as whether the action is focused narrowly to the specific violation or broadly to the general area of concern.

47 Fed. Reg. 9991 (March 9, 1982).

As relevant here, the stipulated facts show that Consolidated took the following corrective action to prevent recurrence: (1) the radiographer who committed the violation was fired; (2) all employees were required to attend a refresher course dealing with the proper survey of radiographic devices; and (3) the President of Consolidated visited the office in question and instructed the radiographers concerning the importance of following safety procedures. Although not previously mentioned in letters to NRC, Consolidated contended at the hearing that it also had a policy of conducting unannounced field audits.

It is not a simple task to assess the significance of Consolidated's decision to terminate the employment of the radiographer. Consolidated asserts that the discharge of the radiographer "in terms of labor relations is capital punishment. . . ." Licensee's Brief at 16. While acknowledging that termination of an employee is a drastic action, NRC Staff states that such a termination "may produce an atmosphere of concealment between employee and licensee." NRC Staff Brief, p. 24, n. 92. In any event, the punishment here was less than capital since the radiographer received a reprieve when he was reemployed by Consolidated in May, 1982. (T. 180). The termination or discharge of an employee who commits a violation may or may not be proper in a particular case. However, I believe it would be improper to consider the discharge or termination of an employee as a factor in reducing a civil penalty. As NRC Staff notes, such a firing sends mixed signals to other employees. Moreover, a reduced civil penalty for such a discharge would encourage other licensees to think first of a discharge of the offending employee. It would not be unreasonable for employees to conclude that if they reported violations to the licensee, their employment would also be terminated. Thus, this practice may defeat the Commission's goal of prompt reporting of violations. Under the facts of this case, I find that the discharge or termination of the radiographer is not "corrective action to prevent recurrence" for which a reduction in the base civil penalty would be appropriate.

The General Enforcement Policy provides "that corrective action is always required. . . ." *Ibid.* Unusually prompt and extensive corrective action may result in up to a 50% reduction in the base civil penalty while the penalty may be increased as much as 25% "if initiation of the corrective action is not prompt or if the corrective action is only minimally acceptable." *Ibid.* The appearance of

Consolidated's President in the office to reinforce a commitment to safety, coupled with a refresher course on the proper survey of radiographic devices, constituted appropriate abatement or corrective action. However, this action does not constitute "unusually prompt and extensive corrective action" which would be sufficient to reduce the base civil penalty. If Consolidated had been able to establish that it had also instituted a new unannounced field audit program, that fact coupled with the above corrective action would have qualified Consolidated for a reduced civil penalty. Consolidated presented insufficient evidence to establish the fact of such a program. J. Lee Ballard, Senior Vice President of Consolidated, testified that there was an unwritten policy of unannounced audits. Consolidated had no written material concerning the frequency of such audits or any notification to radiographers that such audits would take place from time to time. Mr. Ballard presented no data concerning the frequency of audits of radiographers. (T. 169-174). While I find the testimony of Mr. Ballard to be vague, I also find it to be insufficient because it fails to show any change in the procedures after the incident in question. Thus, I conclude that Consolidated has not established that it is entitled to a reduction in the base civil penalty because of its "corrective action to prevent recurrence."

4. Liability of Individual Radiographer

Consolidated argues as follows: "If the real purpose of the civil penalty is to capture the attention of the industry as to the importance of the regulations then we submit that the radiographers themselves should be brought into the purview of civil penalty." Licensee's Brief at 15. It goes on to cite the Commission's General Enforcement Policy permitting enforcement actions against individuals and Section 234 of the Act which permits imposition of civil penalties upon "any person." NRC Staff did not respond to this assertion.

While there may be merit to Consolidated's suggestion that a civil penalty should be imposed on the employee who committed the violation, this is of no moment in the instant matter. Whether such a penalty is assessed against the employee does not affect the amount of a civil penalty assessed against the employer. Rather, the question of whether to assess civil penalties is an enforcement decision which is properly left to the NRC Staff's Office of Inspection and Enforcement. Such a decision has no bearing on this proceeding.

5. Conclusion Regarding General Enforcement Policy

After considering all of the arguments and authorities submitted by the parties, I conclude that NRC Staff correctly classified this violation, determined the amount of the base civil penalty, and declined to reduce the base civil penalty under the

criteria listed in the General Enforcement Policy. Nevertheless, I do not believe that \$4,000 is the proper amount for a civil penalty in this matter.

a. *General Statement of Policy Is Not a Regulation*

The Commission intended that the assessment of a civil penalty should be an exercise of sound discretion under the particular facts of the occurrence rather than an application of a rigid formula. This is manifest in the Statement of Consideration which was published concurrently with the General Enforcement Policy. The Statement of Consideration provides as follows:

Comment: Is the Enforcement Policy a General Statement of Policy or a regulation?

Response: An underlying basis of this policy that is reflected throughout it is that the determination of the appropriate sanction requires the exercise of discretion such that each enforcement action is tailored to the particular factual situation. In view of the discretion provided, the enforcement policy is being adopted as a statement of general policy rather than as a regulation, notwithstanding that the statement has been promulgated with notice and comment procedures. A general statement of policy will permit the Commission maximum flexibility in revising the policy statement and it is expected that the statement, especially the supplements, will be revised as necessary to reflect changes in policy and direction of the Commission.

In drafting the statement it was expected that the specific enforcement criteria should provide adequate guidance and be applied in the majority of circumstances requiring enforcement actions. The policy, as indicated above, does provide discretion to take appropriate action if, after considering the policy statement, the Director determines that application of the criteria is inappropriate. For example, there may be cases where more than a 25% increase in civil penalty is appropriate based on prior enforcement history. 47 Fed. Reg. 9989 (March 9, 1982).

I also note that the Commission's Order of November 1, 1982, referring this matter for hearing stated that I "should be guided" by the General Enforcement Policy.

b. *Role of Administrative Law Judge and Mitigating Factors*

There is nothing in the General Enforcement Policy which evinces an intent to alter the jurisdiction or authority of the presiding administrative law judge in a civil penalty matter. A brief examination of the role of the administrative law judge is in order.

In *Radiation Technology, Inc.*, ALAB-567, 10 NRC 533, 536, (1979), the Appeal Board stated as follows:

The Director is not the ultimate fact finder in civil penalty matters. Commission regulations afford one from whom a civil penalty is sought the right to a hearing on the charges against it. 10 CFR 2.205(d) and (e). At that hearing, the Director must prove his allegations by a preponderance of the reliable, probative, and substantial evidence. It is the presiding officer at that hearing, not the Director, who finally determines on the basis of the hearing record whether the charges are sustained and civil penalties warranted. 10 CFR 2.205(f).

There, the licensee complained that the Commission had not promulgated a formal "schedule of fines." The Appeal Board rejected that contention and found that adequate enforcement criteria had been published in the *Federal Register*. The Appeal Board went on to observe as follows:

We add only that assessing a penalty inherently calls for the exercise of informed judgment on a case-by-case basis. An absolute uniformity of sanctions (which the licensee appears to think necessary) is neither possible nor required. *Id.* at 541.

Subsequently, a civil penalty matter involving *Atlantic Research Corp.* considered the appropriate standard for assessments. The administrative law judge upheld civil penalties against the licensee in the amount of \$8,600. ALJ-77-2, 6 NRC 702 (1977); ALJ-78-2, 7 NRC 701 (1978). Thereafter, the Appeal Board reversed those decisions and remitted the entire civil penalty because it found that the licensee was free from management culpability. ALAB-542, 9 NRC 611 (1979). The facts of the case were that a radiographer employed by a licensee committed deliberate misconduct which resulted in excessive radiation doses to the radiographer and another employee. *Id.* at 612. The Appeal Board reviewed the legislative history of Section 234 of the Atomic Energy Act of 1954, as amended, and concluded that the absence of a specific finding of management negligence or failure to take corrective action resulted in the assessment of punitive civil penalties beyond the scope of that section. The Commission then reviewed the Appeal Board decision, vacated it, and remanded it for further proceedings. CLI-80-7, 11 NRC 413 (1980). The Commission stated:

We believe that so long as a person violates the portions of the Atomic Energy Act referenced in Section 234 and the NRC can rationally relate imposition of a civil penalty against that person to potential improvement of conduct, either by the licensee or any other person, in furthering the purposes of the Atomic Energy Act, then the penalty is within the scope of our Section 234 authority, whether or not the fine might also be called "punitive." *Id.* at 420.

The Commission held that a licensee was "accountable for all violations committed by its employees in the conduct of the licensed activity." *Id.* at 422. The matter was remanded to the Appeal Board "for further consideration solely on the issue of mitigation." *Id.* at 425.

In a decision with one judge dissenting, the Appeal Board then found that mitigation was in order and reduced the civil penalty from \$8,600 to \$2,000. ALAB-594, 11 NRC 841 (1980). The Appeal Board stated, "As we read our present mandate, however, there is nevertheless room for taking into account the management culpability factor in determining whether, and if so, to what extent, the assessed civil penalty should be mitigated." *Id.* at 845. The Appeal Board then discussed the schedule of civil penalties set out in a manual published by the Office of Inspection and Enforcement as follows:

And, even though it [the manual] does not have the force of a regulation, should the quantum of the penalty end up in dispute the same considerations militate in favor of the adjudicators according the schedule some attention and weight. But to bear the schedule in mind is not to give it necessarily conclusive effect. As the ultimate decisional authority, with the expressly conferred power to mitigate or remit a penalty assessed by the Director on the basis of the schedule, the adjudicators manifestly must be thought to have the latitude to effect a reduction to a level below the schedule range. Whether that discretion should be exercised (either by the Administrative Law Judge or a reviewing tribunal) will, of course, hinge upon the facts of the specific case. *Id.* at 849.

c. The Instant Matter

I find that the instant matter presents a similar situation to the one which confronted the judges and the Commissioners in *Atlantic Research Corporation, supra*. Thus, while the NRC Staff has correctly applied the tables and the General Enforcement Policy to the facts of this case, there is no evidence before me to indicate that the lack of management culpability or negligence of Consolidated has been considered or evaluated in the assessment process. In fact, the only mention of negligence in the General Enforcement Policy is in connection with a determination of the severity level. However, that only provides that "[t]he severity level of a violation may be increased if the circumstances surrounding the matter involve careless disregard of requirements, deception, or other indications of willfulness." 47 Fed. Reg. 9990 (March 9, 1982). Perhaps the level of severity should be deemed to include ordinary negligence not amounting to "willfulness." If the severity level presumes ordinary negligence, isn't Consolidated entitled to mitigation where there is no evidence of management culpability? I think so. I find that the General Enforcement Policy does not reflect a consideration of the absence of management culpability in assessing a civil penalty. I find nothing in the General Enforcement Policy which purports to alter or invalidate the last Appeal Board decision in *Atlantic Research Corp.*, ALAB-594, 11 NRC 841 (1980). *Atlantic*

Research Corp., supra, authorizes mitigation of a civil penalty where the evidence fails to establish management culpability. The evidence in the instant matter shows an absence of management culpability in the commission of this violation. The radiographer had been properly trained. Consolidated's procedures were not alleged to be faulty. While a civil penalty is appropriate in this case to encourage compliance with the law, I find that the base civil penalty should be mitigated or reduced by \$1,500 because of the absence of management culpability. I conclude that the \$4,000 civil penalty assessed by the Director of the Office of Inspection and Enforcement should be reduced to \$2,500.

FINDINGS OF FACT

I adopt Stipulations 1 through 23 (attached as Appendix) as my Findings of Fact.

CONCLUSIONS OF LAW

Based upon the entire record compiled in this proceeding and for the reasons set forth above, I make the following Conclusions of Law:

1. I have jurisdiction over the parties and subject matter of this proceeding.
2. Consolidated X-Ray, the licensee, violated 10 CFR §34.23 and Condition 17 of License No. 42-08456-02.
3. The foregoing violation is properly classified under the NRC General Statement of Policy and Procedure for Enforcement Actions (hereinafter General Enforcement Policy) as a Severity Level III violation under Supplement VI, "Fuel Cycle and Materials Operations."
4. Under Tables IA and IB of the General Enforcement Policy, a base civil penalty in the amount of \$4,000 is established for this violation.
5. Consolidated X-Ray failed to establish that the base civil penalty should be mitigated or reduced because of the prompt identification and reporting or corrective action to prevent recurrence.
6. The evidence of record fails to establish management culpability or negligence of Consolidated X-Ray.
7. The absence of management culpability or negligence is not considered in the determination of a base civil penalty pursuant to the General Enforcement Policy but such fact is relevant and establishes that Consolidated X-Ray is entitled to mitigation or reduction of \$1,500 of the base civil penalty.
8. A civil penalty in the amount of \$2,500 is appropriate for this violation.
9. Consolidated X-Ray is assessed a civil penalty of \$2,500 for this violation.

ORDER

WHEREFORE, IT IS ORDERED that Consolidated X-Ray Service Corporation pay a civil penalty in the amount of Two Thousand Five Hundred Dollars (\$2,500) within thirty (30) days of the date of this order, by check, draft, or money order, payable to the Treasurer of the United States and mailed to the Director of the Office of Inspection and Enforcement.

IT IS FURTHER ORDERED, in accordance with 10 CFR §§2.760, 2.762, 2.764, 2.785, and 2.786 of the Commission's regulations, that this Initial Decision and Order is effective immediately and shall constitute the final action of the Commission thirty (30) days after the date of this Order, subject to any review pursuant to the above cited rules and the Commission's Order of November 1, 1982. Exceptions to this Initial Decision may be filed by any party within ten (10) days after service of this Initial Decision. Within thirty (30) days thereafter (forty (40) days in the case of the Staff) any party filing such exceptions shall file a brief in support thereof. Within thirty (30) days of the filing of the brief of the Appellant (forty (40) days in the case of the Staff), any other party may file a brief in support of, or in opposition to, the exceptions. This enumeration of appeal provisions is subject to the complete schedule in that regard made by the regulations of the Commission which are controlling and to which reference has heretofore been made in the ordering clause.

James A. Laurenson
ADMINISTRATIVE LAW JUDGE

April 28, 1983
Bethesda, Maryland

APPENDIX

STIPULATIONS

The parties to this proceeding, Consolidated X-Ray Service Corporation (Consolidated X-Ray or the licensee) and the NRC Staff (Staff), hereby stipulate as follows:

FACTS

1. Consolidated X-Ray Service Corporation, also d.b.a. Consolidated-Chugach Inspection, Inc., is holder of the NRC license number 42-08456-02. The address of Consolidated X-Ray is 10931 Indian Trail, P.O. Box 20195, Dallas, Texas 75220.

2. On January 25, 1982, Mr. Gary Thomas Kelly was a radiographer in the employ of Consolidated X-Ray.

3. On that day, he was assigned to work on radiography of a gas pipeline running through Oil City, Pennsylvania. At approximately 7:00 a.m., he checked in with his on-site supervisor.

4. The radiographer drove to the area of the first weld, set up his exposure device (or camera) and film, and made the exposure. The pipeline ran across a stream at this weld. While the exposure was in progress, the water level around the device started to rise. After the exposure was finished, Mr. Kelly found that the control cable and key were frozen in place, attached to the camera. He forced the guide tube off the exposure device and placed the front safety plug in the camera.

5. The radiographer then placed the exposure device in his truck, underneath the airblower from the generator, so that the cables would warm up. The tailgate of the truck was left down. After developing the film from the exposure, he went to report the test results to the on-site superintendent (who was not an employee of Consolidated X-Ray). While he was there, he received permission to leave the site until the next exposure, scheduled at noon. He then got in the truck and drove away.

6. As he drove away with the camera in the truck, the camera was not secured to the vehicle, the rear safety plug was not inserted in the camera, and the key was left in the camera lock.

7. Mr. Kelly traveled about two miles on Route 57 and stopped. As he got out, he noticed that the exposure device was not in the truck.

8. He got back in the truck and drove back along his route, looking for the exposure device. Then his on-site supervisor drove the truck as Mr. Kelly retraced his route on foot, using his survey meter to search for the device.

9. The radiographer then called the Oil City Police asking if someone had found anything like the device. He did not at this time notify the police that the device contained radioactive material.

10. At 12:36 p.m., the radiographer notified the Oil City Police and the Pennsylvania State Police that an exposure device containing radioactive material was missing. He also notified his home office at this time.

11. The Oil City Police searched the route which he had taken, but did not locate the camera.

12. The radiographer continued to search for the device. Media reports based on the NRC press release began to be broadcast. By approximately 3:30 p.m., a

few members of the Civil Defense from Seneca, Pennsylvania, had started assisting in the search using civil defense survey meters.

13. At approximately 9:00 or 10:00 a.m., Mr. Clifford Woodworth, Jr., of RD Number 1, Seneca, Pennsylvania, found the device in the road, and thinking that the object looked like a plumber's snake, picked it up and put it into his Ford Granada. After he got to work, he threw it into a van belonging to Mr. Leroy Collins, of 1 Manning Street, Oil City, Pennsylvania.

14. At 5:45 p.m., responding to the media reports, Mr. Leroy Collins called the Oil City Police Department and informed them that he had the missing device in his van. The radiographer accompanied the police to the address of Mr. Collins where they found the device in his van. Mr. Kelly then checked and found that the device was not open. The key was in the lock, the lock was depressed, and the control cables and front plug were attached. Mr. Collins informed the radiographer that he had not unlocked the exposure device and had not cranked out the source.

15. The camera involved in the incident was a Gamma Industries "Gamma Century" camera, serial number 480, containing 24 curies of iridium-192.

16. Upon inspection after the incident, no visible damage to the camera was found. A "Caution Radioactive Materials" label was attached to the side of the camera.

17. The radiographer, Mr. Gary Thomas Kelly, had received the training required by 10 CFR 34.31 and the licensee's procedures.

18. The licensee notified Region I of the lost exposure device at about 2:00 p.m. on January 15, 1982.

19. 10 CFR 34.23 requires that locked radiographic exposure devices and storage containers be physically secured to prevent tampering with or removal by unauthorized persons.

20. Condition 17 of License 42-08456-02 requires that licensed material be used in accordance with the procedures in the application dated March 28, 1979. In the section of those procedures entitled "Transportation of Radiographic Devices," it requires that no device be moved unless all safety plugs are inserted, and the device is locked.

21. As described in paragraphs 1 through 18, and contrary to the requirements set forth in paragraphs 19 and 20, on January 15, 1982 a radiographer in the employ of Consolidated X-Ray, at a field site in Oil City, Pennsylvania, transported a radiography device, containing 24 curies of iridium-192, which did not have the rear safety plug inserted and was not secured to the vehicle. In addition, although the device was locked, the key was left in the lock.

22. At all material times on or prior to January 18, 1982, Mr. Gary Thomas Kelly, an employee of Consolidated X-Ray, was properly certified, and had received the training required by the regulations of the U.S. Nuclear Regulatory Commission and the licensee's procedures.

23. An Enforcement Conference was held on March 2, 1982, in full compliance of NRC regulations.

ISSUES

24. The sole issue in this hearing is that of whether a civil fine should be imposed for the violation described in paragraph 21 of these Stipulations and if so, in what amount.

25. The licensee's ability to pay a fine is not an issue in this proceeding.

PROCEDURES

26. The hearing before Administrative Law Judge James A. Laurenson, of the Atomic Safety and Licensing Board, U.S. Nuclear Regulatory Commission, is a trial *de novo* with respect to the issue presented in paragraph 24 of these Stipulations.

27. Counsel for the parties will submit to each other written but unsworn testimony, with oral testimony offered in summary at this hearing to affirm the written testimony presented.

28. Consolidated X-Ray, as a licensee, is generally responsible for the acts of its personnel and employees with respect to the requirements of the U.S. Nuclear Regulatory Commission.

29. Consolidated X-Ray Service Corporation is a non-destructive examination contractor performing inspection of various materials used in the manufacturing of power piping, pressure vessels, pumps and valves, compressor stations, aircraft pipelines, refineries and related components, and as such, are industrial users of radioactive by-products material.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REGULATION

Harold R. Denton, Director

In the Matter of

Docket Nos. 50-272
50-311
(10 CFR 2.206)

**PUBLIC SERVICE ELECTRIC
AND GAS COMPANY**
(Salem Nuclear Generating Station,
Units 1 and 2)

April 29, 1983

The Director, Office of Nuclear Reactor Regulation, denies a request from the Public Advocate of the State of New Jersey for issuance of an order to the licensee to show cause why it should not be restrained from restarting its Salem facilities until certain actions addressing the causes of the reactor circuit-trip breaker failures of February 22 and 25, 1983, have been taken.

DIRECTOR'S DECISION UNDER 10 CFR 2.206

By petition dated April 12, 1983, amended April 18, 1983, the Public Advocate of the State of New Jersey requested, pursuant to 10 CFR 2.206, that the Nuclear Regulatory Commission (NRC) order Public Service Electric & Gas Company (PSE&G) to show cause why it should not be restrained from restarting its Salem facilities until it has taken certain actions. In addition, the Public Advocate requested that the licensee be required to demonstrate before an Atomic Safety and Licensing Board in response to the show cause order:

- 1) that it has adequately analyzed the causes of the reactor circuit-trip breaker failures of February 22 and 25, 1983, which required that Unit 1 be manually shut down;

- 2) that it has proposed and established systems sufficient to prevent the recurrence of the trip breaker failures or similar failures of other safety-related devices and systems; and
- 3) that its overall program of quality assurance, maintenance, and management are adequate for it to continue to operate Salem consistent with its operating license, and the protection of public health and safety and welfare of the residents of the State of New Jersey.

DISCUSSION

On February 25, 1983 a signal that water in one of the steam generators was too low generated a reactor trip signal while the Unit 1 reactor was at 12% full power during a routine startup following a refueling outage at the Salem Nuclear Generating Station. The reactor trip circuit breakers failed to open automatically and the operators manually tripped the reactor to bring it to a stable shutdown condition. Initial licensee investigation of the event disclosed that the reactor trip breakers failed to open because of mechanical binding of the latch mechanism in the undervoltage trip attachment on the breakers. During a subsequent review of this event and a previous reactor scram on February 22, 1983, the licensee determined that a trip demand condition without automatic scram had also existed for about three seconds on February 22, 1983. The Unit 1 reactor was placed in a cold shutdown condition pending completion of a review of these events.¹

On February 26, 1983, an NRC team was onsite to conduct initial followup and to collect preliminary information. The NRC Staff has continued to intensively evaluate these events and the circumstances leading up to them. In addition, a separate task force has been established to conduct a separate generic study of the broader implications of the Salem events to determine if generic actions are needed for other facilities as well as Salem. During the course of this evaluation the NRC Staff has generated a number of reports which have identified issues arising out of the Salem events and the licensee and/or NRC actions to resolve them. These reports set forth the Staff's evaluation and resolution of the issues raised by the Salem events as they have evolved and progressed over time. These reports include:

1. SECY-83-98, Salem Restart Status Report, March 10, 1983 (Interim draft report on the current status of evaluation of Salem events).
2. SECY-83-98A, Salem Restart, March 14, 1983 (Report on the current status of the staff evaluation of the failure to automatically scram events . . . at Salem . . . and the staff action plan for authorizing restart of Units 1 and 2).

¹ Salem Unit 2 is presently shut down for refueling and is not presently scheduled to resume operation before June 1, 1983.

3. SECY-83-98B, NRC Region I Task Force Report on the Salem Unit 1 ATWS Events, March 17, 1983.
4. SECY-83-98C, Salem Restart Status Report, March 29, 1983 (Updated status report of staff evaluation which superseded the March 14, 1983 Report).
5. NUREG-0977, NRC Fact-Finding Task Force Report on the ATWS Events at Salem Nuclear Generating Station, Unit 1, on February 22 and 25, 1983, March 1983.
6. SECY-83-98D, Salem Restart Evaluation, April 8, 1983 (Final draft of Staff's Safety Evaluation addressing the February events at Salem which superseded previous status reports).
7. SECY-83-98E, Salem Restart Evaluation, April 11, 1983 (Revision of the April 8, 1983 draft Safety Evaluation).

The petitioner relies on item 2 above, the March 14, 1983 Status Report, for much of the basis of its request.² As noted above, the Staff's knowledge and evaluation of the events has evolved significantly since that time. Also, the licensee has continued its own evaluation and instituted a number of actions or commitments to actions over the past weeks. These licensee actions are described in its submittals dated March 1, 8, 14, 18, 23, and April 4, 7, 8, 11, 13, 22, 27, and 28, 1983. The April 28, 1983 submittal summarized the licensee's corrective action program and included a list of action items completed or the scheduled date for completion.

The Staff's Safety Evaluation Report, dated April 29, 1983, which is attached to this decision, groups the issues which have been identified from the Salem events into three main categories: (A) Equipment and evaluation; (B) Operating procedures, operator training and operator response evaluation; and (C) Management evaluation. For each sub-issue in these categories the safety evaluation report describes: (1) the issue raised by the February events, (2) the licensee's response to the question raised, *e.g.*, changes in procedures, review of past work orders, proposed audits; and (3) the reasons why the Staff has concluded that the issue has been sufficiently resolved to provide reasonable assurance that resumption of operations at the Salem facility will not create an undue risk to the public health and safety.

In the first category, the Staff has concluded that the licensee has acceptably revised its maintenance procedures, revised and expanded his surveillance testing programs, provided an adequate verification testing program and will submit proposed Technical Specification changes to provide for notification to NRC for maintenance testing results that exceed acceptance criteria and for measured trip forces that exceed the recommended upper limit and to provide for additional surveillance requirements for the reactor trip and bypass breakers.

² As part of its evaluation and recommended actions at that time, the staff had concluded that a show cause order should be issued to the licensee.

In the second area, the licensee has acceptably identified reliable control room indicators that provide positive indication of automatic reactor trip demand, without operator analysis or verification, and has revised procedures to direct the operators to insert a manual trip whenever positive indication of an automatic reactor trip demand is present, without delay to evaluate the plant status. The licensee has also acceptably completed training actions and commitments in the areas of training on procedures, training utilizing the Reactor Protection System, and the administration of this training. As such, the licensee's ATWS training program for licensed operators and for auxiliary operators is now acceptable.

In the third category various management areas have been addressed. These management areas are Master Equipment List, procurement procedures, work order procedures post trip review, timeliness of event notification, updating vendor supplied information, involvement of QA personnel with other station departments, post maintenance operability testing, and overall management capability and performance. The licensee has acceptably revised its procedures and conducted acceptable training to ensure that work orders and procurement documents will be properly classified in the future. The licensee has conducted an acceptable review of past procurement documents and work orders to verify that the misclassification problem associated with the reactor trip breakers was an isolated incident. Additionally, the licensee has developed an acceptable post trip review procedure to ensure a systematic and comprehensive review of reactor trips is conducted prior to returning to operation. Finally, the licensee has instituted an acceptable program involving both outside consultants and additional corporate safety committees to further evaluate and upgrade the effectiveness and safety of the licensee's nuclear activities.

The findings by the Staff encompass the areas of concern identified by the petitioner. The licensee has submitted sufficient information and taken or proposed sufficient actions for the staff to adequately review and resolve its concerns arising out of the Salem February 22 and 25, 1983 events.³ Consequently, I have determined that an order to require PSE&G to show cause why it should be permitted to restart until these concerns are addressed need not now be issued. However, I intend to issue an order to PSE&G confirming the commitments made by PSE&G in its April 28, 1983 letter summarizing its Corrective Action Program.⁴

³ The NRC Task Force which has been conducting the generic study on the broader implications of the Salem events has been involved in the Staff deliberations on Salem restart. While its focus has been the longer term aspects of the problems revealed by the Salem events, the group has been kept informed of the Staff evaluations. The generic report relies to a large extent on the restart report as a source of information on what went wrong at Salem and what needs to be examined at other plants. The Task Force has identified nothing during its review or from its generic study which would alter the Staff's conclusions on the adequacy of PSE&G's actions for resumption of operations.

⁴ Whether or not any hearing would be held on this order would depend upon whether any person could demonstrate an interest affected within the scope of the order. *Boston Edison Co.* (Pilgrim Nuclear Power Station), CLI-82-16, 16 NRC 44 (1982).

On the basis of the above-described actions already taken by the Staff regarding the Salem facility and the February 22 and 25, 1983 events, the Public Advocate's request for issuance of an order to show cause is *denied*.

A copy of this decision will be filed with the Secretary for the Commission's review in accordance with 10 CFR 2.206(c) of the Commission's regulations. As provided in 10 CFR 2.206(c), this decision will constitute the final action of the Commission 25 days after the date of issuance, unless the Commission on its own motion institutes review of this decision within that time.

FOR THE NUCLEAR REGULATORY
COMMISSION

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland,
this 29th day of April, 1983.

Attachments:

- (1) Safety Evaluation Report
- (2) Letter from PSE&G, dated April 28, 1983

[The attachments have been deleted from this publication but may be found in the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555.]

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket No. PRM-50-35

UNION OF CONCERNED SCIENTISTS

April 12, 1983

The Commission denies a petition for rulemaking which requested that the Commission amend its emergency planning rules for nuclear power plants so that the results of the offsite emergency preparedness exercise held prior to full-power operation would be litigable in the operating license proceeding. The petition is denied because the requested amendment is unnecessary, contrary to sound administrative practice, and would add regulatory delays to the Commission's licensing process without a corresponding increase in public health and safety.

**NRC: LICENSING BOARDS AND FULL-SCALE OFFSITE
EXERCISES**

The applicant's emergency plan is akin to the design of the facility. The task of the licensing board confronted with emergency planning issues is to decide whether the plan meets the Commission's regulations and to predict whether it can be implemented successfully.

NRC: INITIAL OFFSITE EMERGENCY PLAN EXERCISE

The full-scale offsite emergency plan exercise should be held as close in time as possible to commercial operation of the facility to ensure that the exercise involves those personnel who will actually operate the facility.

NRC: OFFSITE EMERGENCY PLAN EXERCISE AND CLOSE OF HEARING RECORD

It is impractical to hold the full-power operating license proceeding record open solely for the purpose of litigating the results of the full-scale offsite exercise, because full-power operation of the completed facility could be delayed for months with no commensurate safety benefit. Deficiencies appearing in the exercise can be corrected without further litigation.

NRC: DEFICIENCIES IN THE EXERCISE AND THE ADJUDICATORY SETTING

Deficiencies in the full-scale offsite exercise are not suitable subjects for the adjudicatory setting. The function of the licensing board is to determine whether the plan meets the Commission's regulations. However, a hearing could be reconvened upon an appropriate evidentiary showing that some key aspect of the plan turns out to be inadequate or unworkable.

NRC: REMOVAL OF LIMITED SUBJECT FROM ADJUDICATIVE PHASE OF LICENSING

It is not enough to assert, without more, that removal of a limited subject from the adjudicative phase of the licensing process necessarily equals a loss of protection of the public health and safety, or implies a loss of the public's right to recourse where the facts justify extraordinary licensing action.

ATOMIC ENERGY ACT AND ADMINISTRATIVE PROCEDURE ACT: RIGHT TO LITIGATE THE ADEQUACY OF OFFSITE EMERGENCY PLANS

The Commission has the discretion to separate matters which properly belong in the licensing phase from those which belong in the post-adjudicative operational phase. The record in a licensing proceeding must close at some logical point, and the Commission has judicially-recognized discretion to select that point on a rational basis. Petitioner did not show that the placing of exercise deficiencies into the post-adjudicative category was without such a basis, and thus cannot prevail on statutory grounds.

DENIAL OF PETITION FOR RULEMAKING

I. BACKGROUND

On November 18, 1982, the Commission published in the Federal Register (47 Fed. Reg. 51889) a notice announcing the receipt of a petition for rulemaking filed by the Union of Concerned Scientists (UCS). The Commission indicated that the principal thrust of the petition was to ensure, via amendment of the Commission's emergency planning regulations in 10 CFR 50.47, that the results of the pre-operational offsite emergency preparedness exercise could be litigated in the full-power operating license proceeding.

The UCS petition seeks to reverse the effect of an amendment to 10 CFR 50.47 promulgated by the Commission on July 13, 1982 (47 Fed. Reg. 30232; notice of proposed rulemaking published December 15, 1981, 46 Fed. Reg. 61134). That amendment, in relevant part, added a sentence to 10 CFR 50.47(a)(2) which reads as follows:

Emergency preparedness exercises (required by paragraph (b)(14) of this section and Appendix E, Section F of this part) are part of the operational inspection process and are not required for any initial licensing decision.

The effect of this amendment was to make clear that the record in the full-power proceeding could be closed, and a licensing decision rendered, prior to the offsite emergency preparedness exercise. This exercise, however, had to be held prior to authority for full-power operation for the facility as had always been the case.

Presently pending before the Court of Appeals for the District of Columbia Circuit is UCS' direct challenge to the 1982 amendments, filed September 10, 1982. (*Union of Concerned Scientists v. NRC*, Docket No. 82-2053). The Commonwealth of Massachusetts has moved to intervene in this action, and also filed comments on the petition for rulemaking. Briefing in this case has been held in abeyance so that administrative action on the petition for rulemaking could be completed. A main concern of UCS was that the NRC, by its July 1982 amendments, intended to alter the way emergency planning issues are litigated generally in license proceedings. At a meeting held November 3, 1982, between NRC and UCS representatives, NRC stated that, except for the exercise issue, the NRC did not intend this rule change to affect the way full-power proceedings were conducted. It was generally agreed that the principal thrust of the petition concerned the litigation of "effects in on-site and off-site emergency planning identified as a result of pre-operational emergency preparedness exercises." 47 Fed. Reg. 51889. The petition notice therefore highlighted this issue in seeking public comment.

II. PUBLIC COMMENTS

A. Description of Comments Received on Petition

Seventy-eight comments were received on the UCS petition, representing a wide variety of opinions and sources. By source, the comments break down as follows: public interest groups — 22, industry — 19, States — 3, Federal agencies — 2, counties — 1, universities — 1, attorneys (other than those representing clients) — 2, private citizens — 28 (representing 93 persons). These comments in many cases focus on the same issues presented in the earlier rulemaking on the same subject, where 40 comments were received. In all, then, the Commission has received and considered 118 comments on the UCS petition.

In view of the large number of comments, pro and con, it is not feasible to respond to each individually. Instead, the analysis below will be organized by issue. The factors cited by commenters in favor of the UCS petition will be stated, each followed by a statement of the Commission's position. Because the Commission is denying the petition, it is not necessary for the Commission to respond to each of the arguments offered by commenters opposing the petition. Some of their arguments have been incorporated into the Commission's responses below.

All public comments — for this proceeding and for the previous rulemaking — are available for public inspection in the Commission's Public Document Room, 1717 H Street N.W., Washington, D.C.

B. Response to Public Comments

Issue 1: Emergency planning exercises should be subject to hearings before a license is issued because the exercise is a vital indicator of the actual state of emergency preparedness.

Commission Response: The Commission agrees that the full-scale offsite exercise is one important indicator of the actual state of emergency preparedness. For this reason, the Commission continues to require that the exercise be conducted, and significant deficiencies corrected or mitigated, before full-power operation is authorized for the facility.

From this it does not follow, however, that any benefit is to be gained from delaying the operating license hearing, as a matter of course, to incorporate the results of this exercise in the full-power operating license proceeding. As to all matters of public health and safety, the licensing boards' findings are predictive in that they often are based upon the design of the facility, the qualifications of the utility's management and operational staff, inspections, performance specification, etc., rather than demonstrated performance. At the time the licensing board issues its decision authorizing a full-power license, many major plant systems have not been fully tested at or near the full-power operating levels necessary to show

full-system performance. The full scale exercise is analogous to the evaluation of plant systems at operating power levels during power ascension testing. Where problems are discovered, they are addressed before full commercial operation is achieved. On the other hand, the applicant's emergency plan is akin to the design of the facility. The task of the licensing board confronted with contested emergency planning and preparedness issues is to decide whether the plan meets the Commission's regulations as set out in 10 CFR 50.47 and Appendix E to Part 50 and to predict whether it can be implemented successfully. *See* 47 Fed. Reg. at 30235. As was stated above, both decisions are fully litigable before the board. This would include litigation of the planning process itself (*i.e.*, the various technical and other judgments of the planners and the reviewers that underlie the plan itself and the predictions of implementation capability). The Board may require changes or additions to the plan based upon the testimony presented. The 1982 amendment here challenged by UCS was only intended to affect the way in which emergency planning issues are litigated by clarifying that the results of the exercise need not be litigated.

The full-scale offsite exercise is actually an indicator of two factors: the state of emergency preparedness at the time the exercise is conducted, and whether the emergency plan and the planning process are fundamentally sound. If the outcome of the exercise showed that the plan and the underlying judgments about its adequacy and capability of implementation were seriously flawed — as opposed to details of its implementation in that exercise not reflecting on the overall adequacy of the plan and its capability of implementation — reopening of the hearing record might be appropriate, coupled, of course, with delay of the full-power authorization. This matter was fully explained in the rulemaking notices for the amendment.

There are sound policy reasons for removing the full-scale exercise from the operating license proceeding. While these reasons were stated by the Commission in the previous rulemaking, they will be restated here for clarity. Contrary to the view of many comments supporting the UCS petition, the action was not taken merely to further limit the scope of the operating license proceeding. The Commission acknowledges that the public can play an important part in offsite emergency planning by participating in the operating license proceeding. This will continue to be the case. The Commission also believes that it is important, however, that the full-scale exercise be held as close in time as possible to commercial operation of the facility. This is necessary so that the licensee personnel who will be responsible for the commercial operation of the facility will be present at the site, familiar with the plant and its environs, and trained to carry out the emergency plan. As one moves back in time from commercial operation, these personnel will not, for the most part, be present. In addition, certain instrumentation to be relied on in emergencies may not be fully operational or calibrated. The safety of the plant would be better served by an exercise utilizing those licensee personnel who would

have to carry out emergency procedures once the plant is licensed for commercial operation.

This being the case, it is clearly impractical to hold the full-power proceeding record open solely for the purpose of litigating the results of the full-scale offsite exercise held at a time close to commercial operation. Even with the use of expedited procedures, months could be consumed while the results of the exercise are analyzed, testimony prepared, hearings held, findings made, and so on. This delay would occur without a commensurate safety benefit in the ordinary case. It is important, of course, to correct or resolve problems which are discovered as a result of the exercise. In most cases, this can be done prior to full-power authorization. If the exercise shows serious problems that must be remedied, the Commission can delay full-power authorization until such problems are rectified. To the extent there are material facts in dispute, litigants in NRC proceedings would likely be heard on the impact of such serious defects on the NRC's ability to decide there is reasonable assurance that the plant could operate safely. As the Commission has stated on prior occasions, no facility will be permitted to achieve commercial power levels when there is doubt that the public health and safety will be protected in the event of an accident.

Moreover, deficiencies in the full-scale offsite exercise would not be suitable subjects for the adjudicatory setting. As was explained above, the function of the licensing board is to determine whether the emergency planning efforts reflected in the plan and its underlying basis and review meet the Commission's regulations. If some detail of a plan, e.g., a hard telephone link to a State emergency office, does not operate properly during the exercise, the appropriate course of action is to remedy the problem by concrete action, not hold a hearing and hear the testimony of experts on why the system failed on the day in question. If it should occur, however, that some key aspect of the plan turns out to be inadequate or unworkable, or the judgments reflected in the planning process are untenable, or major revisions will be necessary, the hearing could be reconvened upon a showing that the Commission's standards for reopening have been met. This could be done however, only where it is questionable that the Commission's regulations have been met. Where appropriate, any person may request that the Commission institute a proceeding to take immediate licensing action under 10 CFR 2.206. Such action could include, in extraordinary circumstances, suspension of the license pending correction of the deficiency.

Issue 2: Emergency planning issues generally will be removed from licensing adjudications under the current rule.

Commission Response: The Commission responded in depth to this contention in the notice of final rulemaking published July 13, 1982 (47 Fed. Reg. at 30233). The applicant for an operating license is required by 10 CFR 50.47 to submit a complete emergency plan for the facility. All aspects of the planning process may be litigated in the operating license proceeding. For example, one can

assert that the planning standards in 10 CFR 50.47(b) have not been met. In the Commission's view, this does not constitute removal of emergency planning from the licensing process.

As was explained above, and to be very clear, the only aspect of emergency planning removed from the proceeding is the full-scale offsite exercise. This was done for reasons which will be explained in the response to the next issue. (*See also* the notices of proposed and final rulemaking in this proceeding.)

Issue 3: The public has no recourse to challenge decisions made following the exercise if the hearing record is already closed.

Commission Response: The only aspect of the Commission's procedures which was altered by the 1982 amendment at issue here was the inclusion, as a matter of course, of the results of the full-scale offsite exercise in the full-power operating license proceeding. The rule changes did not affect public participation in any other way under NRC regulations. It is true, as UCS asserts, that the other avenues of public intervention (*e.g.*, motions to re-open a hearing, petitions under 2.206) are conditioned by the need to show that such licensing actions are warranted by the facts in each case. This is nonetheless true of any other aspect of the facility which is tested prior to, or even after, achievement of commercial power levels. The comments raise no intrinsic safety reason which distinguishes the results of the offsite exercise from the results of testing the reactor coolant system at full capacity. If, in either case, minor problems were discovered, correction is needed but actions such as a re-opening of the hearing or suspension of the license would not be warranted. Major deficiencies in an exercise would be addressed by the NRC prior to full-power authorization, but in any event the public could seek to participate and would be granted the opportunity to do so in appropriate circumstances.

The Commission's objective in the 1982 amendment was to improve the conduct of exercises by placing them as close in time to commercial operation as possible, not to eliminate public recourse in the event an exercise demonstrates serious defects in the emergency plan or planning process. The amendment was carefully limited to provide this result.

Issue 4: A utility might submit a faulty plan in the absence of public scrutiny in the hearing context, thus jeopardizing public safety.

Commission Response: The plan is addressed in the hearing process. An applicant for an operating license is required by NRC regulations (10 CFR 50.47 and Appendix E) to submit an emergency plan which complies with the regulations and which conforms to other regulatory guidance supporting the regulations. The licensing board must be able to find that the existing plan and planning process do in fact meet the regulations or whether, on the other hand, there is cause to withhold authorization of a license until suitable planning is demonstrated. Neither the petitioner nor commenters have shown in what way the Commission's action resulted in a diminution of safety in respect to emergency planning. In the

Commission's view, it is not enough to assert, without more, the removal of a limited subject from the adjudicative phase of the licensing process necessarily equals a loss of protection of the public health and safety, or implies a loss of the public's right to recourse where the facts justify extraordinary licensing action.

Issue 5: The current test of 10 CFR 50.47(c) appears to allow submission of offsite plans after the record has closed. If so, this would remove such plans entirely from public scrutiny in view of the high standard which must be met to reopen a hearing.

Commission Response: This concern is the result of confusion over the word "should" in the Statement of Considerations which accompanied the 1982 amendments:

The proposed rule does not eliminate any important substantive aspect of emergency planning from the operating license hearings. Whether an applicant satisfies the requirements of 50.47(a) and 50.47(b) is still an issue that may be raised and litigated in those hearings. In cases where such issues are raised, applicants' and State and local jurisdictions' emergency plans *should* be available for examination. . . .

(47 Fed. Reg. at 30233) (emphasis added).

The use of "should" was intended to convey the possibility that a plan or a part of a plan (e.g., township or county) might not be available at the hearing if that jurisdiction has, for whatever reason, not yet completed a plan. In such cases, 10 CFR 50.47(c)(1) does allow the applicant to show that, because of other compensating factors, public health and safety will be adequately protected because of other plans or evidence of preparedness. 45 Fed. Reg. 55402, 55403 (1980); Mt. Transcript pp. 3-12 (July 23, 1980) [Docket No. PT-50 (44 Fed. Reg. 75167), Vol. 9]. Where this situation occurs, intervening parties would have the opportunity to challenge the applicant's assertion. The word "should," however, should not be read to mean that the NRC now believes that plans meeting the rule's criteria need not generally be available at the hearing. In that sense, the use of "should" in the above-quoted section is overbroad and could understandably lead to concern. To a certain extent, the comment reflects concern that the NRC intended to undercut adjudication of emergency planning generally. As explained in this document, that is not the Commission's intention. Furthermore, contrary to the suggestion in some comments that NRC Boards are using the July 1982 amendments in just that way, the Commission has not found a single instance where that was the case. The proffered example, the *Zimmer* proceeding, is simply inapposite because the Board never decided this issue as characterized by petitioner and commenters.

Issue 6: The 1982 amendment violates the Atomic Energy Act and the Administrative Procedure Act by denying the public the right to litigate the adequacy of offsite emergency plans.

Commission Response: This argument is based upon a flawed premise. The adequacy of offsite emergency planning and capability of implementation continues to be fully litigable in the operating license proceeding. Intervenors may challenge any aspect of this planning and its capability of implementation as not complying with applicable NRC and FEMA standards.

The Commission has the discretion to separate matters which properly belong in the licensing phase from those which belong in the post-adjudicative operational phase. If this were not true — and the petitioner and commenters do not so argue — the Commission would be obligated to hold open the hearing record until a plant had been fully tested at commercial power levels, given the real possibility that a plant system may not function as projected in the earlier stages of the safety hearing. Pre-operational testing is no less crucial to plant safety than the full-scale exercise is crucial to measuring emergency preparedness (*see* response to Issue 7 below). It is nonetheless clear that the record of the licensing proceeding must close on all matters at some logical point, and the Commission has judicially-recognized discretion to select that point on a rational basis. Neither UCS nor commenters supporting the UCS position have put forth convincing arguments why the full-scale offsite test of the emergency plans may not be placed in the “operational events” category. As explained above problems identified in the course of exercises will either demonstrate problems with actual preparedness (which may be corrected in a straightforward manner) or with the plan process. The examples of exercise deficiencies raised in the comments fall into the former category and are not different from other kinds of preoperational problems. In the absence of a showing to the contrary, the argument that the Commission is forbidden by statute to permit licensing board decisions prior to the conduct of the exercise cannot be accepted.

Issue 7: The comment from FEMA emphasizes the importance of the full-scale offsite exercise in overall emergency planning and preparedness.

Commission Response: The Commission completely agrees with the comment from FEMA which states, in part:

FEMA wishes to reaffirm the importance and value of the joint exercise for FEMA’s findings concerning the adequacy of offsite plant and preparedness. A full-scale joint exercise plays an important role and is necessary if FEMA is to certify in a finding that State and local governments are capable of protecting public health and safety in the event of an accident at a commercial nuclear power plant. The exercise gives FEMA observers the opportunity to assess the readiness, knowledge, and skills of State and local government personnel as they attempt to implement the actions outlined in the plan and the objectives of a scenario adopted for the exercise.

Deficiencies that are identified during an exercise provide State and local governments an opportunity to take corrective action through additional exercising and plan modification, thus improving preparedness.

FEMA's primary concern is that completion of an adequate joint exercise continue as a requirement for a full-power nuclear power plant license. FEMA defers to NRC on whether this should be a matter for its hearing boards to deal with in their full-power proceedings.

As is clear from the discussion above and from the notices of rulemaking accompanying the 1982 amendment, no full-power operation will be authorized prior to the full-scale joint exercise. In addition, no license will issue if the exercise demonstrates significant deficiencies:

The public should recognize that the Commission does not intend to authorize the issuance of a full-power operating license if there has been a full-scale exercise which raises serious and significant deficiencies which have not been compensated for and which go to the fundamental nature of the plan itself.

(Notice of Final Rule, 47 Fed. Reg. at 30234).

And while it is true that the evidentiary standard to re-open a closed record is high, it is not insurmountable. An intervenor in a licensing proceeding may request that the record be re-opened. If that option is unavailable, that person may request relief under 10 CFR 2.206. As FEMA suggests, the Commission should be able to make the determination whether a proceeding is necessary to examine the results of the exercise. The 1982 amendment objected to by UCS does no more than remove any doubt that the Commission may exercise this discretion on a case-by-case basis. Where the facts justify a further proceeding, one will be ordered. Where the exercise shows emergency planning to be fundamentally sound and in accord with the findings of the licensing board, further litigation as a matter of course would serve no purpose.

III. FINDINGS

Upon a complete review of the record in this proceeding and in the rulemaking which resulted in the amendment placed in issue by UCS, the Commission finds nothing to indicate that it has erred either as a matter of law or as a matter of policy. Therefore, the Commission hereby denies PRM-50-35. As with pre-operational testing of safety systems, there are sound policy reasons for conducting the exercise as near in time as possible to commercial operation of the facility. The proper function of the adjudicative proceeding is to examine the emergency planning of the applicant and offsite jurisdictions and determine whether it meets NRC and FEMA standards. The Commission sees no benefit to be gained by delaying issuance of a full-power license for litigation over a basically successful

exercise. It is within the Commission's legal discretion to prevent this result while at the same time enhancing the usefulness and credibility of the exercise by allowing the record to close in the proceeding prior to conduct of the exercise.

For the Commission

Samuel J. Chilk
Secretary of the Commission

Dated at Washington, D.C.
this 12th day of April, 1983.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket Nos. 50-247
50-286

CONSOLIDATED EDISON COMPANY
OF NEW YORK
(Indian Point, Unit No. 2)

POWER AUTHORITY OF THE STATE
OF NEW YORK
(Indian Point, Unit No. 3)

May 5, 1983

The Commission, in view of previously identified emergency planning deficiencies at Indian Point, (1) announces its intention to issue an order by June 9, 1983 promptly suspending plant operation unless certain conditions are met by that date; and (2) establishes procedures governing the presentation of views by the licensees and affected governmental agencies as to why such action should or should not be taken by the Commission.

EMERGENCY PLAN: ENFORCEMENT ACTION
(DEFICIENCIES IN)

Under 10 CFR 50.54(s) (2), the scope of Commission consideration in deciding whether to order plant shutdown or other enforcement action is broader than FEMA's; where FEMA is concerned primarily with the significance of deficiencies in emergency planning and preparedness, and the

adequacy of interim compensating measures, NRC regulations require the Commission to consider other factors as well when making a decision on the desirability of enforcement action.

EMERGENCY PLANS: ENFORCEMENT ACTION (DEFICIENCIES IN)

In determining whether plant shutdown or other enforcement action is appropriate under 10 CFR 50.54(s) (2), the Commission must allow licensees an opportunity to demonstrate, among other factors, that emergency preparedness deficiencies are not significant for the plant, that adequate interim compensating measures have been taken or that there are other compelling reasons why such action should not be taken. 10 CFR 50.54(s) (2) (ii).

ORDER ESTABLISHING PROCEDURES FOR DECISION ON ENFORCEMENT ACTION

On December 22, 1982, the Commission issued an order in which it decided against taking enforcement action with regard to emergency preparedness at Indian Point. CLI-82-38, 16 NRC 1698. The Commission's action was in accordance with 10 CFR 50.54(s) (2) (ii),* which provides:

If . . . the NRC finds that the state of emergency preparedness [at an operating reactor] does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency . . . and if the deficiencies . . . are not corrected within four months of that finding, the Commission will determine whether the reactor shall be shut down until such deficiencies are remedied or whether other enforcement action is appropriate. In determining whether a shutdown or other enforcement action is appropriate, the Commission shall take into account, among other factors, whether the licensee can demonstrate to the Commission's satisfaction that the deficiencies in the plan are not significant for the plant in question, or that adequate interim compensating actions have been or will be taken promptly, or that there are other compelling reasons for continued operation.

*Commissioner Asselstine does not agree that the Commission's December 22, 1982 order was in accordance with section 50.54(s) (2) of its regulations.

On April 15, 1983, FEMA reported to the Commission that emergency preparedness at Indian Point was inadequate, owing principally to the persistence of significant deficiencies in two areas: the non-participation of Rockland County in the planning process, and the questionable availability of bus drivers in Westchester County in the event of an accident. FEMA elaborated on its views in a briefing to the Commission on April 20, 1983.

In this matter, where enforcement action is under consideration, we accord FEMA's views great weight. Our consideration under the regulation is broader than FEMA's; where FEMA is concerned primarily with the significance of deficiencies in emergency planning and preparedness, and the adequacy of interim compensating measures, our regulations require us to consider other factors when we make a decision on the desirability of enforcement action.

The Indian Point licensees and the surrounding jurisdictions have been put on notice twice (two 120-day periods) that, based on FEMA's findings of significant deficiencies in planning standards, the NRC emergency planning regulations were not being met. At this point, the NRC must consider the shutdown of the plants pending correction or mitigation of the two major deficiencies found in the March exercise.

The Commission recognizes that to some extent these problems are beyond the power of the licensees to resolve. However, our regulations do allow the licensees an opportunity to demonstrate that deficiencies are not significant for the plant, that adequate interim compensating measures have been taken or that there are other compelling reasons why such action should not be taken. 10 CFR 50.54(s)(2)(ii). Accordingly, we offer the licensees the opportunity to provide such views. Interested federal agencies and affected State and local governments are invited to supply their views on the FEMA report, and on the question of shutdown.

Such views must be received by the Commission by May 20, 1983. Submittals shall be no longer than 20 double-spaced pages (40 pages for licensees), including all attachments. Requests for relief from these filing requirements will not be looked on with favor, and reply comments will not be entertained.

Licensees as well as interested or affected governmental agencies will have the opportunity to make oral presentations to the Commission on May 26, 1983. A further order will spell out the times for oral presentations. Consolidation of oral presentations is strongly encouraged.

Subject to evaluation of the comments, the Commission's present intention is to issue an order by June 9, 1983 promptly suspending operation of the Indian Point plants unless:

- (1) FEMA has determined that the significant deficiencies as determined in FEMA's Post Exercise Assessment dated April 14, 1983 no longer exist; or
- (2) The licensees demonstrate to the satisfaction of the Commission in accordance with 10 CFR 50.54(s) (2) (ii) that:
 - (a) adequate interim compensating actions have been or will be taken promptly, or
 - (b) the deficiencies identified by FEMA as significant are not significant, or
 - (c) other compelling reasons exist to permit operation of the facility, or
 - (d) there are other factors justifying continued operation.

It is so ORDERED.

For the Commission

John Hoyle
Acting Secretary to
the Commission

Dated at Washington, D.C.
this 5th day of May, 1983.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket No. 70-143
(SNM License No. 124)

NUCLEAR FUEL SERVICES, INC.
Erwin, Tennessee

May 11, 1983

On joint motion of the parties, the Commission approves the parties' amended settlement agreement in this materials license amendment proceeding, directs the NRC staff to implement the agreement to the extent of its authority to do so, and orders the proceeding held in abeyance.

ORDER APPROVING SETTLEMENT

Upon joint motion of the parties, the Commission approves the amended agreement of settlement entitled "Joint Motion to Suspend Proceeding" dated April 6, 1983, directs the staff to implement such agreement insofar as it lies within its authority to do so, and holds this proceeding in abeyance.

Commissioners Ahearne and Roberts dissent from this order. Their separate views are attached.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.
this 11th day of May, 1983.

DISSENTING VIEWS OF COMMISSIONER AHEARNE

I opposed this settlement for two reasons:

- (1) The NRC Lumb reports show clearly that the use of recycle is the correct regulatory approach for this type facility. The settlement renounces recycle and, therefore, is incorrect.
- (2) The NRC staff has concluded the use of the military functions exemption is inappropriate. I believe it is appropriate to the extent the Administrative Procedure Act applies.¹

VIEWS OF COMMISSIONER ROBERTS

I agree with Commissioner Ahearne. However, had there been only two other votes I would have voted to approve the settlement.

¹ Cf. *West Chicagov. NRC*, 701 F.2d 632 (7th Cir. 1983).

ATTACHMENT TO CLI-83-12

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

BEFORE THE COMMISSION

In the Matter of

**Docket No. 70-143
(SNM License No. 124)**

**NUCLEAR FUEL SERVICES, INC.
Erwin, Tennessee**

JOINT MOTION TO SUSPEND THE PROCEEDING

The parties jointly submit the following amended agreement for review and approval by the Commission. This agreement is substituted for the agreement filed earlier today.

The parties to this proceeding jointly agree that:

1. Beginning with the first inventory period commencing after Commission approval of this agreement, and for the period of time thereafter required to obtain six consecutive inventory difference values corresponding to six inventory periods, the licensee shall comply with the requirements contained in paragraphs 7, 8 and 9. For each of these periods, the sum identified in paragraph 9(c) shall not exceed 1050 kg of U-235.
2. After obtaining six unbiased inventory difference values specified in paragraph 1 above, the licensee shall determine the mean and standard deviation of those six values. If the absolute value of the mean plus two times the standard deviation is less than 7.31 kg of U-235, and if the licensee has had no reinventories during the period, then the requirements of paragraph 3 shall be effective.

*Standard deviation shall be defined as: $\left[\frac{\sum (ID_i - ID)^2}{h - 1} \right]^{1/2}$

3. If the requirements in paragraph 2 above are met (*i.e.*, both conditions are met), then for a period of time thereafter to obtain six consecutive inventory difference values corresponding to six inventory periods, the licensee shall comply with the requirements contained in paragraphs 7, 8 and 9. For each of these periods, the sum identified in paragraph 9(c) shall not exceed 975 kg of U-235.
4. After obtaining six unbiased inventory difference values specified in paragraph 3 above, the licensee shall determine the mean and standard deviation of those six values. If the absolute value of the mean, plus two times the standard deviation, is less than 6.75 kg of U-235, and if the licensee has had no reinventories during that period, then the requirements of paragraph 5 shall be effective.
5. If the requirements in paragraph 4 above are met (*i.e.*, both conditions are met), then the licensee shall thereafter comply with the requirements contained in paragraphs 7, 8 and 9 with the following changes:
 - a. the third definition of throughput (paragraph 9(c)) is deleted;
 - b. the minimum 5 kg limit for reinventory is deleted (paragraph 7).
 - c. the limits for shutdown (paragraph 8) apply to both gains and losses, rather than just to losses.
6. For purposes of determining whether the requirements of paragraphs 2 and 4 are met if a reinventory occurs, the excessive inventory difference which triggered the reinventory shall be resolved to the extent acceptable by the Director, NMSS, and the adjusted value used to determine whether the requirements of paragraphs 2 and 4 are met.
7. The licensee shall immediately reinventory the SNM in the licensed activity whenever the unbiased inventory difference exceeds 0.75% of throughput as defined in paragraph 9, and 5 kg of U-235.
8. Whenever an unbiased inventory difference exceeds 1% of throughput as defined in paragraph 9, and represents a loss, the licensee shall, within 24 hours, (i) cease UF_6 input and cease UFS input, (ii) cease semi-finished fuel input to the finishing operation, and (iii) initiate an inventory of all HEU on hand. The ceased activities will remain in shutdown until, (i) the ID for the interval under investigation plus the ID occurring for the operating interval between the ending inventory and static reinventory is within 0.75% of the combined throughput for these intervals, or (ii) the Regional Administrator approves startup in writing.

9. For the purposes of ascertaining whether a reinventory is required, throughput will be defined as the greatest of:
 - a. Additions to the process;
 - b. Removals from the process;
 - c. The sum of the amount of either a or b above, and the net recycled material (*i.e.*, that material from the scrap recovery plant and rejected semi-finished material which was returned to the semi-finishing process during the period). This sum shall not exceed the maximum values specified in the agreement among the parties.
10. Immediately upon the effectiveness of the requirements in paragraph 5, this proceeding shall terminate. The Director, NMSS, shall notify the Commission that the requirements of paragraph 5 have been met and the Commission shall terminate this proceeding by order.
11. If either paragraphs 3 or 5 above do not become effective, this proceeding shall be immediately reactivated without prejudice to NRDC. The Commission will issue a Notice of Reopened Hearing within 60 days after receipt of a motion to reopen submitted by a party. The Commission notice will set a hearing date and recognize that the application of the military functions rule is an issue.
12. If this proceeding is reactivated, the parties agree that NRDC and DOE have not waived or prejudiced any legal or factual claims that they may make before the Commission or on judicial review.
13. In the event this proceeding is reactivated, the NRDC and the NRC staff recommend that the application of the military functions exemption be reconsidered by the Commission. The NRC staff and the NRDC believe that it is neither necessary nor appropriate to apply the military functions exemption to the NFS-Erwin facility. The NRDC and NRC staff also are in accord that the NFS-Erwin facility be treated in future hearings, in both substance and procedure, in the same manner as other material licensees. The Department of Energy does not agree that the military function exemption should not apply to the NFS-Erwin facility and reserves its right to so maintain in any reopened proceeding, or in any future proceeding.
14. NRC reserves the right to further strengthen the material control and accounting and physical security requirements for SNM License 124, NFS-Erwin, in accordance with new generic requirements or otherwise, but the requirements will not otherwise be changed except as provided in paragraphs 1-9 above.

15. NRC agrees to provide NRDC with the data on inventory differences at NFS-Erwin as it is collected during the next 12 periods so that NRDC may evaluate the performance of NFS-Erwin.
16. This agreement will be effective upon approval by the Commission, if the approval is given within 60 days of its submittal.

On the basis of the above agreement the undersigned parties hereby jointly request the Commission to (i) cancel the oral session scheduled for April 7, 1983, and hold the proceeding in abeyance, (ii) approve and adopt the above agreement, and (iii) issue an order requiring the NRC staff to implement the agreement.

Respectfully submitted for
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For the Nuclear Regulatory
Commission Staff

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

No. 50-322-OL

LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station,
Unit 1)

May 12, 1983

On consideration of the referral by the Appeal Panel Chairman of the Licensing Board's April 20, 1983 order (LBP-83-22, 17 NRC 608) denying the Suffolk County's motion to terminate as a matter of law this operating license proceeding for lack of a County emergency response plan, the Commission rules that the Licensing Board has the authority and the obligation to consider a utility-prepared offsite emergency response plan submitted in the absence of state and local government-approved plans.

**EMERGENCY PLANS: STATE AND LOCAL GOVERNMENT
PLANS (UTILITY PLAN AS SUBSTITUTE)**

The NRC is obligated to consider a utility-prepared offsite emergency plan submitted in the absence of state and local government-approved plans, and has the ultimate authority to determine whether such a submission is sufficient to meet the prerequisites for the issuance of an operating license. 10 CFR §50.47(c)(1); Section 5, Pub. L. No. 97-415, 96 Stat. 2067 (1983).

MEMORANDUM AND ORDER

By order dated April 20, 1983, the Atomic Safety and Licensing Board conducting the operating license proceeding for the Shoreham Nuclear Power Station denied a motion filed by Suffolk County on February 23, 1983, asking the Board to terminate the proceeding.¹ *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-83-22, 17 NRC 608 (1983). The predicate for the County's motion was the passage of Resolution No. 111-1983 by the County Legislature on February 17, 1983, in which the Legislature declared that the County would not adopt or implement a local radiological emergency plan for response to any accident at the Shoreham facility. The Licensing Board's order followed a series of filings before the Board in which Suffolk County, the Shoreham Opponents Coalition, the North Shore Committee Against Nuclear and Thermal Pollution, the Town of Southampton, the New York State Attorney General, the Chairman of the New York State Disaster Preparedness Commission, applicant Long Island Lighting Company (LILCO), and the NRC staff discussed whether the County's determination requires, as a matter of law, that the licensing proceeding be terminated.

In a companion order to its decision on the merits of the County's termination motion, pursuant to 10 CFR §§2.780(f) and 2.785(b)(1), the Licensing Board referred its ruling to the Atomic Safety and Licensing Appeal Panel for interlocutory review. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-83-21, 17 NRC 593 (1983). Subsequently, by order dated April 26, 1983 (unpublished), the Appeal Board referred the Licensing Board's order to the Commission for its consideration.

After a careful review of the filings before the Licensing Board and the Board's order, the Commission has determined to exercise its discretion and accept the referral in this instance.²

With regard to the merits of the issues discussed in the Licensing Board's order, the Commission finds that sections IIA and IIB of the Board's decision correctly analyze the question of whether the agency can consider a utility offsite emergency plan under its regulations, 10 CFR §50.47(c)(1), and the statutory authority afforded by section 5 of NRC's Fiscal Year

¹ It seems apparent that the motion Suffolk County filed is analogous to a motion for summary disposition. See 10 CFR §2.749.

² Because the legal issues involved in the County's motion have been fully aired, the Commission believes it would not be a useful expenditure of the parties' time and resources to brief those questions further and, accordingly, is not requesting any additional submissions.

1982-83 Authorization Act, Pub. L. No. 97-415, 96 Stat. 2067 (1983).³ Indeed, as we read the applicable regulations, we are not only authorized but also obligated to at least consider any proffered utility offsite emergency plan. Further, while there may well be serious issues of federal preemption involved in the current offsite emergency planning controversy, we find it unnecessary to reach such issues at this time because, as we read the applicable regulatory provisions, the agency is obligated to consider a utility plan submitted in the absence of State and local government-approved plans and has the ultimate authority to determine whether such a submission is sufficient to meet the prerequisites for the issuance of an operating license. Accordingly, we express no opinion concerning the validity of the Board's reasoning expressed in section IIC of its opinion.

It is apparent that the utility's submission of a plan for agency consideration under 10 CFR §50.47(c)(1) is but the first step in resolving the emergency planning controversy now before the Licensing Board. We intend for that plan to be examined by the Federal Emergency Management Agency, the NRC staff, and ultimately the Licensing Board in the pending Shoreham adjudication in which the licensee will bear the burden of showing that its plan can meet all applicable regulatory standards. We express no opinion at this juncture whether it will be possible for the utility to meet this burden; there is no evidentiary record before us upon which to provide any such opinion. That record should be compiled, in the first instance, by the Licensing Board, subject to later appellate review by the Atomic Safety and Licensing Appeal Panel and the Commission.

Thus, having determined correctly its authority to consider a utility offsite emergency plan, the Board should now proceed as it outlined in section III of its opinion.⁴

³ The Appeal Board's April 26 order notes that in its response to Question 7 from the Subcommittee on Nuclear Regulation of the Senate Committee on Environment and Public Works, which was submitted to the Subcommittee on April 14 and placed in the public record at a hearing on April 15, the Commission indicated that under NRC regulations and the NRC's Fiscal Year 1982-83 Authorization Act the agency could consider a utility offsite emergency plan. This Commission response was based on its independent assessment of the legal issues presented by the Committee's question. While the Licensing Board was not aware of this response, see Licensing Board Memorandum Serving Excerpts from Commission Testimony Before Congress, at 2 (Apr. 26, 1983), as is indicated herein, the Licensing Board analysis of the issue is consistent with that of the Commission. Moreover, in connection with this referral, the Commission, after careful consideration of the parties' filings and the Licensing Board's decision, has reviewed its previous response to the Subcommittee and has concluded that the response is a correct statement of the agency's legal authority.

⁴ As part of its referral order, the Licensing Board also certified to the Commission, through the Appeal Board, the question of whether it would be appropriate in this instance to issue a low-power operating license for the Shoreham facility. In its April 26 order, the Appeal Board indicated that it was passing this question on to the Commission. The Commission has not decided yet whether to accept the certified question.

Commissioner Gilinsky abstains from this decision. His separate views are attached.

It is so ORDERED.⁵

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 12th day of May, 1983.

COMMISSIONER GILINSKY'S SEPARATE VIEWS (SHOREHAM OFFSITE EMERGENCY PREPAREDNESS)

I have abstained, not because I disagree with the Licensing Board's legal conclusion — that the Commission can consider the utility's plan even in the absence of any State or local government participation — but because the Commission has failed to deal with the actual issue in this case. That is: Can there be adequate emergency preparedness (as distinct from planning) if neither the State nor the County Governments will participate?

The answer is clearly, No. There cannot be adequate emergency preparedness for the surrounding population without the participation of a responsible government entity. And, however they may qualify their views now, I do not believe that a single Commissioner would actually approve the operation of the plant without such participation. Unfortunately, the Commissioners appear to think that holding out the possibility that they will approve the utility's plan will encourage the parties to this case to settle their disputes. The opposite is true. Whatever the chances of settlement might be, they would be enhanced, rather than diminished, if the parties knew where the Commission actually stands on this ultimate question.

⁵ Commissioner Gilinsky was not present when this Order was approved but had previously indicated that he would abstain.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gilinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matters of

PHILADELPHIA ELECTRIC COMPANY, <i>et al.</i> (Peach Bottom Atomic Power Station, Units 2 and 3)	Docket Nos. 50-277 50-278
METROPOLITAN EDISON COMPANY, <i>et al.</i> (Three Mile Island Nuclear Station, Unit No. 2)	Docket No. 50-320
PUBLIC SERVICE ELECTRIC AND GAS COMPANY (Hope Creek Generating Station, Units 1 and 2)	Docket Nos. 50-354 50-355 May 27, 1983

The Commission decides to hold in abeyance its disposition of a petition seeking review of the Appeal Board's decision (ALAB-701, 16 NRC 1517 (1982)) (concerning the significance to be accorded uranium fuel cycle radon releases in reactor licensing decisions) until it completes its generic assessment of the current uranium mill tailings regulations in 10 CFR Part 40, Appendix A, and any rulemaking which may follow.

MEMORANDUM AND ORDER

The *Peach Bottom-Three Mile Island* intervenors in these consolidated proceedings have filed a petition seeking our review of a recent Appeal Board decision which concerns the weight of health effects of uranium fuel cycle radon releases in the environmental cost-benefit balance of the power reactors under consideration in these licensing proceedings. ALAB-701, 16 NRC 1517 (1982). For the reasons discussed below, the Commission has decided to hold the decision in ALAB-701 in abeyance until the completion of the Commission's current review of the requirements for uranium mill tailings piles and of any rulemaking which may be necessary to conform the Commission's requirements to EPA's standards.

ALAB-701 is the last decision in a long line of Appeal Board decisions which have evolved from the Commission's deletion of the value for radon-222 from Table S-3.¹ The procedural and decisional history of the radon issue in these consolidated proceedings has been well documented by the Appeal Board in several of its decisions. *See, e.g.*, ALAB-701, 16 NRC 1519-22; ALAB-640, 13 NRC 487, 490-93 (1981). In ALAB-640, the Appeal Board determined the amount of radon which would be released in the mining and milling of the uranium necessary to provide fuel for a typical reactor. Consideration of the health effects from those radon emissions was deferred.² In ALAB-701, the Appeal Board decided the radon health effects issue. It concluded that the "record establishes without contradiction that the radon contribution of the uranium fuel cycle is a minute fraction of the radon that is released into the atmosphere from other sources — so minute, indeed, that that contribution is not even detectable." ALAB-701 at 1524. The Appeal Board found that the "long-term radon release rate associated with a single reactor stands in relation to natural releases roughly in the range of from one part in 10,000 to one part in 100,000." *Id.* at 1526. Comparing the incremental increase attributable to the uranium fuel cycle with naturally occurring radon emissions in the environment and wide fluctuations in natural background radon emissions, the Appeal Board

¹ Table S-3 is set forth in 10 CFR Part 51 and is entitled "Table of Uranium Fuel Cycle Environmental Data." These are the values to be assigned to the various environmental effects associated with the uranium fuel cycle and factored into the environmental cost-benefit analyses which support reactor licensing decisions. *See* 10 CFR §51.33(c). In 1978, the Commission determined that the radon value in Table S-3 was erroneous and must be deleted. Instead of electing at that time to put an amended value in the rule, the Commission decided instead that radon impacts could be determined in each individual licensing proceeding. *See* 48 Fed. Reg. 15613 (April 14, 1978). The licensing proceedings pending before the Appeal Boards have been consolidated into this proceeding for purposes of determining the amount and significance of radon releases associated with the mining and milling of uranium ore for fueling a typical light water reactor.

² No party sought review of ALAB-640 and the Commission declined to review it on its own. Thereafter, the Appeal Board established procedures for further consideration of the health effects aspect of the radon issue. ALAB-654, 14 NRC 632 (1981).

determined that the “*incremental* health risk to the population stemming from the fuel cycle emissions (if indeed there is any) is vanishingly small.” *Id.* at 1528. Thus, it concluded that the health risk is negligible and of insufficient magnitude to alter cost-benefit balances which have been found to justify the licensing of facility operation. *Id.* at 1527. This line of reasoning whereby fuel cycle radon releases are held to be insignificant because they are small compared to natural background radon has been called the “*de minimis* approach.”

The petition for review has generally alleged that the Appeal Board erred in adopting the *de minimis* approach to conclude that the uranium fuel cycle radon emissions were negligible when compared to naturally occurring radon emissions.³

Although not contesting that the radon contribution from the uranium fuel cycle is much smaller than natural background or even fluctuations in the natural background radon emissions, the intervenors assert that such a comparison to natural background levels is irrelevant to the required cost-benefit analysis.⁴ Intervenors contend that the discrete, incremental and cumulative health impacts from uranium fuel cycle radon emissions must be considered. Accordingly, by their argument a very small incremental impact per year, when summed over the entire population exposed during the hundreds of thousands of years that radon in excess of natural amounts continues to emanate from uncovered mill tailings piles, would result in extremely large total numbers of cancer-induced fatalities. These fatalities, the argument concludes, necessarily tip the cost-benefit balance against operation of each of the reactors in question.

The Commission believes that the arguments presented in ALAB-701 and the petition for review highlight the serious consideration which must be given to the radon health effects issue. In the context of this issue, careful scrutiny must be given to the questions of (a) whether the significance

³ It is difficult to discern specific allegations of error because the petition for review did not set forth a concise statement as to what action in ALAB-701 is erroneous and why review is sought, as required by 10 CFR §2.786(b)(2). The petition for review also alleged that the Appeal Board erred in finding intervenors' witness, Dr. Chauncey Kepford, unqualified as an expert to testify on the health effects of radon. In support of this allegation, the intervenors submitted a supplemental affidavit by Dr. Kepford which purported to furnish further details concerning his education and work experience. This attempt to bolster or enlarge the record on appeal by a supplemental affidavit must be denied. See *Toledo Edison Co.* (Davis-Besse Nuclear Power Station, Units 1, 2 and 3), ALAB-430, 6 NRC457 (1977). Other parties in a proceeding must be given a reasonable opportunity to probe or rebut all evidence submitted concerning matters in controversy, including the qualifications of a potential witness. With respect to the allegation that the Appeal Board erred in finding Dr. Kepford not qualified to testify on radon health effects, we defer consideration of that allegation until our final resolution of the radon health effects issue after completion of the rulemaking on uranium mill tailings requirements.

⁴ For instance, intervenors argue that the cost-benefit analysis should only compare the health consequences of the viable energy options, e.g., coal and nuclear, and that the health consequences attributable to natural radon would be the same in each comparison and, hence, irrelevant to a choice between alternatives.

of nuclear fuel cycle risks can be determined solely by a comparison to other risks which individuals are subjected to on a daily basis as part of normal living habits and activities, and (b) whether it is meaningful to sum very small annual impacts on the general population far into the future and, if so, how can the acceptability of the potential accumulated impacts be judged. Furthermore, it is not clear that the public is being adequately protected from direct contact with particulate matter from the tailings piles which might be transported by means such as winds to both the public living nearby and at some distance from the pile. Additional study is needed for the health effects associated with the blowing of tailings from the piles, and this study should also address the meteorological conditions which might result in dispersal of tailings over great distance. The rulemaking analyses of EPA and NRC should address this potential problem. In addition, with respect to deterrents which are needed to protect against the potential misuse of mill tailings, an institutional control issue appears to be posed (e.g., fences v. heavy ground cover). The relative merits of various approaches for long-term protection against misuse need to be appraised.

The *de minimis* principle as well as the blowing and misuse problems discussed above as applied to radon health effects are issues which the Commission intends to address in an ongoing reassessment of the Commission's final rule on Uranium Mill Licensing Requirements (45 Fed. Reg. 66521, *et seq.* (1980)). These mill tailings regulations are set forth in 10 CFR Part 40, Appendix A, and were promulgated under the authority provided by the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA). Because the long-term radon releases considered in ALAB-701 come in substantial measure from uranium mill tailings piles, the amount and significance of those releases is related to the stringency of the control measures which the Commission imposes on those piles. Conversely, the degree of control which should be imposed on tailings piles depends in part on the potential health and environmental significance of the radon which piles would release if uncontrolled. Thus, review of the issues addressed in ALAB-701 is closely connected to consideration of the rationale supporting regulation of uranium mill tailings piles.

Regulation of uranium mill tailings piles has proved to be a controversial subject. The Commission's regulations are now being challenged in the U.S. Court of Appeals, 10th Circuit. *Kerr-McGee Nuclear Corporation v. United States Nuclear Regulatory Commission*, No. 80-2043. In addition, the NRC is currently considering a petition for rulemaking filed by the Union Carbide Corporation on September 29, 1982, to reconsider and revise the mill tailings regulations.

On January 4, 1983, UMTRCA was amended by Public Law 97-415, the Commission's Authorization Act of 1982 and 1983, and Public Law

97-377, the NRC continuing resolution governing appropriations. The continuing resolution can be interpreted as prohibiting the NRC from spending funds to implement or enforce the mill tailings regulations until October 1, 1983 without explicit authorization from the appropriation committees. The Authorization Act directs the United States Environmental Protection Agency (EPA) to promulgate final active site mill tailings standards by October 1, 1983. Otherwise, the EPA's authority to do so terminates and the NRC is then vested with authority to establish standards. Upon promulgation of standards by EPA, NRC is directed to conform its regulations to those standards. In addition, it should be noted that on December 18, 1982, EPA issued its final standards for inactive tailings piles. 48 Fed. Reg. 590 (January 5, 1983).

In light of these developments regarding the regulations, the Commission directed the NRC staff to form a task force to explore options concerning the regulations, particularly looking at the health and safety objectives the changes would be intended to satisfy. Additionally, the costs and benefits of the options will be analyzed. This review may result in recommendations to modify the existing provisions of the Commission's regulations. In addition, in accordance with the statutory requirements, the NRC staff will commence a rulemaking proceeding upon publication before the statutory deadline of the final EPA standards for active tailings piles if amendments are needed to bring NRC mill tailings regulations into conformity with the EPA standards, with completion scheduled for six months thereafter. The NRC task force efforts will include an analysis of the Generic Environmental Impact Statement (GEIS) on Uranium Milling (NUREG-0706) developed by the staff to support the regulations. The GEIS must provide a reasonable foundation for any changes to the regulations, and a supplemental EIS may be prepared if necessary.

The Commission believes that a decision whether or not to review ALAB-701 should await the conclusion of these generic reviews of the mill tailings regulations. The Commission recognizes that this present emphasis on rulemaking rather than adjudicatory proceedings represents a change from the policy which originally led to the consolidated radon proceeding but believes this change is warranted by subsequent events. In 1978, when the Commission directed that the magnitude and significance of fuel cycle radon releases should be litigated in individual reactor licensing proceedings, there had been no extensive generic rulemaking addressing those issues. The Commission believed that licensing boards might have differing perspectives that would be useful in the subsequent development of a generic rule. As it turned out, the licensing boards tended uniformly to favor the *de minimis* approach which the Appeal Board has now affirmed in ALAB-701.

The individual proceedings took longer than the Commission had anticipated. While a resolution of the radon issue by the licensing and appeal boards was pending it became necessary, after enactment of UMTRCA, to proceed with a generic rulemaking on the related matter of how uranium mill tailings should be disposed of, a question which also required an inquiry into the impact and significance of tailings pile radon releases. In that rulemaking the Commission concluded that requirements for stabilization and control of tailings piles are justified in part by the reduction in radon releases which such measures would achieve. *See* GEIS, NUREG-0706. At the same time, the Commission noted that the Appeal Board in these consolidated proceedings was addressing the environmental significance of tailings pile radon releases. The Commission stated that the Appeal Board remained free to continue its own evaluation based on the adjudicatory record, noting that any Appeal Board findings inconsistent with the record underlying the mill tailings regulations could be later examined by the Commission with a view toward either modifying the Appeal Board decision or amending the regulations. *See* 45 Fed. Reg. 65521 at 65522-23 (October 3, 1980).

The Appeal Board's conclusion in ALAB-701 that tailings pile radon releases are environmentally insignificant appears inconsistent with a requirement for expensive control measures to reduce radon releases, unless there are sufficient benefits independent of reducing radon releases to justify those measures, such as mitigation of other significant tailings pile hazards or compliance with a legislative mandate for tailings control which reflects public policy considerations. Accordingly, the Commission must consider whether the regulations or their underlying rationale needs to be modified in view of ALAB-701 or whether ALAB-701 might require modifications.

Since the Commission has already determined to open a reassessment of the mill tailings regulations, as discussed above, the appropriate course is to address the relation between ALAB-701 and the mill tailings regulations as part of that reconsideration. Changes to the uranium mill tailings regulations must necessarily consider the health effects of radon. If, as appears likely, reconsideration of the regulations leads to proposed amendments, the rulemaking proceeding may provide additional information beyond that available to the Commission based upon a review of this consolidated licensing proceeding. In the rulemaking proceeding the Commission could consider all appropriate new information, studies, and opinions on the subject, including the EPA studies underlying their standards for active and inactive tailings piles and any public comments. On the other hand, the Commission's consideration of this issue in the context of the consolidated licensing proceeding would be limited to studies and opinions developed on

the record by parties in that proceeding. We believe that the rulemaking proceeding will likely produce a broader assessment to aid in our deliberations.

Accordingly, the Commission holds in abeyance its decision whether or not to review ALAB-701 pending a determination whether to initiate a further rulemaking to amend the mill tailings regulations and, if such a rulemaking is initiated, pending its conclusion. This action would stay the decision in ALAB-701 and, accordingly, licensing boards should continue to defer consideration of radon issues and appropriately condition licenses pending a final decision of the status of ALAB-701 after a determination regarding rulemaking as described above. In any such rulemaking, the Commission expects to consider, and public comment will be solicited on, the *de minimis* approach of ALAB-701 as well as the potential effects of blowing of tailings and possible misuse. The Commission expects that a decision whether to propose amendments to the mill tailings regulation will be made before the end of 1983, in view of the deadlines established by the Authorization Act.

We recognize that this deferral action places yet another delay in the resolution of this long-outstanding radon matter with respect to reactor licensing. The delay can largely be attributed to the difficulty of the issues involved. The Commission has concluded that this further deferral does not involve significant health or environmental risks. Based upon the information developed in this proceeding and in the staff's GEIS, it does not seem that any radon hazard associated with continued construction or continued operation of reactors could be significant during the period while the Commission continues to consider the radon question. The short term releases of radon from mill tailings generated over that period will be small and of negligible risk. Nor does there appear to be any irrevocable long term commitment, since long term releases can be reduced or virtually eliminated, if necessary, by adequate covering over the tailings piles or other control measures. Accordingly, the Commission has concluded that licenses can be issued and remain in effect, conditioned on the outcome of the consideration discussed in the memorandum and order. When reassessment of the mill tailings regulations has been completed, the Commission will consider the appropriate disposition of ALAB-701 and the significance to be accorded to radon in cost-benefit analyses supporting reactor licensing decisions.

Therefore, based on the foregoing considerations, the Commission has determined to hold in abeyance its decision whether or not to review ALAB-701.

Commissioners Ahearne and Roberts dissent from this Order. Their separate views are attached.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 27th day of May, 1983.

SEPARATE STATEMENT OF COMMISSIONER AHEARNE

I do not agree with the Commission's decision to hold ALAB-701 in abeyance. I agree with the Appeal Board's conclusion in ALAB-701 that the fuel cycle related radon emissions are small compared to background and that, in the absence of direct contact with the particulate matter in the tailings, these emissions result in negligible health risks for the general public including persons living near the tailings pile.

I also agree that ALAB-701 is not the last word on the potential health risks associated with mill tailings. I am concerned with the potential health hazards to people living in the immediate vicinity of these piles and those who might in the future — absent any protection — live on the piles. Therefore, I would have the Commission take official notice of the Environmental Protection Agency's proposed standards for active uranium mill tailings, 48 Fed. Reg. 19584 (April 29, 1983), and the NRC's obligation to implement EPA's final standard. I would conclude that the NRC's implementation of EPA's standards for active uranium mill tailings would provide adequate protection from any environmental effects that could arise from living on or close to uranium mill tailings. Thus, I would have the Commission remove from individual reactor licensing proceedings the need to consider the contribution of radon releases from mining and milling of uranium to the environmental impact of the uranium fuel cycle.

SEPARATE VIEW OF COMMISSIONER ROBERTS

I do not concur in the Commission's Order in this proceeding because I believe that the rationale upon which the Appeal Board based its decision is

correct — that is, that fuel cycle radon releases should properly be compared to natural background radon — and that there is no need for the Commission to amplify that rationale in the course of reviewing this decision. I do not believe it is necessary to hold in abeyance Commission review of this decision pending action by the Environmental Protection Agency on its standards and any changes which might consequently be made in the NRC's uranium mill tailings regulations. Accordingly, I would deny the petition for review and would affirm ALAB-701.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Christine N. Kohl, Chairman
Gary J. Edles
Dr. Reginald L. Gotchy

In the Matter of

Docket Nos. 50-352-OL
50-353-OL

PHILADELPHIA ELECTRIC COMPANY
(Limerick Generating Station,
Units 1 and 2)

May 2, 1983

On consideration of a referred ruling by the Licensing Board that it lacked jurisdiction to act on a request to reopen the record in this operating license proceeding (LBP-83-25, 17 NRC 681), the Appeal Board determines that jurisdiction to rule on the request remains with the Licensing Board and remands the request for disposition on the merits.

RULES OF PRACTICE: JURISDICTION OF BOARDS

Jurisdiction to rule on a motion to reopen filed after exceptions have been taken to an initial decision rests with the Appeal Board rather than the Licensing Board. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-699, 16 NRC 1324, 1327 (1982).

RULES OF PRACTICE: JURISDICTION OF BOARDS

Until exceptions to an initial decision have been filed, jurisdiction to rule on a motion to reopen lies with the licensing board.

RULES OF PRACTICE: JURISDICTION OF BOARDS

Where no exceptions to an initial decision have been filed within the time allowed and the appeal board has neither completed its *sua sponte* review nor extended the time for doing so, jurisdiction to rule on a motion to reopen lies with the licensing board.

RULES OF PRACTICE: JURISDICTION OF BOARDS

Until exceptions are filed, there is literally no appeal to invoke appeal board jurisdiction (*see generally* 10 CFR §§2.762(a), 2.785) and, necessarily, an appeal board has no familiarity with the case.

RULES OF PRACTICE: JURISDICTION OF BOARDS

An NRC appeal board has broader powers than most appellate bodies. But neither the board's *sua sponte* review authority nor its power, in exceptional circumstances, to take evidence and make its own factual determinations enhances its knowledge of a proceeding *before* the proceeding reaches its docket or operates to give it jurisdiction over an initial decision immediately upon the initial decision's issuance.

MEMORANDUM AND ORDER

The Licensing Board, in a split decision, has referred to us the "Request for Late Filed Contention V-26" filed by intervenor Del-Aware Unlimited, Inc. The Board concluded that it lacks jurisdiction to rule on this matter. LBP-83-25, 17 NRC 681 (1983). We disagree and, accordingly, reverse and remand the matter to the Board with instructions to rule on the merits of Del-Aware's request.

On March 8, 1983, the Licensing Board issued a partial initial decision concerning the supplementary cooling water system contentions in this operating license proceeding. *See* LBP-83-11, 17 NRC 413. On the same day, but without knowledge of the concurrent issuance of that decision, Del-Aware deposited in the mail and thus served¹ its "Request for Late Filed Contention V-26" on the Licensing Board. The Board then solicited

¹ *See* 10 CFR §2.712(d)(3).

the views of the parties on the question of where jurisdiction lies to rule on Del-Aware's request (*i.e.*, the licensing or appeal board). Unpublished Memorandum and Order Directing Parties to Address Jurisdiction (March 17, 1983).² Both the applicant and the NRC staff argued that the Licensing Board has jurisdiction; Del-Aware did not respond.

We see no valid purpose to be served by an extended metaphysical discussion of when jurisdiction — like *seisin* — passes from a licensing board to an appeal board. Certainly, there are no Constitutional dimensions to this jurisdictional dispute, and the important consideration is that Del-Aware's request be ruled upon without undue delay. We thus briefly note our areas of agreement as well as disagreement with the Board.

First, we agree with the Board that Del-Aware's request should be treated as a motion to reopen the record. Construing it as a motion for reconsideration would make little sense, given that, at the time it was filed, Del-Aware was unaware that there was even a decision to reconsider. Del-Aware simply intended to have the record reopened for consideration of its new contention V-26 and any evidence related thereto, as contemplated by the Commission's regulations. See 10 CFR §2.718(j).

We also agree that neither Commission regulations nor case law provides any clear answer to the question raised by Del-Aware's request — *i.e.*, which adjudicatory body has jurisdiction to rule on a motion to reopen filed at the same time as or after issuance of an initial decision but before an appeal has been taken. Indeed, as the Board correctly notes, this is an issue we explicitly left open in *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-699, 16 NRC 1324, 1327 n.6 (1982).³ We part company with the Board majority, however, on the answer to that open question. We hold that, until exceptions to an initial decision have been filed, jurisdiction to rule on a motion to reopen resides with the licensing board.⁴ Similarly, where no exceptions have been filed within the time allowed and the appeal board has neither completed its *sua sponte* review nor

² The Board also directed the parties to address the merits of Del-Aware's request.

³ In *TMI-1 Restart*, we held that "jurisdiction to rule on a motion to reopen filed after exceptions have been taken . . . rests with the appeal board rather than the licensing board." 16 NRC at 1327 (footnote omitted).

⁴ We agree with the Board that whether those exceptions are to a partial initial decision on some issues, or to an initial decision on all issues, is not an important factor. Thus, as used in our holding and elsewhere in this opinion, "initial decision" encompasses "partial initial decision." We also attach little or no significance to the subject matter raised by such a motion to reopen — *i.e.*, whether it relates to issues already decided by the Board, still pending before it, or not previously raised at all.

There is also no consequence to the fact that Del-Aware timely filed exceptions to the Board's March 8 partial initial decision subsequent to the filing of its reopening motion. Those exceptions were apparently filed to preserve Del-Aware's appeal rights, a particularly prudent course given the procedural uncertainties involved here. (In an order entered March 25, 1983, we deferred briefing of Del-Aware's exceptions while its motion remains pending.) They do not serve to oust the Licensing Board of jurisdiction over the reopening motion.

extended the time for doing so, jurisdiction to rule on a motion to reopen lies with the licensing board.⁵

Given the absence of any clear administrative guidance on the matter, common sense and the realities of litigation dictate this result. As Judge Cole correctly points out in his dissenting statement, until exceptions are filed, the Licensing Board, by virtue of its extensive involvement with the case, is obviously better suited to rule in the first instance on the merits of a motion to reopen a record that provides the factual predicate for its own initial decision.⁶ But more importantly, until exceptions are filed, there is literally no appeal to invoke our jurisdiction (*see generally* 10 CFR §§2.762(a), 2.785) and, necessarily, we have no familiarity with the case.⁷ (In this sense, an appeal board is in the same posture as a court of appeals during the time between issuance of a trial court judgment or final agency order and the filing of the appeal or petition for review.) The Licensing Board correctly points out that NRC appeal boards have broader powers than most appellate bodies: we review initial decisions *sua sponte* (*see note 5, supra*), and in exceptional circumstances we can take evidence and make our own factual determinations. But neither of these powers enhances our knowledge of a proceeding *before* it reaches our docket or operates to give us jurisdiction over an initial decision immediately upon its issuance.⁸

In addition to taking advantage of the Licensing Board's greater familiarity with a case, our holding that the filing of exceptions triggers appeal board jurisdiction has other benefits. By fixing a time certain for the transfer of jurisdiction, the possibility of dual jurisdiction over the same issues is foreclosed. On the other hand, this approach has a certain amount of flexibility as well: where the filing of exceptions has preceded a motion to reopen and an appeal board is obliged to rule on the latter, it always has the

⁵ *See, e.g., South Carolina Electric & Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-694, 16 NRC 958, 961 & n.9 (1982); ALAB-710, 17 NRC 25, 26 n.3 (1983).

For a discussion of appeal board *sua sponte* review, *see Offshore Power Systems* (Manufacturing License for Floating Nuclear Power Plants), ALAB-689, 16 NRC 887, 890-91 & n.4 (1982). Generally, the appeal board either completes such review or extends the time for doing so within 45 days of issuance of an initial decision in a licensing proceeding. *See* 10 CFR §2.760(a).

⁶ The significance of familiarity with the case in ruling on a motion to reopen cannot be overstated. For one thing, it means that the motion will likely be ruled upon more quickly. Further, one of the criteria determining the disposition of such motions is whether a different result might have been reached if the new material had been considered previously. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980). Generally, the initial decisionmaker is in the best position to determine if that is the case.

⁷ In many instances, an appeal board is not even constituted until exceptions have been received.

⁸ In suggesting that an appeal board is familiar enough with a hearing record to be able to rule on a motion to reopen filed immediately after the initial decision, the Licensing Board gives great weight to the appeal board's *sua sponte* review responsibilities. LBP-83-25, *supra*, 17 NRC at 687-88, 689 (1983). Such weight is misplaced. *Sua sponte* review does not begin until the time for filing exceptions has expired and, in many cases, is deferred some months in view of the priority given bona fide appeals.

option of — in addition to granting or denying the motion — referring it to the licensing board below for action.⁹ Thus, attempts to “forum shop,” as envisioned by the Licensing Board, may prove futile.

The Licensing Board’s decision in LBP-83-25 is *reversed*, and Del-Aware’s “Request for Late Filed Contention V-26” is *remanded* to the Board for disposition on the merits.¹⁰

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

⁹ In such circumstances, the appeal board would likely defer briefing of the appeal so as to avoid piecemeal or concurrent review. This practice would be consistent with that of many federal appeals courts, where briefing of a petition for review of “final” agency action is deferred pending agency resolution of residual matters, such as a motion to reopen. *See Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-659, 14 NRC 983, 985 (1981).

¹⁰ Briefing of Del-Aware’s appeal (*see* note 4, *supra*) remains deferred until further order.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Stephen F. Eilperin
Howard A. Wilber

In the Matter of

Docket No. 50-358

**CINCINNATI GAS & ELECTRIC
COMPANY, *et al.***
**(Wm. H. Zimmer Nuclear Power
Station, Unit No. 1)**

May 2, 1983

The Appeal Board affirms, with certain modifications, the Licensing Board's initial decision (LBP-82-48, 15 NRC 1549) withholding authorization of a full-power operating license for Zimmer until applicants demonstrate adequate and implementable evacuation plans for schools nearby the plant site in the event of a serious plant emergency.

**EMERGENCY PLANS: REQUIREMENT FOR OPERATING
LICENSE**

Under Commission regulations, no operating license for a nuclear power reactor can issue unless the NRC finds that there is reasonable assurance that adequate protective measures both on and off the facility site can and will be taken in the event of a radiological emergency. 10 CFR 50.47(a) (1). With regard to the adequacy of offsite emergency measures, the NRC must "base its finding on a review of the Federal Emergency Management Agency (FEMA) findings and determinations as to whether State and local emergency plans are adequate and whether there is reasonable assurance that they can be implemented." 10 CFR 50.47(a) (2).

EMERGENCY PLANS: EMERGENCY PLANNING ZONES

The Commission's regulatory scheme for offsite emergency response plans contemplates the establishment, for planning purposes, of two emergency planning zones: a plume exposure pathway EPZ, a more or less circular area extending approximately ten miles from the plant, and an ingestion exposure pathway EPZ, a similarly shaped area with a fifty mile radius. The former is concerned principally with the avoidance in the event of a nuclear facility accident of whole body external exposure and inhalation exposure from passing radioactive plume, while the latter is concerned with avoiding exposure traceable to contaminated water or foods. *See* 10 CFR 50.47 and Part 50, Appendix E. *See also* "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0654/FEMA-REP-1, Rev. 1 (November 1980); and "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants," NUREG-0396/EPA 520/1-78-016 (December 1978).

EMERGENCY PLANS: EMERGENCY PLANNING ZONES

The precise area for each type of EPZ is determined on a case-by-case basis in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries. 10 CFR 50.33(g) and Part 50, Appendix E, n.2.

EMERGENCY PLANS: CONTENT (PROTECTIVE MEASURES)

Emergency plans must provide for a variety of protective measures including sheltering, evacuation and the possible use of blocking agents such as potassium iodide — the overall objective being the avoidance of as much radiation exposure as possible.

EMERGENCY PLANS: CONTENT (NOTIFICATION)

Under 10 CFR Part 50, Appendix E, Section IV.D.3, a licensee must have the capability to notify responsible state and local governmental agencies within 15 minutes after declaring an emergency. The state and local agencies, in turn, must have the capability to make a public notification decision promptly on being informed by the licensee of an emergency

condition. The design objective of the prompt public notification system calls for completion of initial notification of the public within the plume EPZ within about 15 minutes of the local government officials' receipt of notification of an emergency requiring urgent action.

EMERGENCY PLANS: CONTENT (SUFFICIENCY)

Emergency response plans for a particular nuclear power plant need not be in final form at the time an application is noticed for hearing. 10 CFR Part 50, Appendix IV, Section III. Not any plan, however, no matter how skeletal, will suffice at this stage. The plans submitted must include a description of their contents "to an extent *sufficient to demonstrate* that the plans provide reasonable assurance that adequate protective measures can and will be taken in the event of an emergency." 10 CFR Part 50, Appendix E, Section III (emphasis supplied). *See also Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-717, 17 NRC 346, 380 fn. 57 (1983).

EMERGENCY PLANS: CONTENT (EVACUATION)

The Commission's emergency planning requirements do not prescribe specific time limits governing the evacuation of plume EPZs. The matter of the time within which evacuation can be accomplished is left to be determined on a case-by-case basis upon consideration of all relevant conditions prevailing in the specific locality.

EMERGENCY PLANS: CONTENT (EVACUATION)

An evacuation plan must be concerned with the *efficiency* with which evacuation might be accomplished given the conditions under which it must take place. If the responsible governmental officials are to make an informed decision respecting what is appropriate protective action in a given radiological emergency, they must have available to them time estimates that are realistic appraisals of the minimum period in which, in light of existing local conditions, evacuation could be reasonably accomplished.

EMERGENCY PLANS: OBJECTIVE

The basic goal of emergency planning is achievement of maximum dose savings in a radiological emergency.

EMERGENCY PLANS: CONTENT (SUFFICIENCY)

At the operating license hearing stage, emergency response plans for a nuclear plant need not necessarily be complete in all their details, but they must be at least sufficiently developed for the Licensing Board to be able to conclude that the state of emergency preparedness provides "reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." 10 CFR 50.47(a)(1). *See also San Onofre, ALAB-717, supra, 17 NRC at 380 fn. 57.*

EMERGENCY PLANNING: FEMA VIEWS (NEED FOR LICENSING DECISION)

10 CFR 50.47(a)(2) does not require deferment of any hearing on State and local government emergency response plans to await FEMA's issuance of final findings on those plans. Rather, what that Section contemplates is a licensing decision based on the best available current information on emergency preparedness. *San Onofre, ALAB-717, supra, 17 NRC at 379-80.*

APPEARANCES

Mark J. Wetterhahn, Washington, D.C. (with whom **Troy B. Conner, Jr.** and **Robert M. Rader**, Washington, D.C., and **William J. Moran** and **Jerome A. Vennemann**, Cincinnati, Ohio, were on the brief) for applicants Cincinnati Gas & Electric Company, *et al.*

Deborah Faber Webb, Alexandria, Kentucky, for the City of Mentor, Kentucky.

Andrew B. Dennison, Batavia, Ohio, for intervenors Zimmer Area Citizens — Zimmer Area Citizens of Kentucky.

Charles A. Barth for the Nuclear Regulatory Commission staff.

DECISION

The applicants, Cincinnati Gas & Electric Co., Columbus & Southern Ohio Electric Co. and Dayton Power & Light Co., have appealed from a

June 21, 1982 Licensing Board initial decision which precludes the NRC staff from issuing at this time a full power operating license for the William H. Zimmer Nuclear Power Station.¹ Insofar as here relevant, the Board determined that the offsite emergency response plans for the plant fail to provide adequately for the evacuation of nearby schools surrounding the plant site. The Board ordered additional hearings to follow the final assessment by the Federal Emergency Management Agency (FEMA) of the adequacy of revised emergency plans. For the reasons detailed below, we affirm the decision with certain modifications.²

I. REGULATORY SCHEME FOR EMERGENCY PLANNING

Under Commission regulations, no operating license for a nuclear power reactor can issue unless the NRC finds that there is reasonable assurance that adequate protective measures both on and off the facility site can and will be taken in the event of a radiological emergency. 10 CFR 50.47(a)(1). With regard to the adequacy of offsite emergency measures, the NRC must "base its finding on a review of the Federal Emergency Management Agency (FEMA) findings and determinations as to whether State and local emergency plans are adequate and whether there is reasonable assurance that they can be implemented." 10 CFR 50.47(a)(2).³

Central to the development of offsite emergency response plans is the concept of emergency planning zones (EPZ).⁴ The regulatory scheme contemplates the establishment, for planning purposes, of two such zones: a

¹ LBP-82-48, 15 NRC 1549. The Board denied applicants' motion for reconsideration and clarification except as to one matter not in issue on this appeal (*i.e.*, the conditional authorization of a fuel loading and low power operations license). LBP-82-68, 16 NRC 741 (1982).

² On November 12, 1982, the Commission ordered the immediate suspension of safety-related construction work on the plant (CLI-82-33, 16 NRC 1489). The suspension order continues in effect. Until it is lifted, the plant will remain unfinished and inoperable.

³ Section 50.47(a)(2) reads in full as follows:

(2) The NRC will base its finding on a review of the Federal Emergency Management Agency (FEMA) findings and determinations as to whether State and local emergency plans are adequate and whether there is reasonable assurance that they can be implemented, and on the NRC assessment as to whether the applicant's onsite emergency plans are adequate and whether there is reasonable assurance that they can be implemented. A FEMA finding will primarily be based on a review of the plans. Any other information already available to FEMA may be considered in assessing whether there is reasonable assurance that the plans can be implemented. In any NRC licensing proceeding, a FEMA finding will constitute a rebuttable presumption on questions of adequacy and implementation capability. Emergency preparedness exercises (required by paragraph (b)(14) of this section and Appendix E, Section F of this part) are part of the operational inspection process and are not required for any initial licensing decision.

⁴ See 10 CFR 50.47 and Part 50, Appendix E. See also "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0654/FEMA-REP-1, Rev. 1 (November 1980); and "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants," NUREG-0396/EPA 520/1-78-016 (December 1978).

plume exposure pathway (plume) EPZ, a more or less circular area extending approximately ten miles from the plant, and an ingestion exposure pathway (ingestion) EPZ, a similarly shaped area with a fifty mile radius.⁵ The plume EPZ is concerned principally with the avoidance in the event of a nuclear facility accident of possible (1) whole body external exposure to gamma radiation from the plume and from deposited materials and (2) inhalation exposure from the passing radioactive plume. The duration of those exposures could vary in length from hours to days. The ingestion EPZ is established primarily for the purpose of avoiding exposures traceable to contaminated water or foods (such as milk or fresh vegetables), a potential exposure source that could vary in duration from hours to months. NUREG-0654, *supra*, at 8-13 and Appendix 5. *See also* 10 CFR 50.33(g).

The range of possible serious accidents is quite large, extending from an accident in which little or no radiation is released offsite to one in which significant offsite radioactive releases might result over a period of time. Thus, emergency planning must provide for a variety of protective measures including sheltering, evacuation and the possible use of blocking agents such as potassium iodide — the overall objective being the avoidance of as much radiation exposure as possible. *Id.* at 5-15.

II. THE FACTUAL SETTING

A.

The Zimmer nuclear power plant is situated on the east bank of the Ohio River, near Moscow, Ohio, in Clermont County. Directly across the river to the west lies Pendleton County, Kentucky and, 1.5 miles to the north, Campbell County, Kentucky.⁶ Owing to the facility's location near the Ohio-Kentucky border, a serious radiological emergency could have direct offsite consequences in both states.

⁵ The precise area for each type of EPZ is determined on a case-by-case basis in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries. 10 CFR 50.33(g) and Part 50, Appendix E, n.2.

⁶ Clermont County Radiological Emergency Response Plan at I-1 (September 1981); Campbell County Radiological Emergency Plan at II-1 (October 1981).

The issues on appeal involve emergency planning and preparedness in Clermont County, Ohio and Campbell County, Kentucky, and center upon the ability of those counties to effect a timely evacuation of school children in the event a nuclear accident necessitates such action. Clermont County has three school districts within the plume EPZ: Bethel-Tate with three schools (elementary, middle and high) clustered on a site about 10.6 miles from the plant; Felicity-Franklin with a similar school arrangement about 7.5 miles from the plant; and, closest to the plant, with four schools, New Richmond.⁷ Three of the New Richmond schools, serving 1503 students from elementary grades through high school, are located at one site some 6.8 miles north-northwest of the plant. The fourth school in that district, the Monroe Elementary School, is situated 5.0 miles north of the plant and has 549 students. Applicants' Exh. 15, Testimony Relating to Emergency Planning Contentions at 78-79; Clermont County Plan at II-I-21; Tr. 5636, 5645.

Nine Campbell County, Kentucky schools, six public and three private, are within the plume EPZ. The total student population is 4,347. Testimony of Campbell County School Superintendent Sell, *et al.*, fol. Tr. 6371, at 3; Applicants' Exh. 15 at 78-79. Of the public schools, the nearest to the Zimmer facility is the A. J. Jolly Elementary School, located about 3.5 miles away. A private school, St. Peter & Paul Elementary, lies 4.5 miles from the plant. These two schools have a combined enrollment of 283 students. *Ibid.* The closest of the remaining seven schools is at a distance of nine miles from the plant. *Ibid.*

B.

Each State and county plan makes provision for learning of an emergency at Zimmer and disseminating that information to various response organizations and to the general public. The Clermont County plan calls for an official at the Zimmer facility to contact several major response organizations, including the County Sheriff's office, by means of dedicated telephone lines. Each of these organizations, in turn, alerts certain other organizations and persons having a role in carrying out the plan.⁸ The Clermont County Sheriff's office, for example, is responsible for notifying at least thirty-one organizations, including the County Board of Education, the superintendents of certain of the school districts, the County Engineer

⁷ Clermont County Radiological Emergency Response Plan at III-C-1.

⁸ Clermont County Plan, at II-D-1; Ohio Nuclear Power Plant Emergency Response Plan at II-D-1 - II-D-2. In each instance, if the recipient of the call does not recognize the caller by voice, there must be a return call for verification. Ohio Emergency Response Plan at II-D-1.

and the several fire and police departments within the county. Clermont County Plan, at II-D-4 - II-D-6. The County Board of Education also has principal or alternate responsibility for notifying the superintendents of the various school districts. *Id.* at II-D-6, II-D-7. The superintendents, in turn, must inform the schools within their district. *Id.* at II-I-5. Communication with the school districts and among the schools within a district is primarily by commercial telephone.⁹ Public notification is achieved through what is termed an integrated Prompt Notification System, utilizing sirens, NOAA weather radios, door-to-door verification and an emergency broadcast system (EBS). *Id.* at II-D-2.

The Campbell County plan is generally similar in structure. Initial radio (microwave) notification of an emergency at Zimmer is received by the Campbell County police dispatcher, who then informs the Director of the County's Disaster and Emergency Service (DES) of the emergency. Campbell County Plan at C-1 - C-4; Kentucky Radiological Emergency Plan at C-2, C-3. In turn, the DES alerts the County Judge/Executive and the Warning Coordinator. As appropriate, the Warning Coordinator contacts another twenty-two persons or organizations, including the school superintendent and the county schools.¹⁰ Communication with the schools is by monitor (one-way) radio. If evacuation of particular schools is required, the superintendent will telephone bus drivers to report to those schools. Campbell County Plan at C-3 - C-4; C-3-1. The public is advised through a prompt notification system consisting of sirens, NOAA weather radio and EBS. *Id.* at C-3.

III. THE LICENSING BOARD DECISION

At the hearing below, intervenors Zimmer Area Citizens-Zimmer Area Citizens of Kentucky (ZAC-ZACK) and the City of Mentor, Kentucky challenged the adequacy and capability of implementation of the various State and local emergency plans submitted by the applicants.¹¹ Considerable evidence on those plans was adduced, which included testimony of the FEMA employees who had reviewed them. Following the hearing, the Licensing Board resolved all of the claims in favor of the applicants except

⁹ Information bearing upon the emergency may also be transmitted to the schools over the National Oceanic and Atmospheric Administration (NOAA) weather radio, a one-way system. Clermont County Plan at II-D-6; Tr. 5878-79.

¹⁰ The plan here also requires calls from the Warning Coordinator to be verified if the recipient does not recognize the caller.

¹¹ These included the emergency response plans of the States of Kentucky and Ohio as well as those of Campbell, Pendleton and Bracken Counties, Kentucky and Clermont County, Ohio.

for those relating to the just discussed plans for evacuation of the affected schools in Clermont and Campbell Counties.¹² The Board found that these plans did not provide sufficient assurance that the persons assigned to play a role in the accomplishment of an evacuation would receive prompt notification of the emergency.

The Board reasoned (and applicants concede) that during an emergency the commercial telephone circuits, including those serving the schools, likely would become overloaded as a result of heavy public usage and thus be unavailable for official use. This is significant because the telephone calls needed to alert the various segments of the school systems of the emergency might not be completed before the requirement of public notification took effect. 15 NRC at 1570, 1592-93; Tr. 6542.¹³ In the Board's apparent view, the provisions in the plans for NOAA radios, the emergency broadcast system and other communication means did not alleviate this concern because those alternatives lacked two-way communication capability. 15 NRC at 1590-93. And, in the Board's judgment, the communication problem was compounded even further by the fact that plans had not been developed for mobilizing buses and bus drivers if evacuation became necessary and telephone service were unavailable. For example, plans were not available, according to the Board, for notifying bus drivers of an emergency while they were en route or during their off-hours between the morning and evening runs. *Id.* at 1570, 1593.

The Board also determined that there was a problem of adequate resources associated with school evacuation. As to Clermont County, the Board found that there was an insufficient number of buses to evacuate simultaneously all of the students in the schools at the New Richmond and Monroe sites (located 6.8 and 5 miles from Zimmer, respectively). *Id.* at 1594. As to Campbell County, five to six buses are needed to evacuate the two schools within five miles of the Zimmer facility.¹⁴ Only four drivers, however, are available at the garage from which the buses would ordinarily be dispatched, some eleven to twelve miles away from those schools. Tr. 6394, 6409, 6419-20. The Board noted that, under optimum conditions,

¹² In Commission practice, apart from matters raised by a board under its *sua sponte* authority, only those issues in controversy are considered in an operating license hearing. See 10 CFR 2.760a and Part 2, Appendix A, Section VIII. At the hearing below, a number of safety issues not involving emergency planning for schools were also litigated. All those issues were decided in favor of the applicants and that disposition has not been challenged before us.

¹³ Under 10 CFR Part 50, Appendix E, Section IV.D.3, a licensee must have the capability to notify responsible state and local governmental agencies within 15 minutes after declaring an emergency. The state and local agencies, in turn, must have the capability to make a public notification decision promptly on being informed by the licensee of an emergency condition. The design objective of the prompt public notification system calls for completion of initial notification of the public within the plume EPZ within about 15 minutes of the local government officials' receipt of notification of an emergency requiring urgent action.

¹⁴ As noted earlier (*supra* p. 766), the A. J. Jolly Elementary School is located 3.5 miles from the Zimmer plant; St. Peter & Paul Elementary school is 4.5 miles from the Zimmer site.

one hour would elapse between initial evacuation notification and the boarding of the Jolly students on the buses. 15 NRC at 1595.

On the basis of these findings, the Licensing Board concluded that it could not make the reasonable assurance finding required by 10 CFR 50.47(a)(1) for a full power operating license. *Id.* at 1608. The Board, however, offered the applicants the opportunity for a further hearing upon additional development of the school evacuation plans. That hearing is not to begin until (1) FEMA issues its final findings on the adequacy and implementability of the State and local emergency plans for Zimmer and (2) the parties are given a reasonable opportunity to assess the upgraded plans, the final FEMA findings, and the staff's assessments of those findings. *Id.* at 1580.¹⁵

IV. THE APPEAL

Before us, the applicants dispute the Board's ultimate conclusion that the Clermont and Campbell emergency response plans are not now adequate or capable of implementation with respect to school evacuation. Their argument is essentially twofold. First, they assert that, although the plans have not been completed, "the fundamental planning concepts were sufficiently developed at the time of the hearing to permit an assessment of their adequacy and capacity for implementation" and that "these concepts met all applicable criteria." Moreover, they claim, there is no "impediment" that would prevent the procedures already developed for evacuation of school children from being completed in a timely manner. Applicants' Br. at 26. Second, the applicants maintain that the Board wrongly read into the regulations a time limit for completion of an evacuation. According to the applicants, there are no absolute time limits imposed by applicable regulations or guidelines for completion of evacuation from a plume EPZ should the decision be made to take that step. Evacuation time limits and the assumed conditions on which the plans are to be based must be left flexible, so the argument goes, because (1) evacuation is only one of several dose saving options for consideration in the event of a radiological emergency; and (2) a decision to evacuate or not would be founded on actual conditions

¹⁵ The final FEMA findings represent the formal approval by that agency of State and local offsite emergency plans and preparedness for coping with the offsite effects of radiological emergencies that may occur at nuclear power facilities. FEMA's process leading to the issuance of final FEMA findings includes initial review of the plans by one of its regional offices, the conduct of exercises under the plans, at least one public meeting in the vicinity of the plant, and review by FEMA's national office. See FEMA Proposed Rule on Review and Approval of State and Local Radiological Emergency Plans and Preparedness, 44 CFR Part 350, 45 Fed. Reg. 42341 (June 24, 1980), republished for comment, 47 Fed. Reg. 36386 (August 19, 1982).

at the time of the emergency such as adverse weather, which could affect the time it would take to complete it. *Id.* at 27-31.

The staff endorses the applicants' claims of error. On the other hand, intervenors ZAC-ZACK and the City of Mentor support the Licensing Board's decision.

A.

We agree with the applicants that emergency response plans for a particular nuclear power plant need not be in final form at the time an operating license application is noticed for hearing. This conclusion follows from the Commission's expectation that the "plans shall be an expression of the *overall concept* of operation; they shall describe the *essential elements* of advance planning that have been considered and the provisions that have been made to cope with emergency situations." 10 CFR Part 50, Appendix E, Section III (emphasis supplied). This is not to say, of course, that any plan, no matter how skeletal, will suffice at this stage. For Appendix E further stipulates that the plans submitted must include a description of their contents "to an extent *sufficient to demonstrate* that the plans provide reasonable assurance that adequate protective measures can and will be taken in the event of an emergency." *Ibid.* (emphasis supplied). *See also Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-717, 17 NRC 346, 380 fn. 57 (1983).

The applicants are equally correct in their insistence that the Commission's emergency planning requirements do not prescribe specific time limits governing the evacuation of plume EPZs. The matter of the time within which evacuation can be accomplished is left to be determined on a case-by-case basis upon consideration of all relevant conditions prevailing in the specific locality.¹⁶ But it does not follow, as the applicants would have it, that a particular evacuation plan need not be concerned with the *efficiency* with which evacuation might be accomplished given the conditions under which it must take place. Indeed, the Commission guidelines suggest the contrary. The basic goal of emergency planning is, after all, the achievement of maximum dose savings in a radiological emergency (*see* p. 765, *supra*). If the responsible governmental officials are to make an informed

¹⁶ Those conditions include, for example, the size and nature of the population, the available transportation facilities, the existing road network, topographical features and political boundaries. *See* NUREG-0654, *supra* at Appendix 4, which sets out guidelines for making evacuation time estimates to be used by those emergency response personnel charged with recommending and deciding on protective actions during an emergency.

decision respecting what is appropriate protective action in a given radiological emergency, they must have available to them time estimates that are realistic appraisals of the minimum period in which, in light of existing local conditions, evacuation could reasonably be accomplished. And, the nearer to the plant the area that might have to be evacuated, the greater the importance of accurate time estimates.

B.

These considerations preclude rejection of the Licensing Board's determinations respecting the evacuation of schools in the two counties in question.

1. Turning first to the matter of communications, the applicants do not dispute that the telephone system might well become overloaded during an emergency, thus impairing its usefulness to emergency response personnel. They contend, however, that "overloading circuits at schools and exchanges would not be a problem" because "public officials could choose to delay public notification in order to assure the orderly notification of the schools." Applicants' Br. at 37, 40. But, as the Licensing Board pointed out, upon learning of an emergency at the plant, the responsible governmental officials must be able to notify the public within fifteen minutes. 15 NRC at 1570.¹⁷

It is highly unlikely that, during that brief interval, all of the telephone calls to persons having an active role in the execution of the plan could be completed. As earlier seen, each school within the plume EPZ has to be notified of the emergency. Even if this were accomplished at an early point in the fifteen minute interval, there would remain the need for the school authorities to reach the bus drivers, among others. Campbell County, for example, employs fifty-four school bus drivers, twenty-five of whom have other employment. It operates fifty-eight regular school buses, nine of which are held in reserve, and two special buses for handicapped pupils. Under the Campbell County plan, each bus driver has to be notified of the emergency by telephone. Testimony of Sell, *et al.*, fol. Tr. 6371, at 3-5. The communication problem would become further exacerbated if a bus were in transit at the time. In such circumstances, there is no means of communicating with the driver by telephone. *Ibid.*¹⁸

¹⁷ See fn. 13, *supra*. See also *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-680, 16 NRC 127, 131-32 (1982).

¹⁸ The situation in Clermont County is not materially different. See 15 NRC at 1592-93.

In apparent recognition of this reality, the applicants tell us that there are other possible means of communication with the schools and bus drivers. They suggest, *inter alia*, the reservation of a telephone line at each school solely for the use of school officials, the use of NOAA tone-alert radios and monitor radios capable of receiving voice messages, two-way radios, pagers for bus drivers, and even resort to the public notification system itself. Applicants' Br. at 40-43. But there is no evidence of record that these alternative communication means will actually be included in the plans. Nor is there any basis for a present finding that the bus drivers and others needed to carry out the school evacuation phase of the plans would in fact receive prompt and accurate information of an emergency to enable them to carry out their duties efficiently.

There is the added, and as yet unresolved, question of whether bus drivers, who are in general part-time employees of the school system, will in fact respond to their driving duties in a radiological emergency. Although not in terms of bus drivers, testimony adduced at the hearing below suggested that approximately 95% of the volunteer life squadsmen and 25% of the fire fighters, also volunteers, would not respond promptly in the event of an accident at Zimmer because they first would seek to ensure the safety of their own families. Testimony of New Richmond Life Squad Assistant Chief Feldkamp, fol. Tr. 5467, at 2-3; Tr. 5461. At the very least, this evidence raises a serious question as to whether bus drivers could be depended upon to carry out their responsibilities in these counties in such an emergency. At oral argument, staff counsel candidly admitted that this aspect of the matter simply was not considered below. App. Tr. 51.

2. We turn now to the Licensing Board's conclusion that there are insufficient buses to enable the simultaneous evacuation of students from the four schools in the New Richmond District (Clermont County) within the plume EPZ. The applicants maintain that there is no regulatory requirement for such simultaneous evacuation. As they see it, the schools — Monroe Elementary located 5 miles from Zimmer and New Richmond Elementary, Junior, and High Schools, located 6.8 miles from the plant — can be evacuated in stages with priority given to the school closest to the facility as buses and drivers become available. Applicants' Br. at 43-44.

Although the Licensing Board's discussion of the point is rather elliptical, it does not appear that the Board was suggesting that there is a rigid requirement that, in all instances where the evacuation of several schools in an area is decreed, it must be simultaneously undertaken at each school. Rather, as we understand it, the Board's concern was directed to whether, in the absence of simultaneous evacuation (because of the limited number of buses), all of the students would be efficiently removed from the plume EPZ. We find that concern to be justified.

The New Richmond School District operates twenty buses, each with a normal capacity of sixty-five students (seventy-one under overload conditions). Tr. 5641, 5688. Collectively, these buses can transport at one time only two-thirds of the students at the four schools in question. To avoid the need for double runs, the applicants inform us, arrangements are being made with the neighboring West Clermont School District to supply seventeen buses to aid in any evacuation of New Richmond District schools. Applicants' Br. at 43. (It would appear that at least nine to ten buses in addition to the twenty now operated by the New Richmond District are needed for the evacuation of the four schools without double runs.)

But more is needed than this representation of ongoing efforts to enlist the assistance of the West Clermont School District in order to provide a basis for the "reasonable assurance" finding required by 10 CFR 50.47(a)(1). To begin with, no details describing the workings of any such proposed arrangement are in the record. Moreover, the applicants have not demonstrated how, in the event of an emergency at Zimmer, the West Clermont buses, together with the drivers, would be first mobilized and then dispatched to the New Richmond schools some ten to fifteen miles away. Applicants' Exh. 15 at 88-89. In this connection, a preliminary evacuation time study of the plume EPZ for Zimmer estimated that, given optimum weather conditions and prompt notification to the public, the simultaneous evacuation of the portion of the EPZ outward from Zimmer in the direction of the New Richmond and Monroe schools (containing about 13,200 persons including the school population) would take about 2.9 hours. Clermont County Plan, Attachment I-2 to Sections II-I, at 1-2 - 1-3, 3-5, 5-14. But, without reasonable assurance of the availability of an adequate number of buses and drivers to accomplish such evacuation, that time estimate is of little value for dose saving decisional purposes.

3. In the present state of the record, the applicants simply have failed to demonstrate either the adequacy of the Clermont and Campbell County plans respecting the evacuation of schools in the plume EPZ or the existence of reasonable assurance that the plans can be implemented. Once again, this is not to say that the plans must be complete in all their details. But they must at least be sufficiently developed for the Board to be able to conclude that the state of emergency preparedness provides "reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." 10 CFR 50.47(a)(1). *See also San Onofre*, ALAB-717, *supra*, 17 NRC at 380 fn. 57. The evidence at hand is insufficient with regard to (1) the adequacy of the communications systems; (2) the willingness of the bus drivers to respond; and (3) the availability of needed transportation resources for the New Richmond School District. In our view, the gaps are simply too large to leave to a license condition to

remedy. The intervenors must be afforded an opportunity to test the revised plans in an adjudicatory hearing. It follows that the Licensing Board committed no error in its ultimate determination with regard to the school evacuation plans for Clermont and Campbell Counties.¹⁹

C.

What remains for consideration is the Licensing Board's ruling establishing the bases for further hearings on the State and local government emergency response plans.

1. At the hearing below, several representatives of FEMA testified extensively on the plans' adequacy and capability of implementation. *See* Testimony of Meyer, *et al.*, fol Tr. 6982. The Licensing Board, however, found that their testimony was so "preliminary" and "conclusory" and lacking in foundation that it should be discounted. 16 NRC at 747-48. Stressing that its holding was "limited to the facts of this case," the Board concluded it could not authorize the issuance of a full power operating license for Zimmer until FEMA's final findings on at least the plans for the evacuation of the New Richmond District and Campbell County schools in the plume EPZ were filed in the proceeding and reviewed by the parties. According to the Board, there is no other way in which it could comply with both the requirement of Section 50.47(a)(2) that it base any reasonable assurance finding of the adequacy of such plans on FEMA's findings and determinations, and the hearing requirements of Section 189 of the Atomic Energy Act (42 U.S.C. 2239). *Id.* at 749.

The applicants urge, however, that the Licensing Board misconstrued 10 CFR 50.47 (a) (2) in concluding that the final FEMA findings must precede the Board's ultimate disposition of the school evacuation matter. The requirement in that Section that the Commission base its "reasonable assurance" finding on FEMA's "findings and determinations," we are told, imposes a duty exclusively upon the staff — here in the person of the Director of Nuclear Reactor Regulation — and does not call for further Licensing Board consideration. Applicants' Br. at 8-17. In supporting the applicants'

¹⁹ This emphasis on the need for sufficiently developed school evacuation plans should not be taken as implying a belief that, in the event of a serious accident, this particular protective measure necessarily would have to be invoked. To the contrary, depending upon their appraisal of the situation confronting them, the responsible officials might well decide that the better course would be to shelter the students in the school buildings. Our point is instead simply that Commission regulations plainly require the formulation of satisfactory evacuation plans as a part of the overall emergency preparedness effort. Moreover, at least if adequately developed, those plans should aid materially the making of an informed judgment respecting which available protective measures are most suitable in the totality of the circumstances attending the specific emergency at hand.

position, the staff emphasizes that Section 50.47(a)(2) does not by its terms limit the bases for the "reasonable assurance" finding to FEMA's final findings. Staff's Br. at 30-31.

We agree with the applicants and staff to the extent that Section 50.47(a)(2) does not require deferment of any hearing on State and local government emergency response plans to await FEMA's issuance of final findings on those plans. Rather, what that Section contemplates is a licensing decision based on the best available current information on emergency preparedness. *San Onofre*, ALAB-717, *supra*, 17 NRC at 379-80.²⁰ Indeed, a contrary interpretation of the Section would be at odds with the FEMA/NRC Memorandum of Understanding and a recent amendment to Section 50.47(a)(2). *Ibid.*²¹

It appears, however, that the Licensing Board may not have called for final FEMA findings as a matter of regulatory requirement. Instead, the Board seems to view this as a means of assuring that the further developed school evacuation plans would not be allowed to escape the scrutiny of the intervenors, who had successfully challenged the adequacy of the plans in their present form.

Although we are in sympathy with that concern, the ruling went beyond the emergency response planning regulatory scheme contemplated by the Commission. Unlike the Board, we find no compelling need to await FEMA's final findings before the resumption of hearings on the plans.²² In our judgment, hearings may properly be held at such time as the plans are sufficiently developed to support a conclusion that the state of emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken for the school population in the event of a radiological emergency. On the record before us, we cannot draw a bright line respecting how much plan development will be enough for that purpose. That decision will have to be made by the Licensing Board upon hearing all of the evidence (including the views of FEMA, the intervenors and the staff) on the then current state of the plans.

²⁰ Such information, of course, must be sufficient to allow a board to conclude that the state of emergency preparedness provides "reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." *See* p. 770, *supra*.

²¹ The FEMA/NRC Memorandum of Understanding, *inter alia*, describes the role of FEMA in Commission licensing proceedings. 45 Fed. Reg. 82713 (December 16, 1980). It provides that FEMA will make expert witnesses available at these licensing proceedings and that it will offer its preliminary views on the state of offsite emergency preparedness based on plans currently available to FEMA. The amendment to the Commission's emergency planning regulations (47 Fed. Reg. 30232 (July 13, 1982)), provides that emergency preparedness exercises are not required for a nuclear power plant operating license decision but are required prior to operation above 5% of rated power. 17 NRC at 379-80. The amended rule is now under judicial review. *Union of Concerned Scientists v. NRC*, D.C. Cir. No. 82-2053 (petition filed September 10, 1982).

²² FEMA's review of the State and local emergency response plans for Zimmer is not expected to be completed until May 1984, after emergency preparedness exercises are conducted in June 1983. Letter from Brian P. Cassidy, FEMA's Regional Counsel, to Stuart A. Treby, NRC Assistant Chief Hearing Counsel (November 3, 1982).

2. The applicants also complain of the Board's action in granting the parties an opportunity to review and comment upon the final FEMA findings. As they perceive the order, it allows the parties to reopen the proceeding later, in disregard of usual standards for reopening the record, on matters already decided by the Board. In their view, the Licensing Board's action was unprecedented and lacked authority. Applicants' Br. at 18-19. The staff's view is similar. Staff's Br. at 32-34.

Although the Board's ruling is open to the interpretation given it by the applicants and staff, we do not think that the Board intended that result. Rather, we read the Board's ruling as entitling the intervenors ZAC-ZACK and Mentor to a later hearing, without showing of cause, only on matters dealing with the school evacuation plans; a hearing on other matters raised by FEMA's final findings would have to be justified under normal reopening standards. At oral argument, counsel for the intervenors construed the Board's ruling in the same way. App. Tr. 104-06. Counsel for the staff now apparently accepts that construction of the Board's ruling as the correct one. App. Tr. 123-24.

The Licensing Board's June 21, 1982 decision is *modified* in accordance with the views expressed in Part IV C, *supra*, and as so modified, is *affirmed*.²³

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

²³ Our *sua sponte* review of the record on those matters not embraced by the applicants' appeal reveals no error warranting corrective action.

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)**

May 18, 1983

The Appeal Board (1) affirms the results reached in the Licensing Board's July 17, 1981 partial initial decision (LBP-81-21, 14 NRC 107) authorizing issuance of a fuel loading and low power testing license for Diablo Canyon, and (2) provides a fuller explanation of its affirmance (unpublished order of December 11, 1981) of the Licensing Board's August 4, 1981 ruling (LBP-81-27, 14 NRC 325), denying certain of the intervenors' contentions in the Diablo Canyon full power operating license proceeding.

EMERGENCY PLANS: LOW POWER TESTING

Under 10 CFR 50.47(d) of the Commission's emergency planning regulations, for fuel loading and low power testing, it is the applicant's onsite emergency plan and preparedness that is crucial, not the offsite plans and readiness of the state and county.

EMERGENCY PLANS: LOW POWER TESTING

Under 10 CFR 50.47(d), NRC review of emergency planning for purposes of low power testing is based solely on an assessment of the *applicant's* emergency plan against the *pertinent* standards of 10 CFR 50.47(b) and 10 CFR Part 50, Appendix E. While this primarily involves a consideration of applicant's capability to cope with an emergency onsite, the statement of considerations accompanying 10 CFR 50.47(d) makes clear that review of applicant's onsite response mechanism necessarily involves aspects of some offsite elements: communications, notification, assistance agreements, fire protection and medical organization, and the like. 47 Fed. Reg. 30232 (July 13, 1982).

OPERATING LICENSE HEARINGS: ISSUES FOR CONSIDERATION

Current regulations do not require consideration of the impacts on emergency planning of earthquakes which cause or occur during an accidental radiological release. Until the Commission decides whether its regulations should be changed to address this question, the possible complicating effects of an earthquake on emergency planning should not be considered in individual licensing proceedings. *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-81-33, 14 NRC 1091, 1092 (1981).

NEPA: NEED FOR ENVIRONMENTAL REVIEW

Under Commission regulations, an agency action may or may not require preparation of an environmental impact statement, or a negative declaration and environmental impact appraisal, depending upon the circumstances. See 10 CFR 51.5(b), 51.5(c)(1).

NEPA: ENVIRONMENTAL IMPACT STATEMENT (NEED FOR LOW POWER TESTING)

An adequate final environmental impact statement for a nuclear facility necessarily includes the lesser impacts attendant to low power testing of the facility and removes the need for a separate statement focusing on questions such as the costs and benefits of low power testing.

NEPA: ENVIRONMENTAL IMPACT STATEMENT (CLASS 9 ACCIDENTS)

The Commission's June 13, 1980 Policy Statement, "Nuclear Power Accident Considerations Under the National Environmental Policy Act of 1969," requires the agency's environmental statements to include treatment of so-called "Class 9" accidents only in those proceedings that were then "at a licensing stage where a Final Environmental Impact Statement (FEIS) has not yet been issued." 45 Fed. Reg. 40101, 40103. Proceedings on which an FEIS has already issued are to be reopened or expanded to include consideration of "Class 9" accidents only in the presence of "special circumstances." *Ibid.*

RULES OF PRACTICE: REOPENING OF RECORD (TMI-RELATED ISSUES)

The Commission's policy statement governing the litigation of TMI-related issues in NRC Licensing proceedings, 45 Fed. Reg. 41738 (June 20, 1980), and *Further Commission Guidance for Power Reactor Operating Licenses*, CLI-80-42, 12 NRC 654 (1980), clearly provide that TMI-related issues may be litigated in pending licensing proceedings where the time for filing contentions has expired and the record has closed only if a party satisfies the traditional adjudicatory standards for reopening a record and the standard contained in the Rules of Practice for admitting late-filed contentions.

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

Although the standard for reopening the record in an NRC proceeding has been variously stated, it requires that (1) the motion be timely, (2) significant new evidence of a safety question exist, and (3) the new evidence might materially affect the outcome. *See, e.g., Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980); *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit 1), ALAB-462, 7 NRC 320, 338 (1978).

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS

For a late-filed contention to be admitted, 10 CFR 2.714(a)(1) requires that the following factors, as applicable, be considered:

- (i) Good cause, if any, for failure to file on time.
- (ii) The availability of other means whereby the petitioner's interest will be protected.
- (iii) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.
- (iv) The extent to which the petitioner's interest will be represented by existing parties.
- (v) The extent to which the petitioner's participation will broaden the issues or delay the proceeding.

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

The Commission may validly prescribe threshold requirements for a party seeking to reopen a proceeding to litigate any issue, whether or not TMI-related. *See BPI v. Atomic Energy Commission*, 502 F.2d 424 (D.C. Cir. 1974).

OPERATING LICENSE HEARINGS: EFFECT OF MOTION TO CONDUCT LOW POWER TESTING

When an applicant for an operating license files a motion for authority to conduct low power testing in a proceeding where the evidentiary record is closed but the licensing board has not yet issued an initial decision finally disposing of all contested issues, the board is obligated to issue a decision on all outstanding issues (*i.e.*, contentions previously admitted and litigated) relevant to low power testing before authorizing such testing. *See* 10 CFR 50.57(c). Such a motion, however, does not automatically present an opportunity to file new contentions specifically aimed at low power testing or any other phase of the operating license application.

RULES OF PRACTICE: CONTENTIONS (ADMISSIBILITY)

Under 10 CFR 2.714, contentions submitted by intervenors and subjects submitted by the representative of an interested state must set forth the basis for each contention or subject with reasonable specificity. *See Northern States Power Co. (Prairie Island Nuclear Generating Plant, Units 1 and 2)*, ALAB-107, 6 AEC 188, 192 (1973), *aff'd sub nom.*, *BPI v. Atomic Energy Commission*, 502 F.2d 424 (D.C. Cir. 1974).

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

In proceedings where the evidentiary record has been closed, the record should not be reopened absent a showing, by the moving party, of significant new evidence not included in the record, that materially affects the decision. "Bare allegations or simple submission of new contentions is not sufficient." *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-5, 13 NRC 361, 362-63 (1981).

RULES OF PRACTICE: CONTENTIONS (ADMISSIBILITY)

In any challenge to applicant's compliance with NRC regulations, a party must meet the pleading requirements of specificity and basis contained in 10 CFR 2.714, and, if the time for filing contentions has expired and the evidentiary record closed, then the party's challenge must also meet the standards for late-filed contentions and reopening the record. In the latter situation, "the parties are required to make the initial case that significant new evidence is available, not merely make claims to that effect." *Id.* at 363.

RULES OF PRACTICE: LITIGABILITY OF ISSUES (VALIDITY OF RULE OR REGULATION)

Under 10 CFR 2.758(a), no rule or regulation of the Commission is subject to attack in an adjudicatory proceeding.

RULES OF PRACTICE: WAIVER FROM RULE OR REGULATION

Under 10 CFR 2.758(b), a party petitioning for waiver or exception from a Commission regulation must establish, by affidavit, the existence of special circumstances such that application of the challenged regulation would not serve the purpose for which it was adopted. Under 10 CFR 2.758(d), if the licensing board determines that a *prima facie* showing has been made that application of the rule will not serve the purposes for which it was adopted, the board shall certify to the Commission the question whether a waiver or exception should be granted.

LICENSING BOARDS: SCOPE OF REVIEW (CONSTRUCTION PERMIT PROCEEDING)

In a construction permit proceeding, a licensing board must make a finding under the Commission's regulations that there is a reasonable assurance that the facility can be constructed and operated without undue risk to the public. *See* 10 CFR 50.35(a). Moreover, such finding should encompass all safety matters, not just those put in contest by the parties. *See* 10 CFR Part 2, Appendix A, Section V (f) (2).

LICENSING BOARDS: SCOPE OF REVIEW (CONSTRUCTION PERMIT PROCEEDING)

In a construction permit proceeding, a licensing board need not duplicate the staff's review but must nevertheless determine from the record whether the staff review of all uncontested safety issues — has been adequate. *Gulf States Utilities Co. (River Bend Station, Units 1 and 2)*, ALAB-444, 6 NRC 760 (1977).

CONSTRUCTION PERMIT HEARINGS: STAFF RESPONSIBILITY

In a construction permit proceeding, the NRC staff has a duty to produce the necessary evidence of the adequacy of the review of unresolved generic safety issues. *Id.* at 775 and n.28.

ADJUDICATORY BOARDS: SCOPE OF REVIEW (OPERATING LICENSE PROCEEDING)

In an operating license proceeding, the Commission's regulations limit an adjudicatory board's findings to the issues put into contest by the parties. *See* 10 CFR 2.760a. A board is not required to make (and, under the regulations cannot properly make) the ultimate finding comparable to that required in a construction permit proceeding.

ADJUDICATORY BOARDS: SCOPE OF REVIEW (*SUA SPONTE* ISSUES)

NRC regulations give an adjudicatory board the discretion to raise on its own motion any serious safety or environmental matter. *See* 10 CFR 2.785

(b)(2). This discretionary authority necessarily places on the board the burden of scrutinizing the record of an operating license proceeding to satisfy itself that no such matters exist. *See Northern States Power Co.* (Monticello Nuclear Generating Plant, Unit 1), ALAB-611, 12 NRC 301, 309 (1980).

APPEARANCES

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

Byron R. Georgiou, Sacramento, California; and **Herbert H. Brown and Lawrence Coe Lanpher**, Washington, D.C., for Edmund G. Brown, Jr., Governor of the State of California.*

Malcolm H. Furbush, Philip A. Crane, Jr., Douglas A. Oglesby, and F. Ronald Laupheimer, San Francisco, California; and **Arthur C. Gehr and Bruce Norton**, Phoenix, Arizona, for Pacific Gas and Electric Company, applicant.

Bradley W. Jones for the Nuclear Regulatory Commission staff.

DECISION

In a July 17, 1981 partial initial decision, the Licensing Board authorized the Director of Nuclear Reactor Regulation to issue a fuel loading and low power testing license to Pacific Gas and Electric Company for the Diablo Canyon Nuclear Power Plant, Units 1 and 2.¹ Subsequent to the Commission's immediate effectiveness review under 10 CFR 2.764(f),² the Director, on September 22, 1981, issued a license for Unit 1.³ Thereafter, in the course of responding to an agency request for information, the appli-

*Since the briefing and oral argument of the issues decided in this opinion, George Deukmejian has assumed the office of Governor. Pursuant to Governor Deukmejian's request, he has been substituted for Governor Brown as the representative of the State of California. The Attorney General of the State of California is now representing Governor Deukmejian.

¹ LBP-81-21, 14 NRC 107 (1981).

² CLI-81-22, 14 NRC 598 (1981).

³ License No. DPR-76.

cant 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 quality assurance program, led the Commission on November 19, 1981 to suspend the fuel loading and low power testing license. The Commission also ordered the applicant to undertake an independent design verification program to assure that proper quality assurance procedures, controls and practices were employed at the facility.⁴ The license suspension and design verification program continue today.

We recite this brief history to emphasize that this decision, which deals with the appeals from the Licensing Board's low power decision and certain other questions referred to us by the Commission, neither affects the suspension of the applicant's low power license nor concerns any matters encompassed by the ongoing design verification program. The Diablo Canyon fuel loading and low power testing license will remain suspended until the Commission acts. Although in this opinion we affirm the result reached by the Licensing Board in its July 17, 1981 partial initial decision, our action today does not alter this situation.

I. BACKGROUND OF PROCEEDING

A.

The evidentiary record in the Diablo Canyon operating license proceeding closed in early 1979 after the conclusion of all hearings before the Licensing Board on various contested issues. Shortly thereafter, and before the Board issued an initial decision, the Three Mile Island, Unit 2, accident occurred, leading the Commission to halt the licensing of all new facilities (including Diablo Canyon) pending its assessment of the accident. Also in the immediate aftermath of the TMI accident, the joint intervenors (in May 1979) moved to reopen the record of the Diablo Canyon proceeding to consider the environmental consequences of so-called "Class 9" accidents and the adequacy of emergency response planning for the facility. The Licensing Board, however, deferred ruling on this motion until the NRC staff completed an inquiry and report on the TMI accident and its effects on the Diablo Canyon facility.⁵

The Commission removed its licensing bar in February 1980 with the publication of an initial list of generic operating license requirements de-

⁴ CLI-81-30, 14 NRC950 (1981).

⁵ Order of June 5, 1979 (unpublished).

signed to respond to the TMI accident.⁶ Following this Commission action, the applicant, on July 14, 1980, moved pursuant to 10 CFR 50.57(c) for authority from the Licensing Board to load fuel and conduct low power testing. The applicant represented that it had completed all the requirements — including the new TMI-related ones — necessary for low power operation. The staff supported the applicant's motion while the joint intervenors and Governor Brown of California⁷ opposed it.

In opposition to applicant's motion and in response to a Licensing Board order, the joint intervenors advanced a list of 27 contentions⁸ and Governor Brown a similar list of 17 subjects⁹ that they asserted related to the TMI accident and needed to be heard and resolved before a low power license could be authorized. Included in joint intervenors' list were three contentions aimed at essentially the same two subjects (*i.e.*, emergency planning and Class 9 accidents) that comprised joint intervenors' earlier May 1979 motion to reopen the record. In a February 13, 1981 prehearing conference order, the Board admitted five of joint intervenors' contentions and three of Governor Brown's subjects to the extent they raised the same issues as the admitted contentions.¹⁰ It also deferred ruling on joint intervenors' contention relating to Class 9 accidents.¹¹ Subsequently, the joint intervenors withdrew one of their admitted contentions and the Board granted summary disposition on two of them,¹² leaving for hearing only those issues relating to emergency planning and testing requirements for safety and block valves.¹³

⁶ During the Commission-ordered licensing hiatus, the Licensing Board issued a partial initial decision on September 27, 1979 resolving the seismic, security and aircraft crash issues in the proceedings. See LBP-79-26, 10 NRC 453 (1979). Thereafter, we granted joint intervenors' motion to reopen the seismic portion of the record (see ALAB-598, 11 NRC 876 (1980)) and, after hearing new evidence on several seismic issues, we affirmed the Board's original seismic findings. See ALAB-644, 13 NRC 903 (1981). We also vacated that part of the Licensing Board's decision dealing with security plan issues. See ALAB-580, 11 NRC 227 (1980). After a *de novo* hearing on the security plan issues, we found that the applicant's security plan conformed to the Commission's regulations. See ALAB-653, 14 NRC 629 (1981).

⁷ After issuance of the Licensing Board's September 27, 1979 partial initial decision (see n.6, *supra*), Governor Edmund G. Brown, Jr., of California petitioned to intervene as a representative of an interested state pursuant to 10 CFR 2.715(c). The Licensing Board granted the Governor's petition on November 16, 1979.

⁸ See Statement of Contentions of Joint Intervenors (December 3, 1980).

⁹ See Statement of Subjects on Which Governor Edmund G. Brown, Jr., Intends to Participate (December 3, 1980).

Pursuant to 10 CFR 2.715(c) the representative of an interested state may be required "to indicate with reasonable specificity, in advance of the hearing, the subject matters on which he desires to participate."

¹⁰ LBP-81-5, 13 NRC 226 (1981).

¹¹ *Id.*

¹² Order of April 30, 1981 (unpublished).

¹³ In a separate order of June 19, 1981 (LBP-81-17, 13 NRC 1122), the Licensing Board denied that portion of joint intervenors' May 1979 motion to reopen the record relating to Class 9 accidents that it had previously deferred. See n. 5, *supra* and accompanying text. This Board ruling also had the practical effect of denying joint intervenors' contention on Class 9 accidents.

After an evidentiary hearing on the contested issues, the Licensing Board rendered a partial initial decision on July 17, 1981 authorizing issuance of a license for fuel loading and low power testing up to 5 percent of rated power at the Diablo Canyon facility.¹⁴ Both joint intervenors and Governor Brown appealed, principally objecting to the Licensing Board's (1) findings of adequacy of emergency preparedness for low power operation; (2) refusal to order certain additional environmental assessments or statements prior to low power operation; and (3) denial of certain TMI-related contentions and subjects.

B.

In parallel action to that opposing the applicant's motion for low power testing, the joint intervenors, on March 24, 1981, sought to reopen the record before the Licensing Board to litigate 17 TMI-related contentions in the context of the eventual full power operation of the Diablo Canyon facility. All of these contentions had been filed previously by joint intervenors in opposition to the applicant's request for low power testing authorization and 14 of them were among those denied by the Licensing Board. Joint intervenors' motion was opposed by the applicant and the staff but was supported by Governor Brown.

On the eve of a conference called by the Licensing Board to consider the reopening motion, joint intervenors filed a statement of "clarified" contentions. The new statement supplemented the emergency planning contention from intervenors' Board-deferred reopening motion filed in 1979 and withdrew a number of contentions from their March 24 filing, and then consolidated and reworded the remaining ones.¹⁵ Thereafter, on August 4, 1981 the Licensing Board admitted for hearing joint intervenors' emergency planning contention but rejected the remaining contentions

¹⁴ LBP-81-21, 14 NRC 107 (1981).

¹⁵ With little regard for the confusing effect of their action, joint intervenors changed the numbers of their low power contentions in the course of converting them to full power "clarified" contentions. We have arrived at the following correspondence between the two sets of contentions:

low power	6 & 17	— clarified	2 & 3
low power	8	— clarified	4
low power	12 & 24	— clarified	8 & 9
low power	13	— clarified	10
low power	14	— clarified	11
low power	18	— clarified	14
low power	20 & 23	— clarified	15 & 16
low power	21	— clarified	17

concerning other subjects.¹⁶ After objecting to the Board's order and failing to convince it to certify the contention questions directly to the Commission,¹⁷ the joint intervenors sought relief from the Commission. On October 29, 1981, the Commission denied the joint intervenors' certification request but referred it to us for prompt interlocutory review.¹⁸

We held an oral argument on both the appeals from the Licensing Board's low power decision and the referred request for reinstatement of contentions in the reopened full power proceeding. Immediately thereafter, the Licensing Board scheduled a prehearing conference in the reopened full power proceeding and established a tentative hearing date. Because our resolution of the issues involving the joint intervenors' full power contentions was highly pertinent to the upcoming conference, we announced our decision in an unpublished order,¹⁹ upholding all but one of the Board's rulings on the full power contention questions and indicating our full reasoning would appear in a subsequent opinion.²⁰ Our point of disagreement with the Licensing Board centered on joint intervenors' clarified and combined contention 8 & 9 relating to relief and block valves. We found that contention was included in the proceeding on the basis of a September 21, 1981 Commission order authorizing the issuance of a low power testing license for Diablo Canyon, Unit 1.²¹

C.

In this opinion we provide our decision on the pending appeals from the Licensing Board's July 17, 1981 partial initial decision and a fuller explanation of our affirmance of the Licensing Board's August 4, 1981 ruling denying intervenors' contentions in the reopened full power proceeding. With regard to the appeals of the Licensing Board's low power testing decision,

¹⁶ LBP-81-27, 14 NRC 325 (1981).

¹⁷ Order of August 27, 1981 (unpublished).

¹⁸ Order of October 29, 1981 (unpublished).

¹⁹ Order of December 11, 1981 (unpublished).

²⁰ Because the matter was not ripe for decision, we withheld judgment on the Licensing Board's ruling with regard to joint intervenors' clarified contention 14, relating to the functional capability of various safety-related equipment. The Board below found the contention insufficient but permitted joint intervenors to file a revised contention. The Board subsequently denied the refiled contention (see Order of December 23, 1981 (unpublished)), and no party has requested our review of that ruling.

²¹ See CLI-81-22, 14 NRC 598, 600 (1981). In that immediate effectiveness review order, the Commission, exercising its inherent supervisory authority over the agency's adjudicatory proceedings, directed that joint intervenors' low power contentions 10 and 12 (relating, respectively, to pressurizer heaters and power operated relief valves) be included in the reopened full power proceeding. See also the Commission's Order of November 13, 1981 (unpublished). In our view, this Commission directive had the practical effect of admitting to the reopened full power proceeding joint intervenors' clarified contention 8 & 9 because of the correspondence between that clarified contention and low power contention 12.

we have not issued our decision until this time because of the Commission's suspension of the Diablo Canyon license. That suspension occurred the day before oral argument of these matters and, as we have previously indicated, still remains in effect. In the atmosphere of uncertainty created by the Commission's action, we felt the wisest course was to stay our hand pending further developments. We are now aware of serious discussions between the applicant and the staff concerning the final steps for concluding the Commission ordered verification program and the possible restoration of the applicant's low power license. In addition, the Licensing Board's initial decision on full power operation has now been issued²² and the parties' appeals are pending before us. We therefore believe that the time has come for the issuance of this consolidated decision.

In Sections II, III, and IV.A of the opinion, we address the issues raised on appeal from the Licensing Board's decision authorizing fuel loading and low power testing. In Section IV.B, we treat the Licensing Board's denial of certain of joint intervenors' contentions in the reopened full power proceeding that the Commission referred to us.

II. EMERGENCY PLANNING AND PREPAREDNESS

A.

In its July 17, 1981 partial initial decision authorizing fuel loading and low power testing, the Licensing Board concluded that compliance with the 16 emergency planning standards set forth in 10 CFR 50.47(b) is unnecessary. The Board found that for low power testing emergency planning "must be sufficient to confer the same level of protection to the public as afforded by full compliance with the regulations at full power operation."²³ In support of its conclusion that the then current level of emergency preparedness by the applicant and San Luis Obispo County met this standard, the Board found that the risks from low power testing are considerably less than those associated with full power operation. This, in turn, the Board reasoned, reduced the size of the offsite area that would be affected by a radiological emergency to only the six-mile low population zone (LPZ) around the plant and also reduced the level of emergency preparedness that need be in place for low power testing. The Board readily acknowledged that deficiencies existed in the applicant, state and county emergency

²² LBP-82-70, 16 NRC 756 (1982).

²³ 14 NRC at 123.

plans but concluded that such deficiencies were not significant for testing purposes.²⁴

On their appeals from the Licensing Board's decision, both joint intervenors and the Governor vigorously dispute the Board's reading of the Commission's emergency planning regulations and its conclusions concerning the adequacy of emergency planning for low power testing at Diablo Canyon. In particular, they argue that the Commission's regulations require that the onsite and offsite emergency plans for a facility meet all the standards of 10 CFR 50.47(b) or, alternatively, that the applicant demonstrate why any deficiencies are insignificant before any license may be issued. They further contend that the applicant, state and county emergency plans fail to meet all 16 regulatory standards and that applicant failed to establish the insignificance of the deficiencies. In addition, joint intervenors claim that the Board erred by relying on the reduced risks of operation at low power in reaching its decision on the adequacy of offsite emergency preparedness.

The passage of time since the Board's low power decision, combined with events occurring subsequent to the filing of the parties' briefs, have made the arguments of joint intervenors and the Governor largely academic. First, on July 13, 1982 the Commission added a section to the emergency planning regulations, 10 CFR 50.47(d), which states that:

no NRC or FEMA review, findings, or determinations concerning the state of offsite emergency preparedness or the adequacy of and capability to implement State and local offsite emergency plans are required prior to issuance of an operating license authorizing only fuel loading and/or low power operations (up to 5% of the rated power). Insofar as emergency planning and preparedness requirements are concerned, a license authorizing fuel loading and/or low power operation may be issued after a finding is made by the NRC that the state of onsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.²⁵

This amendment makes clear that for fuel loading and low power testing it is the applicant's onsite emergency plan and preparedness that is crucial, not the offsite plans and readiness of the state and county. Yet the arguments in the briefs of joint intervenors and the Governor are concerned solely with the status of the offsite state and county emergency plans.

²⁴ *Id.* at 138-39.

²⁵ 47 Fed. Reg. 30232, 30236 (July 13, 1982). In the statement of considerations issued with the amendment, the Commission stated that it "fully considered the risks of operating a nuclear reactor at low power" and concluded that the "risks . . . are significantly lower than the risks of operating at full power. . . ." *Id.* at 30234.

Second, and more important, the record on the status of emergency planning for low power operation of Diablo Canyon was made in May 1981. In the interval since that time, the emergency plans have been entirely superseded. The sufficiency of the subsequent revisions has already been litigated by the joint intervenors and the Governor and found by the Licensing Board in its August 31, 1982 initial decision to be adequate for full power operation.²⁶ The appeals of joint intervenors and the Governor challenging, *inter alia*, the adequacy of offsite emergency planning for full power operation at Diablo Canyon are currently pending before us. In these circumstances it serves no purpose for us to address here the infirmities said to exist in the earlier, now superseded, versions of the offsite emergency plans. The Commission's licensing process is a dynamic one and the Commission's recent clarification of the emergency planning regulations combined with the supersession of the 1981 emergency plans for Diablo Canyon have rendered moot joint intervenors' and the Governor's appeals of the adequacy of offsite emergency plans for fuel loading and low power testing.²⁷

B.

We nevertheless have examined the emergency planning portions of the record underlying the Licensing Board's initial decision authorizing full power operation in order to ensure that the present status of emergency planning at Diablo Canyon complies with the Commission's amended regulations for fuel loading and low power testing. Following the Commission's direction in 10 CFR 50.47(d), we have based our review for purposes of low power testing solely on an "assessment of the *applicant's* emergency plan against the *pertinent* standards [of 10 CFR 50.47(b) and 10 CFR Part 50, Appendix E]" (emphasis supplied). While this primarily involves a consideration of applicant's capability to cope with an emergency onsite, the statement of considerations accompanying 10 CFR 50.47(d) makes clear that "review of [applicant's] onsite response mechanism necessarily involves

²⁶ LBP-82-70, *supra*, 16 NRC at 761.

²⁷ The joint intervenors' challenge to the Licensing Board's disposition of their contention 24 also has been rendered moot. That contention questioned whether low power testing could commence before the completion of all qualification testing for the Diablo Canyon relief and safety valves. In its low power decision, the Licensing Board concluded that such testing would be completed by July 1, 1982 — a time predating the scheduled fuel loading. LBP-81-71, *supra*, 14 NRC at 143. Thereafter, for a variety of reasons, the testing schedules fell behind and, on appeal, the joint intervenors claim the Board's finding is in error. The passage of time since the Licensing Board's low power decision, however, has made this challenge academic. As pointed out in the Board's August 31, 1982 full power decision, all such testing now has been completed. See LBP-82-70, *supra*, 16 NRC at 796-97.

aspects of some offsite elements: [c]ommunications, notification, assistance agreements, fire protection and medical organization, and the like."²⁸ From our examination of the full power record, we are satisfied that applicant's plans are in accord with the pertinent standards for low power operation.²⁹

Briefly summarized, the chief considerations that demonstrate the fitness of applicant's plan for low power operation are as follows. Applicant has established a 24-hour per day onsite emergency response organization and prepared detailed procedures for onsite emergencies.³⁰ Should applicant need assistance from offsite personnel or agencies (e.g., in case of a fire), there is an appropriate call list and the necessary letters of agreement to get the assistance required.³¹ Applicant will classify accidents according to the standard four-category system recommended by NRC and FEMA guidance,³² and will notify state and county governments and agencies in accordance with that system.³³ Applicant can communicate with offsite agencies during an emergency via radio and dedicated telephones lines.³⁴ It has provided both a Technical Support Center (TSC) and an Operational Support Center (OSC) onsite, and an offsite Emergency Operations Facility (EOF).³⁵

Applicant has a network of radiological monitors onsite to measure the amount and location of any radiological release, and a computerized Emergency Assessment and Response System (EARS) to collect and analyze release data so as to assess the potential consequences of such a release.³⁶ Applicant has made provisions to protect employees and visitors

²⁸ 47 Fed. Reg. at 30232. Giving examples of standards that applicant's plan should satisfy for low power operation, the Commission pointed to "pertinent portions" of 10 CFR 50.47(b) (3), (5), (6), (8), (9), (12), and (15). *Id.* at 30232, 30234.

²⁹ We note that the parties' pending appeals from the Licensing Board's August 31, 1982 initial decision authorizing full power operation do not challenge the adequacy of the applicant's onsite emergency plan or those aspects of applicant's response mechanism involving offsite elements.

³⁰ 10 CFR 50.47(b) (1), (2) and 10 CFR Part 50, Appendix E, IV.A.1.,2. Applicant's Emergency Plan, App. Exh. 73 at 5-1 - 5-7; Applicant's Emergency Procedures, App. Exh. 74-A, 74-B; Testimony of Staff Witness Sears, fol. Tr. 12638, at 4-7.

³¹ 10 CFR 50.47(b) (3) and Appendix E, IV.A.3.-7. App. Exh. 73 at 5-8 - 5-12 and Appendix E; Testimony of Applicant's Panel 1, fol. Tr. 11778, at 1-5; Testimony of Sears at 3-4.

³² See NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," at Appendix 1 (November 1980).

³³ 10 CFR 50.47(b) (4) and Appendix E, IV.C. App. Exh. 73, at Section 4 and 5-12 - 5-16; App. Exh. 74A at G-3; Sears at 13, 16.

³⁴ 10 CFR 50.47(b) (5), (6), and Appendix E, IV.D.,E.9. App. Exh. 73 at 7-12 - 7-20; Sears at 19-20; Testimony of Applicant's Panel 3, fol. Tr. 12052, at 3-2 - 3-3.

³⁵ 10 CFR 50.47(b) (8) and Appendix E, IV.E.8. App. Exh. 73 at 7-1 - 7-12; App. Exh. 74A at G-2; Testimony of Applicant's Panel 4, fol. Tr. 119013, at 4-2 - 4-4; Sears at 24.

³⁶ 10 CFR 50.47(b) (9), and Appendix E, IV.B. App. Exh. 73 at pp. 7-26 - 7-36; Sears at 26-29; Testimony of Applicant's Panel 5, fol. Tr. 11924, at 5-4 - 5-7.

onsite in the event of a radiological release, and there are arrangements in the plans to evacuate nonessential personnel and to shelter those remaining. Any personnel remaining onsite and those arriving to augment the onsite organization will be equipped with respirators, protective clothing, dosimetry devices, and thyroid blocking pills.³⁷ To treat contaminated injured individuals,³⁸ applicant has a first-aid room onsite with decontamination equipment and has arrangements to transport individuals suffering more serious injury to identified area hospitals with facilities for treating them.³⁹ It has instituted a program to train personnel for their roles in an emergency, including training for fire, medical and other support agencies.⁴⁰ Finally, applicant has established a post-accident recovery organization, and has made provisions to review and revise its plan as necessary.⁴¹ In short, applicant's plan has addressed all pertinent standards for low power operation, and our examination has disclosed no deficiencies in applicant's plan that would preclude low power testing of Diablo Canyon.

C.

Joint intervenors and the Governor also assert that the Licensing Board erred in authorizing low power testing without first requiring that the Diablo Canyon emergency plans take into account the complicating effects of a severe earthquake. Subsequent to the filing of the appeals from the Licensing Board's decision, however, the Commission addressed this precise issue. In *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-81-33, 14 NRC 1091 (1981), the Commission, after taking up on its own motion the question whether the complicating effects of an earthquake on emergency planning need be

³⁷ 10 CFR 50.47(b)(10), (11), and Appendix E, IV.E.1., 2. App. Exh. 73 at 6-19 - 6-29; Sears at 33-35; Testimony of Applicant's Panel 6, fol. Tr. 12184, at 6-2.

³⁸ 10 CFR 50.47(b)(12), and Appendix E, IV.E.3.-7. The Commission has recently interpreted 10 CFR 50.47(b)(12) to require emergency response efforts to include medical services arrangements for the general public, but has indicated that the currently required arrangements for onsite personnel and emergency workers suffice for treating the general public. *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528, 535 (1983). Because a significant offsite release that could result in contaminating injury offsite is not a realistic possibility for low power operation, however, we have only considered here applicant's plans to treat emergency workers and other individuals onsite.

³⁹ App. Exh. 73 at 7-54, 5-10, and Appendix E, r., s., t., u., v., and Appendix H; Sears at 36-37; Testimony of Applicant's Panel 7, fol. Tr. 12065, at 7-1 - 7-3.

⁴⁰ 10 CFR 50.47(b)(15), and Appendix E, IV.F. App. Exh. 73 at 8-1 - 8-4; Testimony of Applicants' Panel 10, fol. Tr. 12022 at 10-2 - 10-3; Sears at 42.

⁴¹ 10 CFR 50.47(b)(9), (16), and Appendix E, IV.G., H. App. Exh. 73 at 9; App. Exh. 73 at 8-8 - 8-10; Sears at 43-44.

considered, answered the question in the negative. Specifically, it concluded that (*id.* at 1091-92):

current regulations do not require consideration of the impacts on emergency planning of earthquakes which cause or occur during an accidental radiological release. Whether or not emergency planning requirements should be amended to include these considerations is a question to be addressed on a generic, as opposed to case-by-case, basis.

The Commission went on to state that in the future it will consider, on a generic basis, whether the regulations should be changed to address this question. It then held that (*id.* at 1092):

For the interim, the proximate occurrence of an accidental radiological release and an earthquake that could disrupt normal emergency planning appears sufficiently unlikely that consideration in individual licensing proceedings . . . is not warranted.

The Commission's language could not be more emphatic or clear: the possible complicating effects of an earthquake on emergency planning should not be considered in individual licensing proceedings. This precedent is fully applicable to emergency planning at Diablo Canyon and we are obligated to follow it. Therefore, we cannot find that the Licensing Board erred in failing to consider the impacts of an earthquake on emergency planning in assessing the adequacy of such preparedness for low power testing at Diablo Canyon.

III. ENVIRONMENTAL STATEMENTS

A.

Prior to the hearing before the Licensing Board on the contested low power issues, the Governor (supported by the joint intervenors) moved the Board to order the staff to prepare an environmental impact statement (EIS), or alternatively, a negative declaration and an environmental impact appraisal (EIA), on the impacts of fuel loading and low power testing. The Board denied the motion and the Governor's reconsideration request on the ground that a final environmental statement covering full term, full power operation already had been prepared and thus obviated the need for any other environmental statements or appraisals.⁴²

On appeal, both joint intervenors and the Governor assert that the failure of the Board to order the preparation of at least a negative declaration and

⁴² LBP-81-5, *supra*, 13 NRC at 228-30.

an EIA tailored to low power testing violates the Commission's regulations implementing the National Environmental Policy Act (NEPA). They assert that the existence of a final environmental impact statement for full power operation of the facility is irrelevant because 10 CFR 51.5(b)(3) and (c)(1) place on the agency an independent mandatory obligation to prepare an EIS or, alternatively, a negative declaration and an EIA, prior to "[i]ssuance of a license to operate a power reactor . . . at less than full power. . . ." 10 CFR 51.5(b)(3). They further argue that such environmental analysis is crucial because the existing EIS for Diablo Canyon does not address the costs and benefits of low power testing and the need to conduct such tests before receiving full power authorization.

Contrary to joint intervenors' and the Governor's reading of the Commission's regulations — even assuming 10 CFR 51.5(b)(3) and (c)(1) are applicable to low power *testing* — the cited provisions do not mandate the preparation of any further environmental documents. Rather, as Section 51.5(b) states: "Many licensing and regulatory actions . . . may or may not require preparation of an environmental impact statement, depending upon the circumstances." Section 51.5(c)(1) is phrased in similarly non-mandatory language.⁴³ Thus, the existence of a final EIS for Diablo Canyon presents circumstances that obviate the need for the agency's preparation of either an EIS or an EIA aimed at low power testing.⁴⁴

Low power testing is a normal, necessary and expected step in the life of every nuclear plant. This is true whether such testing is planned under the authorization of a separate fuel loading and low power testing license, as in the case of Diablo Canyon, or scheduled as the first step toward operation under the authority of a full power license. Low power testing, unlike full power operation, is not intended to produce electrical power, and it is not an alternative to full power operation. The brief period of low power testing⁴⁵ does not involve any environmental impacts different from those already evaluated in the EIS for full term, full power operation. For these reasons,

⁴³ 10 CFR 51.5(c)(1) provides in pertinent part that [i]f it is determined that an environmental impact statement need not be prepared for an action listed in paragraph (b), a negative declaration and environmental impact appraisal will, unless otherwise determined by the Commission, be prepared. . . .

⁴⁴ The impact statement covering a range of environmental impacts of full power, full term operation of the Diablo Canyon facility was issued in 1973. An addendum was published in 1976. Thereafter, hearings on the contested environmental issues were held and the Licensing Board issued its partial initial decision on environmental matters in 1978. See LBP-78-19, 7 NRC 989 (1978).

⁴⁵ As the Licensing Board found
None of the tests will exceed 5% of the rated power of the reactors. In actuality four of the tests would be conducted at approximately 3% power, two at about 1.5% power, and two at zero power levels (Tr. 10727). The proposed testing would last for no more than one month and in actuality would probably take about eighteen days. (Tr. 10726-10728).

LBP-81-21, *supra*, 14 NRC at 123.

an adequate final EIS for Diablo Canyon necessarily includes the lesser impacts attendant to low power testing and removes the need for a separate statement focusing on questions such as the costs and benefits of low power testing.⁴⁶

B.

Before us, joint intervenors also argue that the Licensing Board erred in authorizing low power operation without first considering the environmental consequences of a Class 9 accident. They contend that the Board's denial⁴⁷ of their motion to reopen the record⁴⁸ for that purpose violates the Commission's June 13, 1980 Policy Statement entitled "Nuclear Power Plant Accident Considerations Under the National Environmental Policy Act of 1969."⁴⁹ According to joint intervenors, that policy requires the agency to consider Class 9 accident sequences in the Diablo Canyon EIS. We do not agree.

The Commission explained the regulatory history respecting so-called Class 9 accidents in *Offshore Power Systems* (Floating Nuclear Power Plants), CLI-79-9, 10 NRC 257, 258 (1979):

The term "Class 9 accidents" stems from a 1971 AEC proposal to place nuclear power plant accidents in nine categories to take account of such accidents in preparing environmental impact statements. That proposal was put forward for comment in a proposed "Annex" to the Commission's regulations implementing NEPA. . . . The nine categories in that "Annex" were listed in increasing order of severity. "Class 9" accidents involve sequences of postulated successive failure more severe than those postulated for the design basis of protective systems and engineered safety features. The Annex concluded that, although the consequences of Class 9 accidents might be severe, the likelihood of such an accident was so small that nuclear power plants need not be designed to miti-

⁴⁶ Moreover, even assuming low power testing properly could be viewed as an alternative to full power operation, what we stated in *Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), ALAB-161, 6 AEC 1003, 1014 (1973), *aff'd sub nom. Citizens for Safe Power, Inc. v. NRC*, 524 F.2d 1291 (D.C. Cir. 1975) would be controlling here:

If the 'rule of reason' applicable to impact statements is to be accorded any significance, it must be concluded that there is no absolute requirement that every conceivable alternative be explicitly addressed in each FES. Rather it is sufficient that the FES focus upon those alternatives which there is reason to believe might, if adopted, provide a significant difference in environmental impact.

No differing impacts exist in this instance.

⁴⁷ See LBP-81-17, 13 NRC 1122 (1981).

⁴⁸ See p. 784, *supra*.

⁴⁹ 45 Fed. Reg. 40101 (June 13, 1980).

gate their consequences, and, as a result, discussion of such accidents . . . in staff's environmental impact statements was not required.⁵⁰

In its 1980 policy statement, the Commission withdrew the proposed annex and announced that henceforth the agency's environmental impact statements would include consideration of what previously were labeled Class 9 accidents. But the Commission expressly limited its new policy to those "proceeding[s] at a licensing stage where a Final Environmental Impact Statement has not yet been issued."⁵¹ The Diablo Canyon final environmental impact statement was issued by the staff in 1973, supplemented in 1976 and, after hearings on various contested environmental issues, was found adequate by the Licensing Board in 1978.⁵² Thus, contrary to the claim of joint intervenors, the change in policy announced in 1980 was not intended by the Commission to apply to the Diablo Canyon EIS.

The Commission, however, did not completely foreclose the possibility of considering Class 9 accidents in proceedings in the posture of *Diablo Canyon*. In this regard, it stated that:

this change in policy is not to be construed as any lack of confidence in conclusions regarding the environmental risks of accidents expressed in any previously issued Statements, nor, absent a showing of . . . special circumstances, as a basis for opening, reopening, or expanding any previous or ongoing proceeding.⁵³

As examples of special circumstances that had in the past warranted consideration of Class 9 accidents, the Commission cited the novel design of the Clinch River Breeder Reactor Plant, the potentially serious radiological exposures associated with water pathways from Offshore Power Systems' floating nuclear power plants, and the high population density surrounding the Perryman site.⁵⁴ But, in their brief, joint intervenors make no argument that "special circumstances" exist at Diablo Canyon so as to require expanding the already completed EIS for the facility. Therefore, we need not consider that question. We note, however, that in denying the joint intervenors' motion to reopen the record, the Licensing Board concluded that no such special circumstances existed with respect to Diablo Canyon.⁵⁵

⁵⁰ Even though the Commission never adopted the proposed annex, the staff generally followed its guidance in preparing environmental impact statements and such statements withstood challenge in the courts. See *Carolina Environmental Study Group v. United States*, 510 F.2d 796, 799 (D.C. Cir. 1976); *Porter County Chapter of the Isaak Walton League v. AEC*, 533 F.2d 1011, 1014 (7th Cir.), cert. denied, 429 U.S. 858 (1976).

⁵¹ 45 Fed. Reg. at 40103.

⁵² See LBP-78-19, *supra*, 7 NRC989, 1035.

⁵³ 45 Fed. Reg. at 40103 (footnote omitted).

⁵⁴ *Id.* at 40102.

⁵⁵ 13 NRC at 1123-24.

IV. DENIAL OF CONTENTIONS

As previously recounted (p. 785, *supra*), after the close of the evidentiary record and as part of their opposition to the applicant's request for authority to load fuel and conduct low power testing, the joint intervenors advanced a list of TMI-related contentions (and the Governor a similar list of subjects) that they claimed must be heard prior to low power testing. In its February 13, 1981 prehearing conference order, the Licensing Board excluded most of joint intervenors' contentions and the Governor's subjects,⁵⁶ and both the joint intervenors and the Governor have appealed their rejection.

Immediately after the Licensing Board rejected their low power contentions, joint intervenors sought to reopen the record to litigate, in the context of the eventual full power operation of the Diablo Canyon facility, a number of the same contentions. Subsequently, the joint intervenors pared their list and combined and reworded several contentions which they then refiled as "clarified" contentions.⁵⁷ The Licensing Board, in an August 4, 1981 order, admitted one full power contention and denied the rest.⁵⁸ The joint intervenors' request for reversal of this later ruling was referred to us by the Commission and resulted in our December 11, 1981 order affirming the Licensing Board's result.

We now explain our affirmance of the Licensing Board's rejection of the joint intervenors' low power contentions and the Governor's subjects, and then provide the reasons underlying our December 11 order affirming the Licensing Board's rejection of joint intervenors' clarified contentions.

A.

In excluding the joint intervenors' proffered low power contentions and the Governor's subjects, the Licensing Board relied upon the Commission's policy statements concerning the litigation of TMI-related matters in agency licensing proceedings.⁵⁹ On appeal, both the joint intervenors and the Governor assert that the Commission's policy pronouncements explicitly provide for the right of the parties to litigate TMI-related issues. They

⁵⁶ See LBP-81-5, 13 NRC 226 (1981).

⁵⁷ See n.15, *supra*, and accompanying text.

⁵⁸ LBP-81-27, 14 NRC 325 (1981).

⁵⁹ See 45 Fed. Reg. 41738 (June 20, 1980); *Further Commission Guidance for Power Reactor Operating Licenses*, CLI-80-42, 12 NRC 654 (1980).

further contend that, in rejecting their contentions and subjects, the Licensing Board misread and misapplied the Commission's policy, resulting in the denial of their right to be heard on various TMI-related questions.

The appellants' arguments must fail. They are based on a highly selective reading of the policy guidance that ignores the portions most significant for purposes of this proceeding. A brief examination of that guidance demonstrates the correctness of the result reached by the Licensing Board.

During the aftermath of the 1979 TMI accident, the Commission took extensive actions aimed at correcting and improving the regulation and operation of nuclear power facilities. As part of that process, it approved the issuance of NUREG-0694, "TMI-Related Requirements for New Operating Licenses" (June 1980), which, as the title implies, listed the various actions applicants seeking operating licenses must take. The Commission then issued its initial policy statement, *Further Commission Guidance for Power Reactor Operating Licenses*,⁶⁰ in which it announced that the list of requirements contained in NUREG-0694 would provide the principal basis for considering TMI-related issues in the adjudicatory process. In the statement, the Commission explained how it anticipated such issues would be treated:

The TMI-related "Requirements For New Operating Licenses" adopted herein can, in terms of their relationship to existing Commission regulations, be put in two categories: (1) those that interpret, refine or quantify the general language of existing regulations, and (2) those that supplement the existing regulations by imposing requirements in addition to specific ones already contained therein. Insofar as the first category — refinement of existing regulations — is concerned, the parties may challenge the new requirements as unnecessary on the one hand or insufficient on the other. . . .

Insofar as the second category — supplementation of existing regulations — is concerned, boards are to apply the new requirements unless they are challenged, but they may be litigated only to a limited extent. Specifically, the boards may entertain contentions asserting that the supplementation is unnecessary (in full or in part) and they may entertain contentions that one or more of the supplementary requirements are not being complied with; they may not en-

⁶⁰ 45 Fed. Reg. 41738 (June 20, 1980).

tain contentions asserting that additional supplementation is required.⁶¹

Next, the Commission addressed the criteria applicable to the litigation of TMI-related issues in pending licensing proceedings and in those cases where the record already had closed:

where the time for filing contentions has expired in a given case, no new TMI-related contentions should be accepted absent a showing of good cause and balancing of the factors in 10 CFR 2.714(a)(1). The Commission expects strict adherence to its regulations in this regard.

Also, present standards governing the reopening of hearing records to consider new evidence on TMI-related issues should be strictly adhered to.⁶²

Subsequent to the issuance of the June policy statement, the Commission amended the requirements set forth in NUREG-0694 with a revised list contained in NUREG-0737, "Clarification of TMI Action Plan Requirements" (November 1980). This action, combined with further reflection on the distinction drawn between interpretive and supplementary requirements in the policy statement, led the Commission to amend the June Statement as well. On December 18, 1980, the Commission issued a revised policy statement that substituted the requirements of NUREG-0737 for those contained in NUREG-0694. More notably, however, the Commission lifted the ban contained in the first statement that boards "may not entertain contentions asserting that additional supplementation is required."⁶³ Instead it announced that, "[i]nsofar as the second category — supplementation of existing regulations — is concerned, the parties may challenge either the necessity for or sufficiency of such requirements."⁶⁴ But the revised policy statement did not change, and indeed repeated, the Commission's previous guidance concerning the standards that must be met by a party seeking to litigate TMI-related issues where the time for filing contentions had passed and the record was closed.⁶⁵

Before us, the joint intervenors and the Governor assert that the Licensing Board erroneously excluded their TMI-related contentions and subjects aimed at the sufficiency of a number of the new requirements because the proffered issues were not "directly related" to any NUREG-0737 requirements. Thus, the appellants contend they were denied the right to

⁶¹ *Id.* at 41740.

⁶² *Id.*

⁶³ *Id.*

⁶⁴ CLI-80-42, 12 NRC 654, 660 (1980).

⁶⁵ 12 NRC at 661.

litigate the sufficiency of the requirements contained in NUREG-0737 as permitted by the revised policy statement.

The appellants' argument, however, fails to recognize that the Commission's policy statements explicitly condition the litigation of TMI-related issues on the posture of the proceeding in which the right is asserted. Even if the Licensing Board erred in reading the Commission's policy statements, as appellants claim, it nevertheless reached the correct result in rejecting the proffered TMI-related contentions and subjects. The Commission's policy clearly provides that TMI-related issues may be litigated only if a party satisfies the traditional adjudicatory standards for reopening a record⁶⁶ and the standard contained in the agency's Rules of Practice for admitting late-filed contentions.⁶⁷ And, as hardly requires extended discussion, the Commission may validly prescribe such threshold requirements for a party seeking to reopen the proceeding to litigate any issue, whether or not TMI-related.⁶⁸

On December 3, 1980, when the joint intervenors and the Governor filed their contentions and subjects in response to the applicant's motion for authorization to conduct low power testing, the evidentiary record in this operating license proceeding had been closed for some 20 months.⁶⁹ It had closed after the conclusion of all hearings on contested issues and prior to the TMI accident. Shortly after the accident, and before the Licensing Board issued an initial decision, the Commission suspended all licensing of new facilities pending its assessment of the TMI incident. In due course, the Commission lifted its licensing ban and announced its policy for the adjudication of TMI-related issues. Thereafter, the applicant filed a motion pursuant to 10 CFR 50.57(c) for authority to conduct low power testing.⁷⁰

⁶⁶ Although the standard for reopening the record in an NRC proceeding has been variously stated, it requires that (1) the motion be timely, (2) significant new evidence of a safety question exist, and (3) the new evidence might materially affect the outcome. See, e.g., *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980); *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit 1), ALAB-462, 7 NRC 320, 338 (1978).

⁶⁷ For a late-filed contention to be admitted, 10 CFR 2.714(a)(1) requires that the following factors, as applicable, be considered:

- (i) Good cause, if any, for failure to file on time.
- (ii) The availability of other means whereby the petitioner's interest will be protected.
- (iii) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.
- (iv) The extent to which the petitioner's interest will be represented by existing parties.
- (v) The extent to which the petitioner's participation will broaden the issues or delay the proceeding.

⁶⁸ See *BPI v. Atomic Energy Commission*, 502 F.2d 424 (D.C. Cir. 1974).

⁶⁹ See pp. 784-85, *supra*.

⁷⁰ 10 CFR 50.57(c) provides in relevant part:

- (c) An applicant may, in a case where a hearing is held in connection with a pending proceeding under this section make a motion in writing, pursuant to this paragraph (c), for an operating license authorizing low-power testing (operation at not more than 1 percent of full power for the purpose of

(Continued)

But, in their filings before the Licensing Board, the joint intervenors and the Governor did not even address the standards for late-filed contentions and reopening the record as required by the Commission's June 1980 policy statement. Nor did they seek to amend their December 3, 1980 filings after the Commission issued its revised policy statement on December 18, 1980 reiterating these procedural prerequisites. Rather, the contentions and subjects filed by the joint intervenors and the Governor were merely a recitation, without more, of the TMI-related issues they sought to litigate as though the proceeding were in its initial stages and they were responding to a Commission notice of opportunity for hearing.⁷¹ Moreover, because the evidentiary record was closed, the applicant's motion to conduct low power testing pursuant to 10 CFR 50.57(c) did not open the proceeding for a new round of contentions.⁷² Thus, because the joint intervenors and the Governor failed to meet the standards for late-filed contentions and reopening the record, the Licensing Board's exclusion — albeit on different grounds — of their low power contentions and subjects was not error.⁷³ Any

testing the facility), and further operations short of full power operation. Action on such a motion by the presiding officer shall be taken with due regard to the rights of the parties to the proceedings, including the right of any party to be heard to the extent that his contentions are relevant to the activity to be authorized. Prior to taking any action on such a motion which any party opposes, the presiding officer shall make findings on the matters specified in paragraph (a) of this section as to which there is a controversy, in the form of an initial decision with respect to the contested activity sought to be authorized.

⁷¹ In a footnote to his brief, the Governor finally appears to concede that the Commission's revised policy statement requires meeting the standards for late-filed contentions and reopening the record. The Governor then states that the "Joint Intervenors and Governor Brown demonstrated compliance with these criteria. . . ." and cites in support of this statement a pleading filed by the joint intervenors some six weeks after the Licensing Board's order excluding the contentions and subjects. Br. at 46, n.101. The Governor's assertion is mistaken. Prior to the Licensing Board's February 13, 1981 order (LBP-81-5, *supra*) neither the Governor nor the joint intervenors even addressed, much less met, the applicable standards. Indeed, during the prehearing conference where the Board heard arguments on the admissibility of the low power contentions and subjects, the Governor and the joint intervenors took the position that they were entitled to litigate all their TMI-related contentions and subjects whether or not they could meet the reopening and late-filed contention standards. Prehearing Conf. Tr. 53-55, 142, 147. And, even after the Licensing Board had excluded his subjects, the Governor argued that the reopening and late-filed contention standards were irrelevant. See Opposition of Governor Edmund G. Brown Jr. to the NRC Staff and Pacific Gas and Electric Company Motions for Reconsideration and Summary Disposition (April 24, 1981).

⁷² See n.70, *supra*. When an applicant for an operating license files a motion for authority to conduct low power testing in a proceeding where the evidentiary record is closed but the licensing board has not yet issued an initial decision finally disposing of all contested issues, the board is obligated under 10 CFR 50.57(c) to issue a decision on all outstanding issues (*i.e.*, contentions previously admitted and litigated) relevant to low power testing before authorizing such testing. But such a motion does not automatically present an opportunity to file new contentions (*i.e.*, contentions not previously filed in response to the Commission's original notice of opportunity for hearing) specifically aimed at low power testing or any other phase of the operating license application. A party may, of course, identify for the Board those previously filed and litigated contentions that it contends must be decided before authorization of low power testing.

⁷³ In addition to the TMI-related subjects that he sought to litigate, the Governor also proffered a number of subjects in which "the Governor quoted or paraphrased the actual language used by PG&E itself in PG&E's low power test motion." According to the Governor, these subjects should have been admitted because they "put into controversy the very claims and statements made by PG&E on the record." Br. at 51.

(Continued)

error in the Licensing Board's reasoning therefore is harmless and does not represent grounds for reversal.⁷⁴ And, to the extent that some of the joint intervenors' low power contentions and the Governor's subjects were admitted by the Licensing Board without satisfying the prerequisites set forth in the Commission's policy statements, the appellants received more generous treatment than required.⁷⁵

B.

The Licensing Board excluded the majority of the joint intervenors' proffered contentions and the Governor's subjects filed in opposition to the applicant's low power testing motion, but admitted (with the effect of reopening the proceeding) five contentions and three subjects. As a result all parties sought Commission review of the Board's order pursuant to directed certification. Further, on March 24, 1981, and in the context of the eventual

The Licensing Board's exclusion of these subjects was also correct. For example, it is elementary that under 10 CFR 2.714, contentions submitted by intervenors and subjects submitted by the representative of an interested state must set forth the basis for each contention or subject with reasonable specificity. See *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-107, 6 AEC 188, 192 (1973), *aff'd sub nom., BPI v. AEC*, 502 F.2d 424 (D.C. Cir. 1974). In the context of the Governor's proffered subjects, therefore, it is not just the statement of what the Governor wishes to litigate that must meet the specificity requirement. Rather, it is the basis for his allegations that the statements from the applicant's motion are incorrect that also must meet the specificity requirement. Here, the Governor's proffered subjects stated no basis at all and, on this ground, we affirm the result reached by the Licensing Board.

⁷⁴ See *Securities & Exchange Commission v. Chenery*, 318 U.S. 80, 88 (1942). Cf. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 42 (1977).

⁷⁵ For example, the joint intervenors' low power contention 13 (and the Governor's similar subject 13) concerning the need for reactor vessel water level instrumentation was admitted to the proceeding by the Licensing Board with the understanding that the contention was addressed to the timing of the installation of the indicator. See LBP-81-5, *supra*, 13 NRC at 241, 250. Subsequently, the Board granted the applicant's and the staff's motion for summary disposition on the issue finding there was no disputed material issue of fact because the applicant agreed to install the device prior to fuel load. See Order of April 30, 1981 (unpublished). The contention and subject should not have been admitted into the proceeding in the first place, however, because neither the joint intervenors nor the Governor addressed, let alone met, the standards for late filed contentions and reopening the record on this contention as required by the Commission's policy statements. Therefore, the argument that the Board erred in granting summary disposition on this contention is quite beside the point.

Moreover, even on the merits, these arguments must fail. First, appellants argue that the Board erred in granting summary disposition on contention 13 because they sought to litigate the adequacy of the water level instrumentation, not the timing of its installation. But the appellants' remarks at the prehearing conference before the Licensing Board contrast sharply with their appellate claims. Prehearing Conf. Tr. 262. In any event, the appellants have appealed the wrong Board action. In admitting contention 13, the Licensing Board explicitly limited the issue to the timing for the installation of the instrumentation (see LBP-81-5, *supra*, 13 NRC at 241, 250), so the appellants should have challenged the Board's order that limited the contention, not the Board's order granting summary disposition of the contention. Second, the appellants' complaint comes too late. After the Board admitted contention 13 limited to the timing issue, the appellants did not object that the Board misconstrued their contention, in contrast to their objections to the Board's exclusion of their low power contentions and subjects. Rather, the appellants remained silent for over three months, and only in response to the motions for summary disposition did they assert that their contention was aimed at the adequacy of the water level instrumentation. In these circumstances, the appellants should not now be heard to complain that the Board misconstrued their contention.

full power operation of Diablo Canyon, the joint intervenors moved to reopen the record on 17 TMI-related issues — all of which intervenors previously had filed in opposition to the applicant's low power testing motion.⁷⁶ The Licensing Board refused to certify its prehearing order and the Commission denied the various directed certification motions. Nevertheless, the Commission reviewed, *sua sponte*, the status of the proceeding and on April 1, 1981, issued an order to provide "additional . . . guidance, consistent with its Revised Statement of Policy."⁷⁷ That order further confirms the correctness of the ultimate result reached by the Licensing Board in its February 13, 1981 prehearing conference order excluding the appellants' low power contentions and subjects.⁷⁸ Because pertinent portions of the Commission's order, however, clarify the standards applicable to motions to reopen the record, it is most relevant to the reasons underlying our earlier affirmance of the Licensing Board's exclusion of joint intervenors' "clarified" contentions contained in their motion to reopen the record. For that reason, we briefly summarize the Commission's April 1 order and then turn to the joint intervenors' full power contentions.

1. In its April 1 order, the Commission once again reiterated that in proceedings "where the evidentiary record . . . has been closed, the record should not be reopened on TMI-related issues relating to either low or full power absent a showing, by the moving party, of 'significant new evidence not included in the record, that materially affects the decision.'" It then stressed that "bare allegations or simple submission of new contentions is not sufficient"; rather "[o]nly significant new evidence requires reopening."⁷⁹

Next, the Commission pointed out that agency practice had always permitted a party to challenge whether an applicant's actions complied with

⁷⁶ Subsequently, on June 30, 1981 the joint intervenors filed a statement of "clarified" contentions in which they withdrew a number of the contentions from their March 24 motion, and consolidated and rewrote a number of the remaining ones. See n.15, *supra*, and accompanying text.

⁷⁷ CLI-81-5, 13 NRC 361, 362 (1981).

⁷⁸ The April 1 order, like the policy statements that preceded it, was confined to providing general guidance, and the Commission did not rule on any specific contentions or subjects proffered by the joint intervenors or the Governor in opposition to the applicant's motion for low power testing authorization. The substance of the Commission's message, however, was unmistakably clear and direct, and it recognized that "this guidance could lead to reconsideration of some of the various rulings contained in the February 13, 1981 Order." 13 NRC at 362. For example, the first part of the order directed the Licensing Board to rule promptly on the applicant's motion for fuel loading and low power testing and noted that "10 CFR 50.57(c) does not generally contemplate that a new evidentiary record, based on litigation of new contentions, would be compiled on the motion for fuel loading and low power testing." *Id.* The Licensing Board refused to take its cue from the Commission's April 1 order and denied the parties' motions for reconsideration, stating that "[t]he Board has concluded that the guidance in the Commission's order (CLI-81-5) dated April 1, 1981 does not require a change in the findings contained in its Order of February 13, 1981." Reconsideration Order of April 30, 1981 (unpublished) at 2.

⁷⁹ 13 NRC at 362-63. The Commission further explained that such new evidence need not come solely from independent experts, but could come from "admissions and statements" of the applicant and the NRC staff and "official NRC documents" as well. *Id.* at 363.

NRC regulations. This, it stated, remained true whether or not the alleged item of noncompliance was addressed in NUREG-0737. But, in any such challenge, a party must meet the pleading requirements of specificity and basis contained in 10 CFR 2.714 and, if the time for filing contentions has expired and the evidentiary record closed, then the party's challenge must also meet the standards for late-filed contentions and reopening the record. In the latter situation, "the parties are required to make the initial case that significant new evidence is available, not merely make claims to that effect."⁸⁰

Finally, the Commission outlined the steps under its revised policy statement that a party may use to challenge the adequacy of an applicant's actions — despite compliance with all applicable regulations — in an attempt to demonstrate insufficient protection to the public. For items contained in NUREG-0737, the Commission stated that a party may challenge the sufficiency of these requirements only if its objection is limited to the same safety concern that prompted the new requirement in the first place. Moreover, if the time for filing contentions has passed and the record has closed, then the party's challenge must meet the standards for late-filed contentions and reopening the record. A party meeting these standards could then "litigate . . . whether the NUREG 'requirement' is a sufficient response to that [safety] concern."⁸¹ If, on the other hand, the challenge is aimed at a safety concern not addressed in NUREG-0737, a party must rely upon the course outlined in 10 CFR 2.758 for seeking a waiver of, or exception to, an agency regulation.⁸²

2. As we held in our December 11, 1981 order summarily affirming the Licensing Board's rejection of the joint intervenors' "clarified"

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² *Id.* at 364. In pertinent part, 10 CFR 2.758(a) provides that no "rule or regulation of the Commission" shall be "subject to attack by way of discovery, proof, argument, or other means in any adjudicatory proceeding. . . ." Subsection (b) then provides the procedural mechanism whereby a party may petition for a waiver or exception to a regulation:

The sole ground for petition for waiver or exception shall be that special circumstances with respect to the subject matter of the particular proceeding are such that application of the rule or regulation (or provision thereof) would not serve the purposes for which the rule or regulation was adopted. The petition shall be accompanied by an affidavit that identifies the specific aspect or aspects of the subject matter of the proceeding as to which application of the rule or regulation (or provision thereof) would not serve the purposes for which the rule or regulation was adopted, and shall set forth with particularity the special circumstances alleged to justify the waiver or exception requested. Any other party may file a response thereto, by counter-affidavit or otherwise.

Finally, subsection (d) states that if the licensing board determines that a *prima facie* showing has been made that an application of the rule would not serve the purposes for which the rule was adopted, the board shall certify to the Commission the question whether a waiver or exception should be granted.

contentions, none of the contentions met the standards for reopening the record reiterated by the Commission in its April 1 order.

a. The joint intervenors' clarified contention 2 & 3 is aimed at the Diablo Canyon hydrogen control system. It asserts that the TMI accident demonstrated the invalidity of the assumption on which the applicant's system is designed (*i.e.*, during a loss-of-coolant accident only 5 percent of the fuel cladding will react chemically with reactor coolant to form hydrogen gas) because at TMI as much as 50 percent of the cladding reacted to form hydrogen. The joint intervenors contend that the applicant has not demonstrated that similar quantities of hydrogen exceeding the design basis of 10 CFR 50.44 will not be generated and then combust, thereby endangering the structures, systems and components important to safety and causing offsite releases of radiation in excess of the Commission's guidelines.

Because the foundation of this contention challenges the design basis 5 percent hydrogen generation assumption contained in 10 CFR 50.44(d)(2), the contention directly attacks a Commission regulation. And, as the Commission's April 1 order makes clear, a challenge to a regulation is permitted only if the dictates of 10 CFR 2.758 are followed. Yet in submitting clarified contention 2 & 3, the joint intervenors failed to follow the mandatory procedures of this regulation to seek a waiver of 10 CFR 50.44(d)(2).⁸³ Moreover, long before the joint intervenors filed this contention the Commission held in *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), CLI-80-16, 11 NRC 674, 675 (1980), that the generation of hydrogen at TMI-2 in excess of the design basis assumption of 10 CFR 50.44 provided insufficient "special circumstances" under 10 CFR 2.758 to justify a waiver of Section 50.44. Although the Commission indicated that the issue of hydrogen gas control could be litigated under 10 CFR Part 100, it expressly conditioned this possibility upon the demonstration of "a credible loss-of-coolant accident scenario entailing hydrogen generation, hydrogen combustion, containment breach or leaking, and off-site radiation doses in excess of Part 100 guideline values."⁸⁴ Once again, the joint intervenors' contention fails to detail any accident scenario meeting this test.⁸⁵ Accordingly, as we indicated in our previous order, clarified contention 2 & 3 was properly rejected.

⁸³ See n.82, *supra*.

⁸⁴ 11 NRC at 675. See also *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 463-64 (1982).

⁸⁵ We note that in the Diablo Canyon SER Supplement 10, at II.E.4-1 (August 1980) the staff states: the applicant has chosen to purchase and install redundant Westinghouse thermal recombiners in the containment buildings for Units 1 and 2. The internal hydrogen recombiners are now the primary means of post accident combustible gas control.

Rather than remove the redundant safety grade post accident hydrogen purge systems previously provided as the primary means of combustible gas control the applicant has chosen to maintain the purge systems as back-up systems.

b. The joint intervenors' clarified contention 4 asserts that the staff has failed to address for Diablo Canyon the unresolved generic safety issue of decay heat removal in a supplement to the Safety Evaluation Report (SER). According to joint intervenors, our decisions in *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760 (1977), and *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-491, 8 NRC 245 (1978), require that the staff, *inter alia*, describe the plan, method and schedule for resolution of this safety issue for the applicant's facility. We disagree.

In *River Bend*, we explained that in a construction permit proceeding a licensing board must make a finding under the Commission's regulations that there is a reasonable assurance that the facility can be constructed and operated without undue risk to the public.⁸⁶ Moreover, such finding should encompass all safety matters, not just those put in contest by the parties.⁸⁷ Thus, we concluded that, if a board is to discharge its responsibility properly, it need not duplicate the staff's review but must nevertheless determine from the record whether the staff review of all uncontested safety matters — including any unresolved generic safety issues — has been adequate. To facilitate the Board's mandatory scrutiny of the staff review, we suggested that the staff place the necessary information regarding unresolved generic safety issues in the SER for the facility. (The SER is the principal document before the Board reflecting the content and conclusion of the staff review.) But whether or not the information appears in the SER, we found the staff must produce the necessary evidence of the adequacy of the review of unresolved generic safety issues.⁸⁸

A year later the question of unresolved generic safety issues arose again, but this time in the setting of an operating license proceeding. In *North Anna*, because no party filed an appeal, we undertook our customary *sua sponte* appellate review of a licensing board's grant of authority for an operating license. After searching the record to ensure there were no significant safety issues requiring the invocation of our authority pursuant to 10 CFR 2.785(b)(2), we commented on the difficulty of this task with regard to uncontested, unresolved generic safety issues and requested more information from the staff with respect to one such issue. We indicated that in the future it would be helpful to us if the staff would include in an SER supplement an explanation of the unresolved safety issues affecting

⁸⁶ See 10 CFR 50.35(a).

⁸⁷ See 10 CFR Part 2, Appendix A, Section V(f)(2).

⁸⁸ 6 NRC at 775 and n.28.

the facility under review and the reasons the facility could nonetheless safely operate pending resolution of those issues.⁸⁹

The rationale underlying this request⁹⁰ was considerably different from our conclusion in *River Bend* that such information must be provided by the staff on the record in every construction permit proceeding. In an operating license proceeding, the Commission's regulations limit an adjudicatory board's findings to the issues put into contest by the parties.⁹¹ A board is not required to make (and, under the regulations cannot properly make) the ultimate finding comparable to that required in a construction permit proceeding. The regulations, however, give an adjudicatory board the discretion to raise on its own motion any serious safety or environmental matter.⁹² This discretionary authority necessarily places on the board the burden of scrutinizing the record of an operating license proceeding to satisfy itself that no such matters exist.⁹³ Our request of the staff in *North Anna* for information concerning one unresolved generic safety issue, as well as our suggestion that such information be placed in the SER in the future,⁹⁴ was designed to aid the boards in this regard and make their task easier. This being the case, the "obligation" we placed on the staff to aid the adjudicatory boards runs to the boards and is not an obligation that is enforceable by a party to the operating license proceeding.⁹⁵

The prohibition against a party's enforcing this staff obligation is in accord with the general principle that, in an operating license proceeding (with the exception of certain NEPA issues), the applicant's license application is in issue, not the adequacy of the staff's review of the application. An intervenor in an operating license proceeding is free to challenge directly an unresolved generic safety issue by filing a proper contention, but it may not proceed on the basis of allegations that the staff has somehow failed in its performance. Concomitantly, once the record has closed, a generic safety issue may be litigated directly only if the standards for late-filed contentions and reopening the record are met. Here, for example, because joint intervenors' clarified contention 4 fails to provide any significant new evidence

⁸⁹ 8 NRC at 248-49 and n.n.7, 10.

⁹⁰ See 8 NRC at 248 n.7.

⁹¹ See 10 CFR 2.760a.

⁹² See 10 CFR 2.785(b)(2).

⁹³ See *Northern States Power Co.* (Monticello Nuclear Generating Plant, Unit 1), ALAB-611, 12 NRC 301, 309 (1980).

⁹⁴ 8 NRC at 249 n.9. See also *Monticello*, *supra*, 12 NRC at 312.

⁹⁵ The joint intervenors also included as part of their clarified contention 2 & 3, see p. 805, *supra*, an allegation virtually identical to clarified contention 4 but dealing with the unresolved generic safety issue of hydrogen generation. This portion of contention 2 & 3 was properly rejected for the same reason we have rejected contention 4.

concerning some inadequacy in the Diablo Canyon decay heat removal system, the contention was properly rejected.⁹⁶

c. The joint intervenors' clarified contention 10 is aimed at the Westinghouse-designed Reactor Vessel Level Instrumentation System (RVLIS) that the applicant will install at Diablo in partial fulfillment of NUREG-0737 requirement II.F.2, "Instrumentation for Detection of Inadequate Core Cooling." The joint intervenors assert that the applicant's proposed system fails to meet the requirements contained in the Institute of Electrical and Electronics Engineers (IEEE) Standard 279, "Criteria for Protection Systems for Nuclear Power Generating Stations," which is incorporated by reference into 10 CFR 50.55a(h). According to joint intervenors, the applicant's system fails in the following respects: (1) it is untested and unproven; (2) it may provide erroneous or ambiguous readings under certain plant conditions, including a large pipe break; (3) it does not meet the single failure criterion; and (4) portions of the system are not seismically qualified.

Contrary to the joint intervenors' assertions, however, 10 CFR 50.55a(h) and the IEEE Standard incorporated into it are applicable only to protection systems and to facilities that receive construction permits after January 1, 1971. Because the applicant's proposed system is not a protection system but an instrumentation and control system⁹⁷ and, in addition, the construction permits for Diablo Canyon were issued prior to January 1, 1971, Section 50.55a(h) is inapplicable. Therefore, this provision cannot form the basis for the joint intervenors' contention that the applicants' proposed water level monitoring device violates the Commission's regulations.

Moreover, even if interpreted (contrary to its plain terms) as a challenge to the sufficiency of the NUREG-0737 requirement II.F.2, contention 10 fails to meet the standards for reopening the record. As the Commission's April 1 order states, "bare allegations or simple submission of new contentions is not sufficient"; rather "[o]nly significant new evidence requires reopening."⁹⁸ The joint intervenors present no such new evidence, only unsupported allegations of deficiencies in the applicant's system. Therefore,

⁹⁶ We note that the document cited in joint intervenors' contention identifying decay heat removal as an unresolved generic safety issue (*i.e.*, NUREG-0705 "Identification of New Unresolved Safety Issues Relating to Nuclear Power Plants," at 6 (March 1981)) contains the staff's explanation and conclusion why plants may continue to be licensed and operated prior to the ultimate resolution of this generic issue. Further, the staff addressed this issue for Diablo Canyon in several SER supplements. See SER Supplement 10, at II.E-1 - II.E-3 (August 1980); SER Supplement 14, at 2-10 to 2-19 (April 1981).

⁹⁷ See NUREG-0737, *supra*, at 3-113. See also 10 CFR Part 50, Appendix A, III, General Design Criterion 20. Compare 10 CFR Part 50, Appendix A, III, General Design Criterion 13.

⁹⁸ CLI-81-5, *supra*, 13 NRC at 363.

as we held in our December 11, 1981 order, contention 10 was properly rejected.⁹⁹

d. The joint intervenors' clarified contention 11 asserts that the applicant has performed insufficient analysis of the effects of small-break loss-of-coolant accidents (LOCAs), with the consequence that there is no basis for finding compliance with 10 CFR 50.46 and 10 CFR Part 50, Appendix A, General Design Criterion 35. In support of this claim, the joint intervenors state the following: (1) Section 50.46 requires analysis of emergency core cooling system performance for a sufficient number of postulated LOCAs of different sizes and locations to provide assurance (i) that the entire spectrum of postulated accidents is covered, and (ii) that certain specific parameters are not exceeded for the entire spectrum of accidents; (2) at TMI-2 certain of the Section 50.46 parameters were exceeded (*i.e.*, peak cladding temperature and the amount of cladding reacting with coolant); and (3) all the analyses required by the staff are limited to the case of a stuck open power operated relief valve, whereas other LOCAs can lead to the same consequences as those of TMI.

The joint intervenors fail to state in their contention that one of the requirements of NUREG-0737 involves the revision of the methods used to demonstrate compliance with 10 CFR Part 50 for small-break LOCAs.¹⁰⁰ But whether or not joint intervenors' contention is viewed as alleging the applicant's noncompliance with one of the NUREG-0737 requirements, or instead as an allegation that the applicant has failed to comply with Section 50.46 of the Commission's regulations, it fails to meet the requirements for reopening the record. The joint intervenors present no significant new evidence. They merely allege, without more, that the applicant's analyses are inadequate. This is patently insufficient to meet their burden. The joint

⁹⁹ We note that the situation with regard to the applicant's proposed water level monitoring device has changed significantly from the time when the joint intervenors originally filed their clarified contention 10 and we affirmed the Licensing Board's rejection of it. In a departure from the usual engineering development process, the Commission issued the NUREG-0737 requirement II.F.2 for new instrumentation to detect inadequate core cooling before the performance characteristics of such systems had been tested. Thus, at the time the joint intervenors filed contention 10, the testing of the Westinghouse designed RVLIS, as well as all other similar systems, was incomplete and ongoing. Indeed, with regard to the applicant's system, the staff announced it would review the system for acceptability only after installation, testing and calibration were completed. See SER Supplement 14, at 3-20 (April 1981). In part, this may have been why the joint intervenors were unable to substantiate their contention. In any event, this information void now has been largely filled with the completion of much of the testing of such systems. See, *e.g.*, NUREG/CR-2628, "Inadequate Core Cooling Instrumentation Using Differential Pressure for Reactor Vessel Level Measurements" (March 1982). Therefore, should the results of any of the completed evaluations of inadequate core cooling instrumentation systems demonstrate significant inadequacies in the applicant's water level monitoring device, the joint intervenors are, of course, free to file a new, properly supported, motion to reopen the record or to express their concerns in a petition filed with the Director of Nuclear Reactor Regulation pursuant to 10 CFR 2.206.

¹⁰⁰ See NUREG-0737, *supra*, Enclosure 2, Items II.K.3.30 - 31. See also Enclosure 3, at 3-177 to 3-181.

intervenor have not presented any evidence that the applicant's analyses do not comply with the NUREG-0737 requirement. Nor have they come forward with a specific critique of the applicant's analyses or an analysis of their own, with an explanation why it must be performed.¹⁰¹ Stated otherwise, the joint intervenors have improperly attempted to shift their burden of coming forward with significant new evidence of what more needs to be done by the simple expedient of pleading that the applicant has not done enough to comply with the regulations. Accordingly, the joint intervenors' clarified contention 11 was properly rejected.¹⁰²

e. In its combined contention 15 & 16, the joint intervenors assert that an operating license cannot be granted for Diablo Canyon until the applicant "demonstrates that structures, systems and components important to safety will not be prevented from operating and performing their intended functions as a result of interactions with non-safety-related systems."¹⁰³ To do so, joint intervenors contend, would violate General Design Criteria 2, 3, 4, 22 and 24.¹⁰⁴ To support their allegation, they claim that the occurrence of the TMI accident and the statements of several staff members calling for systems interaction analysis demonstrate the need for such analyses at Diablo Canyon.

Once again, this contention fails to meet the requirements for reopening the record. As the Licensing Board correctly noted in rejecting this contention, there is "[no] requirement in the regulations for this kind of

¹⁰¹ The joint intervenors' recitation in clarified contention 11 that certain of the parameters identified in 10 CFR 50.56 were exceeded at TMI does not supply the necessary "significant new evidence" for reopening the Diablo Canyon proceeding. As written, the TMI information adds nothing to the joint intervenors' contention. The contention provides no logical nexus between the fact that certain parameters of Section 50.46 were exceeded at TMI and their demand that additional analysis be done at Diablo Canyon. Indeed, among the many major differences between the facilities, the two reactors were not even designed by the same vendor.

¹⁰² At the end of contention 11, joint intervenors cite SER Supplement 14, at 3-22 (April 1981). Although no explanation accompanies the citation, the reference presumably is intended to support their contention. In any event, the cited page merely indicates the applicant's commitment to perform a new analysis using a newly developed Westinghouse model already approved by the staff should the small break analysis carried out pursuant to the requirements of NUREG-0737 indicate nonconformance with 10 CFR 50.46. The Westinghouse generic analysis of small-break LOCAs is contained in Topical Report WCAP-9600, "Report on Small Break Accidents for Westinghouse NSSS System" (June 1979), and the staff's review and approval of that analysis is documented in NUREG-0611, "Generic Evaluation of Feedwater Transients and Small Break Loss-of-Coolant Accidents in Westinghouse-Designed Operating Plants" (January 1980). In SER Supplement 10, at I.C. — 2 & 3 (August 1980), the staff states that "[w]e have reviewed the design features of the Diablo Canyon plant and we conclude that the NUREG-0611 review and approval of the small break LOCA analysis and guidelines apply *in total* to the Diablo Canyon plant."

¹⁰³ Joint Intervenors' Statement of Clarified Contentions at 15 (June 30, 1981).

¹⁰⁴ The first four of these criteria are broad statements that nuclear plants must be designed to protect against such threats as fire, floods, missiles and various other natural phenomena. General Design Criterion 24 is the "single-failure" criterion and requires that safety systems be redundant (*i.e.*, have backups in case of failure).

comprehensive study.”¹⁰⁵ Thus, contrary to the joint intervenors’ assertion, there is no regulatory premise for the contention. As the Commission has stated, “[g]eneral design criteria (GDC), as their name implies, are ‘intended to provide engineering goals rather than precise tests or methodologies by which reactor safety [can] be fully and satisfactorily gauged.’ ”¹⁰⁶ And, the design criteria cited by the joint intervenors have never been found by the Commission to require the specific systems interaction study called for by contention 15 & 16.¹⁰⁷ Further, if the contention is interpreted as seeking an exception to the regulation in order to require such systems interaction analyses at Diablo Canyon, then, as the Commission’s April 1 order points out, the joint intervenors must comply with the dictates of 10 CFR 2.758.¹⁰⁸ The joint intervenors have failed to do this. Thus, combined contention 15 & 16 was properly rejected.¹⁰⁹

f. The joint intervenors’ clarified contention 17 contends that the applicant’s Final Safety Analysis Report (FSAR) fails to document “where Diablo Canyon design, structures and components deviate from current regulatory practices (*i.e.*, Regulatory Guides, Branch Technical Positions, and Standard Review Plans) and the basis for and acceptability of those deviations.”¹¹⁰ They also contend that the staff has failed to set forth in the SER the standards against which Diablo Canyon has been reviewed and the basis for approving any deviations from current regulatory practice. In support of this contention, the joint intervenors claim that the TMI accident

¹⁰⁵ LBP-81-27, *supra*, 14 NRC at 331.

¹⁰⁶ *Petition for Emergency and Remedial Action*, CLI-78-6, 7 NRC 400, 406 (1978).

¹⁰⁷ Although these criteria do not require systems interaction analyses, such analyses are not necessarily inconsistent with the design goals set forth in General Design Criteria 2, 3, 4, 22 and 24. This fact, however, cannot save the contention because the joint intervenors have provided no significant new evidence of the failure of any of the Diablo Canyon systems as a result of not analyzing the systems interactions. Here again, the joint intervenors have improperly attempted to shift that burden to the applicant instead of stepping forward with evidence sufficient to warrant reopening the record.

¹⁰⁸ CLI-81-5, *supra*, 13 NRC at 363-64.

¹⁰⁹ We note that the staff required the applicant to make an analysis of systems interactions induced by seismic events. The staff reviewed the PG&E program for interaction analysis and the results of that analysis through August 1, 1980 in SER Supplement 11, at 8-1 (October 1980), concluding that:

Our review of PG&E’s report, as described in Sections 2.0 through 5.0 of this report; our evaluation of the results of PG&E’s program obtained up to August 1, 1980, as described in Section 6.0 of this report; and our onsite audit of PG&E’s program, as described in Section 7.0 of this report, have provided us with reasonable assurance that when subjected to seismic events of severity up to and including the postulated 7.5M Hosgri event, structures, systems, and components important to safety will not be prevented from performing their intended safety functions as a result of physical interactions with nonsafety-related structures, systems, and components. In addition, safety-related structures, systems, and components will not lose the redundancy required to compensate for single failures as a result of such interactions. Further, our review has provided us with additional assurance that the requirements of Criteria 2, 3 and 4 of Appendix A to 10 CFR Part 50 and the single failure requirements of Appendix A to 10 CFR Part 50 have been met for the Diablo Canyon Nuclear Plant, Units 1 and 2. Therefore, we conclude that PG&E’s program is acceptable.

¹¹⁰ Joint Intervenors’ Statement of Clarified Contentions at 17 (June 30, 1981).

demonstrated the need for the documentation of deviations because a contributing factor in the TMI accident was that the plant was not in compliance with then current regulatory practices. They then assert that the various reports in the wake of the TMI accident, as well as a recent Commission proposed rule on this subject, have all recognized the need for such documentation.

This contention, like the others, fails to meet the standards for reopening the record. The joint intervenors do not claim that the applicant has failed to comply with any current Commission regulations or NUREG-0737 requirement. Rather, the thrust of contention 17 is that the applicant must take actions not required by the regulations. Thus, in effect, the joint intervenors seek to have a requirement added to the regulations. In such circumstances, the Commission's April 1 order, like the policy statement that preceded it, requires the joint intervenors to comply with the mandates of 10 CFR 2.758 and seek an exception to the Commission's rules.¹¹¹ Once again, the joint intervenors have failed to do this. For this same reason, the joint intervenors' assertion that the staff has not set forth in the SER the deviations from current regulatory practices it has approved for Diablo Canyon must fail. Accordingly, as we indicated in our previous order, this contention was properly rejected.

For the foregoing reasons, we *affirm* the results reached by the Licensing Board in its July 17, 1981 partial initial decision (LBP-81-21) authorizing fuel loading and low power testing.

¹¹¹ We note that on March 18, 1982 the Commission promulgated a final rule requiring future applicants for licenses to identify and evaluate differences from the Standard Review Plan. 47 Fed. Reg. 11651. In the Statement of Considerations accompanying the final rule the Commission stated that it decided to exclude operating reactors and pending applications for operating licenses from the requirements of the rule, at this time. The pending operating license applicants have proceeded far enough in the licensing process that the application of the rule at this time could delay licensing decisions. Further, excluding the operating reactors and pending operating license applicants will significantly reduce the impact on available short-term engineering resources.

Id.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

Dr. Johnson, dissenting in part:

Section IIB (pp. 790-93) of the Board's opinion concludes with the finding, based on evidence presented in the full power hearing, that applicant's emergency plan meets the current Commission standards for low power test operations. Although I do not necessarily disagree with this finding, I believe it is neither required nor appropriate in an opinion addressing matters raised on the appeal of the Licensing Board's low power decision. Further, no party asked that we make such a finding. I therefore do not participate in that portion of the opinion.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

**Gary J. Edles, Chairman
Dr. John H. Buck
Dr. Reginald L. Gotchy**

In the Matter of

**Docket No. 50-289
(Design Issues)**

**METROPOLITAN EDISON COMPANY,
*et al.***

**(Three Mile Island Nuclear
Station, Unit No. 1)**

May 26, 1983

In another of its appellate decisions in this special proceeding to determine whether Unit 1 of this facility should be permitted to resume operation, the Appeal Board deals with the issues of plant design, modifications and procedures, and the physical separation of Three Mile Island Units 1 and 2. The Appeal Board finds, with some express qualifications, that all the systems, structures and components it examined are sufficiently reliable to permit restart of the Unit. Because, however, there are other safety issues that are before the Commission for its separate and exclusive determination, the Appeal Board does not decide the overall question of the operability of Unit 1, leaving it to the Commission to decide after it has examined all systems and considered information within and outside the record in this proceeding.

**CONSTRUCTION PERMIT PROCEEDINGS: PRELIMINARY
SAFETY ANALYSIS REPORT**

Each applicant for a nuclear power plant construction permit must submit a preliminary safety analysis report as part of its application. This

report must describe and discuss the design and operating characteristics of the plant, including, importantly, an evaluation of the design and performance of those structures, systems and components intended to ensure that accidents can be prevented and that the consequences of accidents can be mitigated. See 10 CFR §50.34(a).

PLANT DESIGN: GENERAL CRITERIA

The design of a nuclear power plant must conform to the standards established in the Commission's General Design Criteria (GDC), which set minimum requirements for the structures, systems and components important to safety at nuclear power plants.

ATOMIC ENERGY ACT: SAFETY STANDARDS

A proper standard for determining safety of nuclear power plant operation is whether present systems can assure reasonable protection of the public health and safety. See *Citizens for Safe Power v. NRC*, 524 F.2d 1291, 1297 (D.C. Cir. 1975); *Nader v. NRC*, 513 F.2d 1045, 1052-54 (D.C. Cir. 1975); *Petition for Shutdown of Certain Reactors*, CLI-73-31, 6 AEC 1069, 1070-71 (1973); *Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit No. 2)*, ALAB-486, 8 NRC 9, 46 (1978). Absolute certainty or "complete," "entire," or "perfect" safety is not required by the Atomic Energy Act, nor does nuclear safety technology admit of such a standard. What constitutes "reasonable assurance of adequate protection" is also subject to change, as the state of the nuclear safety art advances. It is for the Commission to weigh the state of that art, the risk of accidents, the record of past performance, the need for further improvement in nuclear safety matters, and other considerations. *Nader v. Ray*, 363 F. Supp. 946, 954 (D.D.C. 1973).

LICENSE CONDITIONS: COMPLIANCE DURING EMERGENCIES

Licensees may take reasonable action that departs from license conditions or technical specifications in an emergency when such action is needed to protect the public health and safety. See 48 Fed. Reg. 13966 (Apr. 1, 1983).

REGULATIONS: INTERPRETATION (10 CFR PART 50, APPENDIX A)

Structures, systems, and components that are "important to safety" are those that "provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public." 10 CFR Part 50, Appendix A, Introduction. "Important to safety" is not the equivalent to but is broader than the term "safety-grade." The latter refers to equipment that meets extremely rigid design criteria so as to produce the highest degree of reliability. *See, e.g., Sacramento Municipal Utility District (Rancho Seco Nuclear Generating Station), ALAB-655, 14 NRC 799, 808 (1981).*

SAFETY STANDARDS: EQUIPMENT QUALIFICATION

Not all equipment that may play some safety role at a nuclear plant need meet safety-grade criteria. Under the regulations, all structures, systems and components encompassed by the term "important to safety," including the "safety-grade" sub-class, are necessary to meet the broad safety goal articulated in the GDC, *i.e.*, to provide reasonable assurance that a facility can be operated without undue risk to the health and safety of the public, as required by statute. Only "safety-grade" structures, systems and components, however, are relied upon to meet critical safety functions, such as those identified in 10 CFR Part 100: accident prevention, safe shutdown, and accident consequence mitigation.

SAFETY STANDARDS: EQUIPMENT QUALIFICATION

To be considered safety-grade, a system must be able to remain operative after a design seismic event and to function in any harsh environment which may be expected at its location after an accident.

SAFETY STANDARDS: EQUIPMENT QUALIFICATION

The Commission's regulations do not require upgrading of nonsafety systems to safety-grade standards.

RULES OF PRACTICE: CONTENTIONS (ADMISSIBILITY)

Parties interested in litigating unresolved safety issues must do something more than simply offer a checklist of unresolved issues; they must

show that the issues have some specific safety significance for the reactor in question and that the application fails to resolve the matters satisfactorily. *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760, 772-73 (1977).

CONSTRUCTION PERMIT PROCEEDINGS: SAFETY FINDINGS

Adjudicatory boards in construction permit proceedings must be able to find reasonable assurance that a facility can be operated without undue risk to the public irrespective of what matters may or may not have been properly placed in controversy. *Id.* at 774.

APPEAL BOARD: SCOPE OF REVIEW (*SUA SPONTE*)

In operating license proceedings, an appeal board will search the record under its *sua sponte* authority, 10 CFR §2.785(b)(2), to ensure that there are no significant safety issues requiring corrective action. *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-491, 8 NRC 245, 247-48 (1978). See generally *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-728, 17 NRC 777, 806-08 (1983).

RULES OF PRACTICE: CONTENTIONS (ADMISSIBILITY)

As a general rule, licensing boards should not accept in individual license proceedings contentions which are (or about to become) the subject of general rulemaking by the Commission. *Potomac Electric Power Co.* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-218, 8 AEC 79, 85 (1974). As a corollary, certain issues included in an adjudicatory proceeding may be rendered inappropriate for resolution in that proceeding because the Commission has taken generic action during the pendency of the adjudication. See *Rancho Seco*, *supra*, 14 NRC at 816-17. There may nonetheless be situations in which matters subject to generic consideration may also be evaluated on a case-by-case basis where such evaluation is contemplated by, or at least consistent with, the approach adopted in the rulemaking proceeding. *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-675, 15 NRC 1105, 1112 (1982).

REGULATIONS: ENVIRONMENTAL QUALIFICATION OF SAFETY SYSTEMS

Safety systems at nuclear power plants must be designed to perform their intended safety functions despite changes in the surrounding environment that may result from an accident.

TECHNICAL ISSUES DISCUSSED

- Small break loss of coolant accident (SBLOCA);
- Loss of main feedwater transient;
- Decay heat removal;
- Emergency Feedwater (EFW) System Reliability;
- EFW System Seismic and Environmental Qualification;
- Natural circulation — liquid and two phase;
- Use of high-point vents as an aid to natural circulation;
- Use of pressurizer heaters to control Reactor Coolant System Pressure;
- Boiler-condenser process to obtain natural circulation;
- Feed and Bleed as a method of core cooling;
- Pressurizer heater circuitry reliability;
- Power Operated Relief Valve (PORV) — qualifications;
- Low temperature overpressure protection;
- Safety systems bypass and override by operator;
- Systems classification and interaction studies;
- Definitions of importance to safety, safety-grade, and safety-related;
- Upgrading of safety-related components to safety-grade;
- Environmental qualification of safety systems — Generic considerations;
- Development of a reactor vessel water level indicator;
- Inadequate core cooling instrumentation;
- Cold shutdown;
- Steam generator tube break accident — relation to PORV qualifications;
- Main Steam Line Rupture Detection System;
- Unresolved generic safety issues;
- Description of TMI Unit 1;
- Small Break Loss-of-Coolant Accident Analysis.

APPEARANCES

Ellyn R. Weiss and Robert D. Pollard, Washington, D.C., for the Union of Concerned Scientists, intervenor.

Thomas A. Baxter and George F. Trowbridge, Washington, D.C. (with whom **Robert E. Zahler and Delissa A. Ridgway**, Washington, D.C., were on the brief), for Metropolitan Edison Co., *et al.*, licensees.

James M. Cutchin, IV (with whom **Joseph R. Gray, Jack R. Goldberg and Mary E. Wagner** were on the brief), for the Nuclear Regulatory Commission staff.

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DECISION

Introduction and Summary

This opinion is the latest in a series of appellate decisions dealing with issues concerning the restart of Unit 1 of the Three Mile Island Nuclear Station. It deals with issues of plant design and procedures, and the physical separation of Units 1 and 2.¹ We disposed of various emergency planning issues in two decisions issued on October 22, 1982.² In an opinion issued on December 10, 1982, we examined environmental issues and held that the Licensing Board properly rejected the contention of the Union of Concerned Scientists (UCS) that an environmental analysis of so-called Class 9 accidents must precede the restart of TMI-1.³

The Licensing Board issued a lengthy opinion disposing of issues regarding plant design and procedures and the separation of Units 1 and 2. LBP-81-59, 14 NRC 1211 (1981). Two parties, UCS and the licensee, have appealed portions of that decision. UCS has appealed the Licensing Board's resolution of the issues raised in UCS Contentions 1 and 2

¹ A detailed history of the trial phase of the case is set forth in the Licensing Board's first partial initial decision. *Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1)*, LBP-81-32, 14 NRC 381, 386-99 (1981).

² ALAB-697, 16 NRC 1265; and ALAB-698, 16 NRC 1290. The Commission declined to review ALAB-697. It took review of one aspect of ALAB-698 and modified our decision in an additional respect. See CLI-83-7, 17 NRC 336 (1983).

³ ALAB-705, 16 NRC 1733. The Commission declined to review ALAB-705. A petition for judicial review is pending in *Union of Concerned Scientists v. NRC*, No. 83-1503 (D.C. Cir., filed May 9, 1983).

(natural and forced circulation), 3 and 4 (pressurizer heaters), 5 (power operated relief valves), 10 (safety system bypass and override), 12 (equipment qualification), and 14 (equipment important to safety), as well as its resolution of Board Question 6 (emergency feedwater reliability). UCS has also raised "other errors of law" involving the Licensing Board's standard of necessity for design changes, delegation of certain matters to the NRC staff, and rejection of UCS Contention 17 concerning unresolved generic safety issues. The licensee's only appeal in this phase of the case concerns the need for reactor vessel water level instrumentation.

Briefs were filed and we heard oral argument on September 1, 1982. On December 29, 1982, following receipt of several Board notifications and extensive comments by the parties, we reopened the record in order to clarify certain inconsistencies in the parties' positions and testimony regarding various methods of decay heat removal.⁴ Four days of evidentiary hearings were held between March 7 and March 17, 1983, and supplemental briefs were filed on April 12, 1983.⁵ This opinion disposes of all issues of plant design, modifications, procedures, and separation, including those examined in the reopened hearing. A final aspect of the case, involving the issue of management competence, is awaiting appellate review.

The Commission's August 9, 1979 notice of hearing instructed the Licensing Board to determine whether various short-term and long-term recommendations of the Director of Nuclear Reactor Regulation (NRR) were necessary and sufficient to provide reasonable assurance that the Three Mile Island Unit 1 facility can be operated without endangering the health and safety of the public. CLI-79-8, 10 NRC 141, 148 (1979). Generally speaking, the Licensing Board found various deficiencies in design and procedures that must be corrected before the plant is permitted to restart. The Board concluded, however, that, if the deficiencies are corrected, Unit 1 can be operated in the short term without endangering the public health and safety. The Board also found that the licensee has made reasonable progress with respect to various necessary and sufficient long-term actions which provide reasonable assurance that TMI-1 can be operated in the long term without endangering the health and safety of the

⁴ In brief, we were unsatisfied that we could determine on the basis of the record compiled to that point whether the so-called "feed and bleed" and "boiler-condenser" processes were capable of removing decay heat from the reactor core in the event of a small break loss of coolant accident (LOCA) or a loss of main feedwater. Our reasons for reopening the record are set out in detail in ALAB-708, 16 NRC 1770 (1982).

⁵ For convenience, references to the reopened hearing are cited as R. Tr.

public. 14 NRC at 1711.⁶ We too find some deficiencies in design and procedures. As discussed throughout this opinion, these deficiencies are correctable.

As explained in considerable detail in Part I and Section III(A), *infra*, a reliable means of removing "decay heat," *i.e.*, heat that continues to be produced in the reactor core after reactor operation ceases, is essential to permit safe operation of TMI-1. We believe that natural circulation can assure adequate decay heat removal. Natural circulation depends in part on the reliability of the emergency feedwater (EFW) system. As we noted in ALAB-708, *supra*, note 4, that system at TMI-1 may lack the capability to withstand a postulated safe shutdown earthquake. *See* 16 NRC at 1736 n.5. The scope of this proceeding, however, does not embrace the issue of whether the EFW system can withstand such an earthquake. That issue is, instead, before the Commission for its separate, and exclusive, determination.⁷ While we are satisfied with the reliability of the EFW system within the limited scope of this proceeding, we must note that we have not examined some matters affecting the system, such as its seismic and environmental qualifications. As a consequence, we have considered the possibility that reliance may have to be placed on other plant systems to provide adequate core cooling.

In the absence of a reliable emergency feedwater system, it has been suggested that decay heat could still be removed by the "feed and bleed" method. This is discussed in Section III(A), *infra*. The licensee has not relied on the adequacy of this backup method of removing decay heat. It argues that modifications to the emergency feedwater system now make it safety-grade for the transients that are the subject of the restart proceeding, and that feed and bleed is needed only for accidents beyond the design basis of the plant and thus need not be examined for the purpose of determining whether TMI-1 may be safely restarted. It chose, therefore, to demonstrate that, *within the scope of the issues in this case*, natural circulation is reliable. As a result, it was left to the staff to demonstrate the reliability of feed and bleed. We find that the staff was unable to make such demonstration. Plainly the feed and bleed process is conceptually valid. The staff, however, was unable to resolve numerous analytical uncertainties with regard to the process. As a consequence, we are unable on this record to endorse feed and bleed as a reliable backup system of

⁶ Under procedures established by the Commission, the staff is to ensure that any corrections ordered by the Board are completed. CLI-82-32, 16 NRC 1243 (1982).

⁷ On March 14, 1980, the Commission clarified that contentions must have a reasonable nexus to the TMI-2 accident. *See* 14 NRC at 392. We, as did the Licensing Board, have interpreted this to mean a small break LOCA or main feedwater transient. *Id.* at 1372. Therefore, also outside the scope of our examination is the issue of the reliability of the steam generators, and various safety questions not having a nexus to a small break LOCA or a loss of main feedwater.

decay heat removal. We believe that further analysis or testing is required to prove the viability of feed and bleed as a decay heat removal method.

In summary, we find that all the systems, structures and components we have examined are sufficiently reliable to permit restart, with some qualifications as expressly noted. In light of the bifurcation of issues between the Commission, on the one hand, and the adjudicatory boards, on the other, the Commission must determine — after examining all systems and considering the information that is both within and outside the record before us — whether there is reasonable assurance that Three Mile Island Unit No. 1 can be operated without endangering the health and safety of the public.

Part I of this opinion is a brief discussion of the technical aspects of plant operation and applicable regulatory requirements. Part II addresses a threshold legal challenge to the Licensing Board's overall determination. Part III presents our substantive analysis of the various technical issues raised on appeal. Part IV disposes of numerous legal issues.

I. PLANT OPERATION AND REGULATORY REQUIREMENTS

Three Mile Island is the site of two pressurized water reactor (PWR) nuclear power plants, TMI-1 and TMI-2. Each plant is powered by a nuclear reactor, the function of which is to heat water to produce steam. The steam drives a turbine that turns a generator to produce commercial electricity.

The heat source for any nuclear power plant is the energy released when fission occurs in the reactor core. Reactor coolant, *i.e.*, water, flows through the reactor core and removes the heat generated by the fission process. The water flows by way of piping to a number of tubes inside two steam generators. This system is known as the primary coolant system.⁸ Normally, forced flow is maintained in the primary system by use of four reactor coolant pumps. But, under proper conditions, sufficient cooling flow to remove core decay heat after reactor shutdown may be maintained without use of pumps by a process known as natural circulation.⁹

The outside surface of the steam generator tubes is in contact with another, wholly independent water system referred to as the secondary coolant system. Water in this secondary system absorbs heat from the primary coolant and converts to steam, which is used to drive the turbine generator

⁸ The term "reactor coolant system" is also used to refer to the primary system. *See, e.g.*, 14 NRC at 1226.

⁹ The process of natural circulation is possible, under proper conditions, because cooler water in the steam generators has a greater density than the water in the core. This produces a greater pressure in the steam generators than in the core and forces flow of the cooler water from the steam generators into and through the core. *See* Appendix A, at pp. 900-01, *infra*, for a full discussion of this phenomenon.

to make electricity. By removing heat from the reactor and transferring it to the secondary system, reactor overheating is also prevented.

Once the secondary coolant (steam) passes through the turbine, it is led to a condenser where it once again becomes water. The water is then returned by feedwater pumps to the steam generator to begin another cycle of secondary water/steam flow. The main feedwater (MFW) system is the normal means of providing water into the secondary system. In the event that the main feedwater system is not available, an emergency feedwater system can be used to supply sufficient feedwater to the steam generators to remove decay heat following reactor shutdown.

Water in the primary system is radioactive because of small amounts of leakage from the reactor core and activation of impurities in the coolant as it circulates through the core. Because the primary and secondary systems are separate, only the primary system becomes significantly radioactive.

In the event of an accident involving the reactor, or certain of its related systems, reactor operation is terminated by the insertion of control rods (*i.e.*, the reactor “trips,” or “scrams”). Although the fission process is essentially stopped at that point, heat continues to be produced in the reactor core by the radioactive decay of fission products. As a result, a reliable means of removing this decay heat is required for an extended period after a reactor trips. For serious emergencies, equipment and procedures must be designed to bring the plant to a safe shutdown, *i.e.*, to maintain the reactor in a subcritical condition and keep the reactor core cooled for an extended period of time.¹⁰

Each applicant for a nuclear power plant construction permit must submit a preliminary safety analysis report as part of its application. This report must describe and discuss the design and operating characteristics of the plant, including, importantly, an evaluation of the design and performance of those structures, systems and components intended to ensure that accidents can be prevented and that the consequences of accidents can be mitigated. *See* 10 CFR §50.34(a). The design of a nuclear power plant must conform to the standards established in the Commission’s General Design Criteria (GDC), which set minimum requirements for the structures, systems and components important to safety at nuclear power plants.¹¹ GDC 1 requires generally that structures, systems and components important to safety be designed to quality standards commensurate

¹⁰ A reactor is subcritical when its neutron chain reaction is no longer self-sustaining.

¹¹ *See* 10 CFR Part 50, Appendix A. A set of General Design Criteria was first proposed by the Atomic Energy Commission in 1967. *See* 32 Fed. Reg. 10213 (July 11, 1967). Following receipt and consideration of public comments, a set of criteria, with some modifications from those originally proposed, was incorporated into the Commission’s regulations in 1971. *See* 36 Fed. Reg. 3255 (Feb. 20, 1971). While the GDC have been modified over the years, their basic intent remains the same — to ensure that all structures, systems and components important to safety are designed and constructed to provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public.

with the importance of their safety function. GDC 2 requires that such structures, systems and components be designed to withstand the effects of natural phenomena, such as earthquakes, without loss of capability to perform their safety function. GDC 34 and 35 require reliable, redundant systems for removing decay heat from the core.¹²

Metropolitan Edison Company applied for a permit to construct TMI-1 in 1967. The unit was designed and constructed in accordance with the criteria proposed by the Commission in 1967. TMI-1 began operation in 1975 and TMI-2 began operation in 1978. The well publicized accident occurred at the TMI-2 facility on March 28, 1979. Following the accident, TMI-1, which was already shut down for refueling, was ordered to remain shut down pending completion of this proceeding.

II. STANDARD FOR DECISION

We are met at the threshold with a claim by UCS that the Licensing Board employed an improper standard — presumably, one that is too lenient — in reaching all of its safety determinations regarding plant design and procedures. As noted above, the Licensing Board was called upon to determine whether the recommendations of the Director of NRR are “necessary and sufficient” to provide reasonable assurance that the Three Mile Island Unit 1 facility can be operated without endangering the health and safety of the public. See CLI-79-8, *supra*, 10 NRC at 148. The Commission did not define its terms. The Licensing Board, construing the Commission’s order, observed that

the term “necessary” in normal English would be synonymous with the absolute concept of “indispensable” and “essential.” A given “necessary” measure under the Commission’s order could fairly be regarded as a *sine qua non* to reasonable assurances of public safety.

14 NRC at 1245. The Board went on to supplement its definition of the term “necessary,” — and, as it turns out, to complicate its meaning somewhat — by including as “necessary” those measures

which would produce a substantial and additional protection to the public health and safety and which, based upon the record, are reasonable in view of the technology, resources and risk involved. In other words, we have done exactly what Staff witnesses have done, *i.e.*, measured necessity partially in terms of feasibility

Id. at 1249.

¹² The major structures, systems and components at TMI-1 that are designed to provide the necessary protection of the public are described in greater detail in Appendix A of our decision. A more detailed discussion of accident analysis is contained in Appendix B, *infra*.

UCS claims that the Board's construction is improper because modifications that are essential to safety but infeasible would not be considered "necessary." UCS argues that "necessary" modifications within the meaning of the Commission's order must include all actions that "would produce a substantial and additional protection to the public health and safety," whether feasible or not.¹³

We reject UCS' argument that the Licensing Board employed an improper definition of "necessary" in reaching its decision on the merits. As a threshold matter, we note that UCS does not claim — let alone demonstrate — that its perception of the Board's definition actually resulted in too lenient rulings on the various proposed actions. UCS merely argues that:

Although the Board does not specifically discuss feasibility in ruling on the various actions proposed by the parties, one must assume that the Board took feasibility into account in reaching all of its conclusions. Otherwise, the Board would have had no need to undertake its extensive and obviously difficult discussion of the issue.

The Board may well have rejected a proposed action on feasibility grounds although the action is otherwise required to assure safety.¹⁴

Although there is some support in the language of the Board's decision for UCS' assumption,¹⁵ we believe UCS must do more than simply suggest that an improper definition may have been employed in resolving numerous unspecified issues.

More importantly — although the Board's definition is not entirely free of ambiguity — we think it is reasonably clear from the initial decision as a whole that the Licensing Board employed the term "necessary" as essentially synonymous with the statutory requirement of reasonable assurance of adequate safety. Stated somewhat differently, the Board considered actions "necessary" if, as the staff suggests, failure to take them would preclude a finding of reasonable assurance of adequate protection. As we read the Board's decision, lack of feasibility would not constitute a defense if a recommended action was — to use UCS' term — "essential to safety."¹⁶ We are satisfied that, contrary to the UCS claim, the Licensing Board did not employ a standard under which a condition inconsistent with adequate protection of the public would be permitted simply because a modification to correct the condition was infeasible.

The only specific setting in which the Licensing Board found it necessary to "undertake its extensive and obviously difficult discussion of the issue"

¹³ UCS Consolidated Brief of March 15 and April 14, 1982, at 50, 53-54 (hereafter cited as UCS Brief).

¹⁴ UCS Brief at 55-56.

¹⁵ See, e.g., 14 NRC at 1245.

¹⁶ UCS Brief at 54.

(to use UCS' characterization) was in connection with the resolution of the issue of instrumentation to measure inadequate core cooling.¹⁷ As we shall discuss in greater detail later in this opinion,¹⁸ the licensee's procedures for detection of inadequate core cooling rely primarily on a saturation meter and core exit thermocouples. Such instrumentation would indicate inadequate core cooling but a vessel water level meter, it is argued, would provide information during the period between the initiation of a break (as indicated by the saturation meter) and the overheating of the core (as indicated by the core exit thermocouples). Although the value of such water level instrumentation is a matter of considerable dispute in the record, the Licensing Board found that it would be "a useful and valuable operating adjunct and is needed in the long term."¹⁹

UCS contended that development of the water level meter was therefore "necessary" before restart. The Board concluded that it was not for two independent reasons. First, and importantly, the Board found that the licensee's existing instrumentation and procedures are adequate to protect the public health and safety in the short term.²⁰ Second, the Board decided that reasonable progress toward installation of a vessel level meter was not "necessary" before restart within the meaning of the Commission's instituting order because such meter is not currently available for Babcock and Wilcox (B&W) plants like TMI-1, and the staff may, in any event, ultimately conclude that no system to measure water level is acceptable.²¹ We believe the Board's discussion of the need for instrumentation to measure inadequate core cooling — including its conclusion that the public can be adequately protected following restart without a vessel level meter — tends to rebut UCS' allegation that the Board may have used feasibility as a threshold against which to measure the necessity of the proposed modifications.

In our view, UCS' fundamental disagreement with the Board is over the issue of the relative degree of added safety assurance that should be required before TMI-1 is authorized to resume operation. UCS would seem to have us conclude that actions should be deemed "necessary" any time they might potentially produce substantial and additional protection to the public health and safety.²² Under such definition, actions would be "necessary" every time a potential safety improvement appears on the horizon, even if the technology to produce the improvement is only in the

¹⁷ See 14 NRCat 1233-45.

¹⁸ See pp. 890-91, *infra*.

¹⁹ 14 NRCat 1242.

²⁰ *Id.* at 1237.

²¹ *Id.* at 1243-44.

²² UCS Brief at 50.

developmental stages. Implicit in UCS' argument is the notion that nuclear power plant operation cannot be considered reasonably safe as long as scientific efforts are under way to develop new and better safety features. As we read the Licensing Board's decision, it concluded simply that safety should properly be assessed on the basis of whether present systems can assure reasonable protection of the public health and safety. Such an approach is generally consonant with the requirements of the Atomic Energy Act. See *Citizens for Safe Power v. NRC*, 524 F.2d 1291, 1297 (D.C. Cir. 1975); *Nader v. NRC*, 513 F.2d 1045, 1052-54 (D.C. Cir. 1975). It is also in accord with long standing agency practice. See, e.g., *Petition for Shutdown of Certain Reactors*, CLI-73-31, 6 AEC 1069, 1070-71 (1973); *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 2), ALAB-486, 8 NRC 9, 46 (1978). Cf. ALAB-697, *supra*, 16 NRC at 1272 and ALAB-698, *supra*, 16 NRC at 1299-1301.²³

The court's remarks in *Nader v. Ray*, 363 F. Supp. 946, 954 (D.D.C. 1973) (citations omitted), are pertinent here:

Absolute certainty or "complete," "entire," or "perfect" safety is not required by the Atomic Energy Act, nor does nuclear safety technology admit of such a standard. The Supreme Court recognized in the *Power Reactor* case that nuclear technology is subject to change. [367 U.S. 396 (1961)]. What constitutes "reasonable assurance of adequate protection" is also subject to change, as the state of the nuclear safety art advances. It is for the Commission to weigh the state of that art, the risk of accidents, the record of past performance, the need for further improvement in nuclear safety matters, and other considerations. Balancing these factors calls for the exercise of discretion by the expert agency.

We believe that the Board properly balanced all relevant factors and reasonably interpreted what actions are "necessary" within the meaning of the Commission's instituting order. In reviewing the Licensing Board's decision and the overall record, moreover, we have judged proposed modifications on their technical merits using the statutory standard.²⁴

²³ Nothing in *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-491, 8 NRC 245 (1978), on which UCS relies, is inconsistent with this conclusion.

²⁴ The staff argues, in contrast to UCS, that the Licensing Board defined the term "necessary" too broadly. In the staff's view, the Board improperly expanded the definition to include as "necessary" potential remedies that might enhance safety even though not strictly essential to guarantee that TMI-1 can be operated without endangering the public health or safety. Staff Brief of May 20, 1982, at 11-13. The staff observes that the Commission may establish standards for imposing actions deemed simply desirable, rather than necessary, but contends that the Board's authority in this case is limited to determining whether particular actions are "necessary and sufficient" to assure adequate safety. *Id.* at 13. Except with respect to the Board's determination regarding instrumentation to detect inadequate core cooling (which we discuss separately), however, the staff has not pointed to any situation in which the Board actually employed the supposedly expansive definition to require actions that the staff deems simply desirable. In such circumstances, we see no need to offer our views on the staff's characterization of the Licensing Board's definition.

III. TECHNICAL ISSUES

A. Decay Heat Removal

1. Introduction

A critical aspect of UCS' challenge to the Licensing Board's decision is its disagreement with the Board's conclusion that the systems and procedures at TMI-1 will permit satisfactory decay heat removal in the event of an accident.²⁵

As discussed in Part I, *supra*, reactor operation is terminated in the event of an accident involving the reactor or certain of its related systems, but a reliable means of removing decay heat is still necessary for an extended period of time after shutdown.²⁶ The usual means of removing decay heat and bringing the reactor to cold shutdown is to provide feedwater to the steam generators while releasing steam to the main condenser through the turbine bypass valves.²⁷ Reactor coolant circulation is provided by the reactor coolant pumps, with the pressurizer spray system used to lower pressure as necessary. Once the reactor coolant temperature and pressure reach approximately 250°F and 320 pounds per square inch gage (psig), respectively, the Decay Heat Removal (DHR) system is initiated to provide reactor cooling.²⁸ This is accomplished by removing reactor coolant from a hot leg, circulating it through the DHR system where it is cooled by the DHR coolers, and then returning the reactor coolant to a cold leg. This normal means of cooling to cold shutdown cannot, for analytical purposes, be assumed to be available during accident conditions because it utilizes nonsafety-grade equipment.

²⁵ UCS Contention 1 asserted that natural circulation cannot be relied upon to remove decay heat and that forced cooling must be provided to cool the core adequately.

UCS Contention 2 asserted that there are only 3 methods for providing forced cooling of which none is sufficiently reliable to protect public health and safety. These methods with the UCS reasons for their rejection in parentheses are (1) reactor coolant pumps (not designed as safety-grade), (2) decay heat removal system (low pressure design), and (3) high pressure injection (HPI) system in feed and bleed mode (inadequate capacity and radiation shielding). See 14 NRC at 1225.

UCS Contention 3 claims that the staff recognizes that pressurizer heaters and associated controls are necessary to maintain natural circulation. Therefore, according to UCS, this equipment should be classified as "important to safety" and required to meet all applicable safety-grade criteria. *Id.* at 1267. See Section III(E), *infra*, for a discussion of the terms important to safety and safety-grade.

Board Question 6 concerned the reliability of the emergency feedwater (EFW) system at TMI-1. *Id.* at 1353-55.

²⁶ See Appendix B, at p. 920, *infra*.

²⁷ "Cold shutdown" is achieved when the reactor is subcritical by at least one percent reactivity and the reactor coolant system temperature is less than 200 degrees, Fahrenheit (°F). Tr. 16556 (M. Ross).

²⁸ Keaten *et al.*, fol. Tr. 16552 at 6-10. Tr. 16556 (Colitz). See fn. 369 of Appendix A, *infra*, for a discussion of pressure measurement units.

In the event of a small break loss of coolant accident (LOCA) or a loss of main feedwater, there are essentially two means of reactor core decay heat removal at TMI-1, depending on the conditions that are present.²⁹ If the emergency feedwater (EFW) system is available, core cooling may be accomplished by natural circulation of reactor coolant (either as liquid or two-phase) to the steam generators, where heat is transferred to secondary water which in turn converts to steam. Natural circulation is dependent upon the difference in reactor coolant density in the reactor core and the steam generators. If the reactor coolant system is relatively free of steam bubbles, liquid (also called single-phase) natural circulation can be maintained.³⁰ If there is substantial steam formation at the high points of the reactor coolant system, however, cooling would depend on the establishment of a type of natural circulation referred to as the "boiler-condenser" mode. In this process, core decay heat generates steam, which rises through the hot legs to the steam generators, where it condenses. Water then flows through the cold legs to the core, where the process begins anew. As indicated above, either type of natural circulation is dependent on the operability of the emergency feedwater system.

If no feedwater is available, decay heat must be removed by the feed and bleed process, in which cooling water is injected into the reactor coolant system by the high pressure injection (HPI) pumps and expelled from the primary system through the break itself, the power operated relief valve (PORV), or the safety relief valves. For this process to be successful, flow from the HPI pumps must be sufficient to replace the amount of coolant lost out of the system.

All parties appear to agree that the preferable method of removing decay heat from the reactor core after a small break LOCA or main feedwater transient is to establish and maintain natural circulation.³¹ In addition, all agree that the initiation and maintenance of natural circulation depends on the availability of the emergency feedwater (EFW) system. The parties disagree, however, on the reliability of the EFW system at TMI-1. We therefore consider this critical item first.

²⁹ The reactor coolant pumps and main feedwater system are assumed to be inoperative because they are not safety-grade.

³⁰ We note that liquid natural circulation could be maintained in the presence of steam bubbles until the high points of the reactor coolant system become voided.

³¹ This conclusion was also reached following investigation of the TMI-2 accident. See, e.g., NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations," at A-2 to A-3 (July 1979). Though not included in the record by the parties, the Licensing Board took official notice of NUREG-0578. See 14 NRC at 1277.

2. Emergency Feedwater (EFW) System Reliability

The Licensing Board found that the EFW system would be safety-grade at restart for small break LOCAs and main feedwater transients. Nevertheless, it determined that the system was not sufficiently reliable to assure protection of the public health and safety alone and relied on the feed and bleed mode as a backup. See 14 NRC at 1364-73. The Board based this conclusion essentially on its own quantitative probabilistic analysis of the so-called "failure" of the EFW system (*i.e.*, its inability to prevent steam generator dryout, which was calculated to occur at about five minutes). None of the parties agrees with the Licensing Board's assessment. The licensee and the staff rely on the EFW system to remove core decay heat in the event of a small break LOCA or a main feedwater transient³² and challenge the Board's conclusion that the EFW system is not adequately reliable. UCS challenges the Board's finding that the EFW system will be safety-grade for small break LOCAs and main feedwater transients at restart. In addition, it contends that existing problems with the EFW system and the feed and bleed mode preclude a finding that the plant can be safely restarted.

To begin with, we agree with the Licensing Board's finding that the EFW system will be safety-grade at restart insofar as small break LOCAs and main feedwater transients are concerned.³³ But, we also agree with the staff and the licensee that the Licensing Board has misapplied its quantitative probabilistic analysis in reaching the conclusion that the EFW system is unreliable despite its safety-grade status.

The staff estimated the failure probability of the EFW system (as ultimately modified) in preventing steam generator dryout to be 4.5×10^{-4} per demand.³⁴ The licensee noted that a failure rate for the main feedwater system based upon experience at five B&W plants was 0.3 per year.³⁵ The Board multiplied these values to obtain its estimate of the failure probability of the EFW system as 1.5×10^{-4} per year.³⁶ Then, relying on our decision in the *St. Lucie* case,³⁷ it concluded that the EFW system had not been demonstrated to be sufficiently reliable by itself.³⁸

³² See Tr. 4816-18 (Keaten); Tr. 5016, 5502-03 (Jensen); Tr. 5645-47 (Lanese); Tr. 6146 (Wermiel).

³³ 14 NRC at 1372. Although the EFW system is undergoing extensive modification, it will not be safety-grade insofar as safety problems outside the scope of this proceeding until the first refueling after restart. Affidavit of Jacobs at 4-5, attached to NRC Staff's Response to Appeal Board Order of July 14, 1982 (August 9, 1982). See 14 NRC at 1360-64.

³⁴ See Wermiel and Curry, fol. Tr. 16718, Attachment 3; see also 14 NRC at 1369. For comparison, the chart indicates a staff prediction of the failure probability of the best Westinghouse EFW design with a 30-minute steam generator inventory as 2×10^{-5} per demand.

³⁵ See Keaten, fol. Tr. 16612 at 9.

³⁶ 14 NRC at 1370.

³⁷ *Florida Power and Light Co. (St. Lucie Nuclear Power Plant, Unit No. 2)*, ALAB-603, 12 NRC 30 (1980).

³⁸ 14 NRC at 1370.

In *St. Lucie*, we determined that additional measures were necessary to mitigate a loss of all AC power (station blackout) because of a history of off-site power loss and the well-documented limited reliability of diesel generators even though that plant's redundant diesel generators met the single failure criterion.³⁹ While our belief that the single failure criterion should not be followed blindly is applicable to any plant (including TMI-1), the data base used in performing a reliability analysis of the systems in question must be well-founded and appropriate to the situation.⁴⁰ Furthermore, the reliability analysis must investigate the postulated scenario to completion. We do not believe that the Licensing Board's analysis satisfies these conditions.

First, we note that the licensee stated that the design of the main and emergency feedwater systems is normally not the responsibility of B&W, but of the architect/engineer.⁴¹ Because these designs can vary widely, we cannot be sure that the EFW challenge rate used by the Licensing Board based on data for five B&W plants is actually applicable to TMI-1.⁴²

Second, in establishing a failure rate for the EFW system, the Board assumed that EFW flow to the steam generators had to be established within five minutes to prevent steam generator dryout. However, the licensee testified that emergency feedwater flow could be delayed for as much as 20 minutes without resultant core damage⁴³ and the staff testified that the TMI-1 EFW system would have compared favorably with other pressurized water reactors (PWRs) if a more realistic success criterion (such as 20 minutes) had been employed.⁴⁴ Moreover, in using the five minute criterion, the Board did not complete the analysis and take into account the opportunity for operator action to re-establish main or emergency feedwater flow.⁴⁵ Operator procedures have been improved⁴⁶ and such improve-

³⁹ 12 NRCat 48-52.

⁴⁰ For example, the staff testified that, when comparing risks of operating various nuclear power plants, consideration needs to be given to the integrated response of all plant systems in the event of an accident. Wermiel and Curry, *fol. Tr. 16718 at 39-40*. See also Florida Power & Light Co. (St. Lucie Nuclear Power Plant, Unit No. 2), CLI-81-12, 13 NRC 838, 844 (1981).

⁴¹ Keaten, *fol. Tr. 16,612 at 5*.

⁴² We note that there have been no total loss of main feedwater events at TMI-1. *Id.* at 11.

⁴³ *Tr. 16,614 (Keaten)*.

⁴⁴ *Tr. 17,080 (Wermiel)*.

⁴⁵ We are not prepared on the basis of this record to accept feed and bleed using the HPI pumps as a reliable means of providing core cooling by itself following a small break LOCA or loss of main feedwater; nor do we assume, as the Licensing Board did, that the HPI pumps will be available and thus add a safety factor of 100. See our discussion of feed and bleed at pp. 848-55, *infra*. However, we do believe that the ability of the HPI pumps to provide cooling water flow at high pressure will undoubtedly lengthen the amount of time available for operator actions before core damage could occur.

⁴⁶ *Tr. 16,743-46 (Curry); Tr. 16,700-02 (Keaten)*.

ments should result in better operator actions and, hence, improvements in the quantitatively measured reliability of the emergency feedwater system.⁴⁷ In our view, therefore, the failure of the EFW system to prevent steam generator dryout cannot be equated with a total failure of the EFW system to perform its function.⁴⁸

In all these circumstances, we are unconvinced that the Board's quantitative analysis reliably predicts the likelihood of EFW failure.

UCS raises three main objections to the Board's findings concerning the reliability of the EFW system. It argues, first, that the EFW flow control valves are operated by the nonsafety-grade Integrated Control System (ICS).⁴⁹ We agree with UCS that the automatic initiation of emergency feedwater flow to the steam generators will not be safety-grade at restart.⁵⁰ In our November 5, 1982 memorandum and order (unpublished), we proposed the assignment of an individual whose sole function would be to operate the flow control valves manually following the onset of an accident. We indicated that this assignment would resolve the concerns for the dependence of the emergency feedwater system on the nonsafety-grade ICS.⁵¹ In its response dated November 22, 1982 (pp. 12-15) to that order, the licensee referred us to plant procedures that require the control room operator to dispatch an auxiliary operator to the flow control valves for any EFW pump auto-start condition.⁵² If the emergency feedwater flow were not achieved by the control room operator, the auxiliary operator would take manual control of the flow control valves.⁵³ We are satisfied with the plant procedures for manual control of the EFW flow control valves. Provided that these procedures are retained for use by TMI-1 operators until the EFW system is made fully safety-grade, and the auxiliary operator's sole task is manipulation of the EFW flow control valves until automatic control or remote control (through the manual station in the control room) of the EFW system is restored, we consider the concerns regard-

⁴⁷ Tr. 16,940 (Curry).

⁴⁸ There has been no history of failure on demand of the TMI-1 EFW system (Keaten, fol. Tr. 16612 at 11) and the historical data indicate that the TMI-1 EFW system has been more reliable than that of the average plant. Tr. 6219 (Wermiel). Furthermore, staff witness Curry considered the reliability of the TMI-1 EFW system at restart to be comparable with other operating PWR plants and about equal to the industry average. Tr. 16722.

⁴⁹ UCS Brief at 104-05.

⁵⁰ We note, however, that only control-grade (as opposed to safety-grade) automatic initiation of the EFW system has been required by the Commission before restart. See NUREG-0578 recommendation, *supra*, at 10 and B-4, and CLI-79-8, 10 NRC 141, 144-145 (1979).

⁵¹ The Licensing Board indicated that this dependency on the ICS was also its "chief" concern. 14 NRC at 1372.

⁵² See Lic. Ex. 49 at 2.0, 6.0; Lic. Ex. 48 at 10.0, 30.0.

⁵³ At the reopened hearing, licensee indicated that its position that the operator had sufficient time to provide manual control of the EFW flow valve was based on the assumption that this was the assigned operator's sole task. R. Tr. 338 (Dempsey).

ing dependence on the ICS for control of emergency feedwater to be resolved.⁵⁴

Second, UCS asserts that the Board erred in recommending restart without requiring design modifications to prevent a single failure from causing isolation of all feedwater to both steam generators.⁵⁵ In this connection, the staff testified that, during an event at the Crystal River Nuclear Generating Plant, the Main Steam Line Rupture Detection System (MSLRDS) prevented feedwater flow from being delivered to either steam generator.⁵⁶ As a result, the Licensing Board directed the licensee to propose a long-term solution to this problem and the staff to certify that the licensee has made reasonable progress prior to restart.⁵⁷ If the MSLRDS isolates feedwater inadvertently, the operator can bypass the detection system and manually open the EFW flow control valves.⁵⁸ Therefore, we believe that it is safe for the plant to restart while a long-term solution is developed.⁵⁹

Finally, UCS argues that the TMI-2 lessons learned recommendation that EFW systems should be adequate to remove decay heat without causing the PORV or safety relief valve to open has not been met.⁶⁰ In its decision, the Licensing Board discussed the potential for the lifting of a

⁵⁴ The licensee has proposed that this requirement for manual control of the EFW flow valves be limited to initiation of feedwater flow to the steam generators. Licensee's Reply to the NRC Staff's Proposed Opinion, Findings of Fact, and Conclusions of Law in the Reopened Hearing (April 28, 1983). Once it is verified that feedwater flow is being delivered, the auxiliary operator, under the licensee's proposal, would be allowed to perform other duties. In the event of an unforeseen emergency, the auxiliary operator might be forced to leave his post to assure protection of the public health and safety, but the procedures should not require the auxiliary operator to perform normal duties in addition to manipulation of the EFW flow control valves.

⁵⁵ UCS Brief at 105. UCS also claims that the Licensing Board has improperly delegated to the staff the responsibility for approving the licensee's proposal of a long-term solution to the steam generator isolation problem. *Id.* at 57-61. We address this objection in Part IV of this decision.

⁵⁶ Tr. 16,919-22 (Rowsome). The Main Steam Line Rupture Detection System (MSLRDS) is intended to prevent feedwater flow to a steam generator that is connected to a steam line break. In fact, it is relied on in accident analyses to limit the pressurization of the reactor building that would result from a steam line break inside the building. See Final Safety Analysis Report, Three Mile Island Nuclear Station Unit 1 (March 1973) ("FSAR I") at 14-15 and Final Safety Analysis Report, Updated Version, Three Mile Island Nuclear Station Unit 1 (July 1982) ("FSAR II") at 14.1-21 to 27. Its circuitry is such that, if low steam pressure (approximately 600 psig) is sensed in a steam line, the flow control valves for the main feedwater and emergency feedwater lines to that particular steam generator are closed. Tr. 5730-32 (Torcivia).

⁵⁷ 14 NRC at 1374.

⁵⁸ Tr. 5923-26 (Lanese).

⁵⁹ As its solution to the potential for inadvertent feedwater isolation caused by the MSLRDS, licensee proposes to remove the MSLRDS signal from the EFW system and eliminate excessive flow by the use of cavitating venturis. Licensee Response to Appeal Board's Order of July 14, 1982, at 20 (August 12, 1982). While this appears to solve the problem of inadvertent feedwater isolation, there still remains the concern for overpressurization of the containment if the nonsafety-grade MSLRDS failed to isolate main feedwater during a steam line break accident. See UCS Reply to Responses at 16 (August 25, 1982). Prior to acceptance of this proposal, we recommend that the potential for containment overpressurization as a result of MSLRDS failure be evaluated.

⁶⁰ UCS Brief at 108. In NUREG-0578, the TMI-2 Lessons Learned Task Force recommended that a loss of main feedwater should not result in the opening of primary coolant system relief valves. NUREG-0578, *supra*, note 31, at A-30. However, the Task Force did not include this recommendation as a short-term requirement. *Id.* at A-31.

relief valve when one motor-driven EFW pump is used to provide decay heat removal immediately after shutdown.⁶¹ Licensee witness Keaten testified that (a) one turbine-driven pump or two motor-driven pumps could supply adequate flow to remove the decay heat immediately after shutdown, and (b) one motor-driven pump could provide adequate flow after decay heat had decreased for two and one-half minutes but that the PORV may open during that period.⁶² While acknowledging that a brief lifting of the PORV could occur in the event of a failure of two of the three pumps, the Board considered that the modifications to the EFW system (such as safety-grade automatic start of the EFW pumps and automatic initiation of EFW flow by the nonsafety-grade ICS) will greatly reduce challenges to the relief valves — thereby satisfying the concerns of the TMI-2 Lessons Learned Task Force.⁶³ In addition to the modifications to the EFW system, the high pressure reactor trip setpoint has been lowered from 2355 to 2300 psig and the opening pressure of the PORV has been raised from 2255 to 2450 psig.⁶⁴ As a result, we agree with the Licensing Board that the concerns of the TMI-2 Lessons Learned Task Force for limiting potential challenges to the relief valves have been satisfied.⁶⁵

In sum, we find that we must disagree with the Licensing Board's overall conclusion on the reliability of the EFW system at TMI-1. We find that the reliability of the EFW system for a small break LOCA or loss of main feedwater is not significantly different from EFW systems at other nuclear power plants and that it is sufficiently reliable to adequately protect the health and safety of the public. In regard to the dependence of the EFW system on the ICS, we believe that the procedures for manual control of the EFW flow control valves are satisfactory. With the proviso that the licensee retain its present procedure for manual operation of the EFW flow control valves, we affirm the Licensing Board's determination that it is sufficient for the licensee to propose a long-term solution to the problem of inadvertent isolation of these valves by the MSLRDS before restart. Finally, we affirm the Licensing Board's finding that the concerns for limiting potential challenges to the relief valves have been satisfied.

⁶¹ 14 NRC at 1360-61.

⁶² Keaten, *et al.*, fol. 16,552 at 7.

⁶³ 14 NRC at 1361.

⁶⁴ Correa, Urquhart and Jones, fol. Tr. 8746 at 3.

⁶⁵ From a staff chart comparing EFW failure probabilities, UCS cites the estimate of changes in EFW failure probability from 8×10^{-3} to 2×10^{-3} (chart actually indicates 3×10^{-3}) at restart as evidence of the failure to greatly reduce challenges to the relief valves. Wermiel and Curry, fol. Tr. 16718, Attachment 3. See also 14 NRC at 1368, UCS Brief at 109. The same chart estimates a failure probability of the ultimate EFW design of 4.5×10^{-4} . Using the UCS method of comparing failure probabilities from the chart, the ultimate EFW design will significantly reduce challenges to the relief valves.

3. Other Concerns About EFW Reliability

The design of the EFW system (with the provision for manual control of the EFW flow valves) provides reasonable assurance that emergency feedwater will be delivered as necessary in the event of a small break LOCA or main feedwater transient. We believe it is important, however, to mention our concerns over possible deficiencies in the emergency feedwater system that are outside the scope of this proceeding. These areas of concern include the environmental and seismic qualification of the emergency feedwater system.⁶⁶ We strongly urge that any necessary modifications to the EFW system be completed as soon as possible.

4. Liquid Natural Circulation

As discussed earlier, natural circulation (either liquid or boiler-condenser mode) must transport decay heat from the reactor core to the steam generators for the core to be cooled adequately using the emergency feedwater system.⁶⁷ Here, we discuss maintenance of liquid natural circulation by (1) the possible use of the high-point vents to be installed in the

⁶⁶ As we discuss elsewhere in this decision, environmental qualification of plant equipment has been removed from this proceeding by Commission action. See Part IV at pp. 891-94, *infra*.

A recent report by a staff consultant concludes that the emergency feedwater system at TMI-1 may lack the capability to withstand a postulated safe shutdown earthquake. See Board Notifications BN-82-118 (November 22, 1982) and BN-82-118A (December 9, 1982). In ALAB-708, we indicated our view that seismic qualification of the EFW system is outside the scope of this proceeding. 16 NRC at 1736, n.5. A recent Commission issuance reinforced this view. CLI-83-5, 17 NRC 331 (1983).

The staff testified at the reopened hearing that the operability of the EFW system following a safe shutdown earthquake has not been demonstrated because portions of the system piping and controls are not Seismic Category I. Wermiel fol. R. Tr. 83 at 2. In its proposed findings on the reopened hearing, UCS asserts that the EFW system is not safety-grade because it is not seismically qualified and, therefore, it is not an acceptably reliable system. UCS' Proposed Findings of Fact and Conclusions of Law on Reopened Hearing at 5-6, 8-11, 29, and 30-31 (April 12, 1983). In our judgment, the staff should complete its seismic analysis and require any necessary modifications as soon as possible.

⁶⁷ One general argument raised by UCS is that adequate core cooling was established after the TMI-2 accident only when the reactor coolant pumps were started. UCS Brief at 6. While analysis of the TMI-2 accident can provide valuable information to improve the safety of nuclear power plants, the actual scenario of events that occurred during the accident should not be considered a typical LOCA. The core had been severely damaged and the primary water was highly radioactive. The voiding in the hot legs consisted not only of steam but hydrogen. With no high-point vents in the hot legs of the reactor coolant system, the reactor coolant pumps were an available means of establishing natural circulation flow. With the installation of the vents (now scheduled before restart), the reactor coolant pumps will not be required to remove hydrogen from the upper regions of the reactor coolant system.

According to UCS, the Licensing Board also erred in finding that the expected quantities of noncondensable gases should not interfere with natural circulation. UCS Brief at 6. See 14 NRC at 1230. UCS bases this charge on (1) the staff assumption that no significant core damage had occurred and (2) some sources of gas were not included. The production of hydrogen as a result of extensive core damage is outside the scope of this proceeding. See CLI-80-16, 11 NRC 674 (1980) and 14 NRC at 1224. In regard to the consideration of sources of noncondensable gases, we believe that the staff investigated the possible sources in adequate detail. See Board Ex. 4 at 4-67 to 4-72. Therefore, we support the Licensing Board's resolution of the concern for identification of all sources of noncondensable gases.

reactor coolant system, and (2) pressure control of the reactor coolant system using the pressurizer heaters. The viability of the boiler-condenser mode is discussed later.

a. *Use of the High-Point Vents*

Analyses by the licensee indicate that liquid natural circulation would be interrupted by steam formation for any break in the reactor coolant system larger than about 0.005 ft² if only one HPI pump were operating and about 0.01 ft² if two HPI pumps were operating.⁶⁸ Steam bubbles formed because of such breaks would collect at the high points of the primary system.⁶⁹ Licensee witness Jones testified before the Licensing Board that it may be possible to remove this steam by use of the high-point vents.⁷⁰ In our unpublished November 5, 1982 memorandum and order at 7-10, we noted this licensee testimony and indicated our preliminary view that installation of the high-point vents would help ensure core cooling by natural circulation.

At the reopened hearing last March, it was revealed that the actual size of the vents is much smaller than previously reported.⁷¹ The vents are, in fact, too small to assist in restoring liquid natural circulation during the early phases of a small break LOCA.⁷² The vents may be useful in restoring liquid natural circulation only when the HPI flow has matched leak flow and the break is sufficient to remove essentially all of the core decay heat.⁷³ As a result, contrary to our initial view, the installation of the high-point vents is not sufficient to assure that the core can be adequately cooled by liquid

⁶⁸ Tr. 4683-84 (Jones). The location of the break can significantly affect the ability of emergency core cooling systems to mitigate an accident safely. B&W analyses indicate that the reactor coolant pump discharge is the worst location for a small break because substantial loss of HPI flow could occur from a break in this location. Lic. Ex. 5 at Section 6.2.1.3.2. Where witnesses have not specified the break location, we have assumed it to be the reactor coolant pump discharge. We discuss a break at the pump suction in Appendix B, *infra*, at pp. 922-23.

⁶⁹ We agree with UCS that the Licensing Board erred in finding that the steam voids following a small break LOCA should be condensed by the HPI pumps. UCS Brief at 7. See also 14 NRC at 1230. As discussed by the staff in a letter dated May 7, 1982 to Dr. Henry Myers from Harold R. Denton, the amount of condensation will be limited because of the need to remove the heat of vaporization associated with the condensation of steam. This letter was an attachment to Board Notification BN-82-71 (July 27, 1982).

⁷⁰ Tr. 4617, 4623-24 (Jones). The licensee argues that its witness Jones was referring only to the TMI-2 accident in discussing the use of the vents to restore natural circulation. Licensee's Response to Appeal Board Memorandum and Order of Nov. 5, 1982 (November 22, 1982) at 40. While we agree that Mr. Jones initially addressed the circumstances of the TMI-2 accident, his testimony can be fairly read to include the general use of the vents to promote liquid natural circulation at TMI-1. See Tr. 4623-24. Later, Mr. Jones also discussed the use of the vents to assist in refilling the primary system and restoring natural circulation. Tr. 10778.

⁷¹ Capodanno, fol. R. Tr. 53 at 1. Licensee witness Jones testified before the Licensing Board that he believed the vents to be 0.8 inch in diameter. Tr. 4865. The actual diameter is approximately one half of that value.

⁷² Jones and Lanese, fol. R. Tr. 53 at 5.

⁷³ *Id.* at 4-5.

natural circulation.⁷⁴ Therefore, other means must be available to provide adequate core cooling during a small break LOCA.

b. Use of the Pressurizer Heaters to Control Reactor Coolant System Pressure

To maintain liquid natural circulation, steam bubble formation must be held to a minimum. The preferred method of accomplishing this is by use of the pressurizer heaters. The TMI-1 heaters and some of the circuitry to them are not safety-grade. One of the short-term recommendations in NUREG-0578 was the modification to provide the capability for certain pressurizer heaters to be powered by an emergency power source, and the recommended modification has been put in place. In general, UCS contends that the modification is not sufficient, and asserts that the pressurizer heaters should be made safety-grade in order to improve the availability and reliability of the heaters to maintain natural circulation, if necessary.⁷⁵ The Licensing Board found the UCS' arguments for upgrading the pressurizer heaters and their controls to full safety-grade status "unpersuasive" because reactor coolant system pressure could be maintained by the HPI pumps.⁷⁶

At the outset, it should be noted that UCS conceded during the course of the hearing that the availability of the pressurizer heaters, although important, is not required to mitigate a loss of coolant accident.⁷⁷ Indeed, credit for operation of the pressurizer heaters is not assumed in the safety analysis of design basis accidents.⁷⁸ Moreover, the TMI-1 procedures require commencement of plant cooldown if all pressurizer heaters are lost.⁷⁹ In fact, TMI-1 normal cooldown procedures require that the heaters be turned off.⁸⁰ Staff witness Jensen testified that a test of natural circulation

⁷⁴ At the time of our hearing (March 1983) the hot leg high-point vents were scheduled to be installed by May 21, 1983. Manganaro, fol. R. Tr. 53 at 3. We believe that these vents will provide additional assurance that long-term core cooling can be maintained following a small break LOCA, by assisting in the refill of the primary coolant system. UCS correctly notes that the high-point vents are specified in the Restart Report (Licensee Exhibit 1) for use when normal letdown is prohibited because of highly radioactive coolant. UCS Brief at 13. See Lic. Ex. 1 at 2.1-38e. The installation of the pressurizer vent and plans to install the high-point vents in the reactor coolant system hot legs before restart have resolved this concern.

⁷⁵ UCS Brief at 16-17. The UCS argument that the proposed modification to the pressurizer heater circuitry could endanger the integrity of the emergency power supply at TMI-1 is addressed in Section III(B), *infra*.

⁷⁶ 14 NRC at 1269-70.

⁷⁷ Tr. 8238, 8243 (Pollard).

⁷⁸ Jensen, fol. Tr. 8712 at 6; Tr. 8717-18.

⁷⁹ See Jensen, fol. Tr. 8712 at 4. While the pressurizer heaters are not now safety-grade, their failures have been rare. See affidavit of Chopra, attached to Staff Response to Appeal Board order of July 14, 1982 (August 9, 1982).

⁸⁰ Licensee Response to Appeal Board Order of July 14, 1982 (August 12, 1982) at 23-24.

had been performed at Sequoyah Nuclear Plant Unit 1 that indicated that the pressurizer would lose 100 psi/hour without heaters. Comparison of the TMI-1 design with that of Sequoyah-1 indicated that the TMI-1 pressurizer would depressurize even more slowly.⁸¹ The licensee has indicated that cold shutdown could be achieved in approximately five hours.⁸² Therefore, if the pressurizer heaters failed, it should be possible to establish cooling with the Decay Heat Removal (DHR) system or achieve cold shutdown without any need to rely on another means of pressure control (such as HPI).

The method of maintaining reactor coolant system pressure by use of the HPI pumps was relied on by the Licensing Board.⁸³ As noted by UCS, a drawback of this method is that all of the steam may be driven out of the pressurizer, resulting in a "water solid" system.⁸⁴ When the reactor coolant system becomes water solid, small changes in reactor coolant temperature and inventory can produce wide variations in system pressure. During low temperature conditions, the reactor pressure vessel and piping may be susceptible to brittle fracture if large pressure increases occur. We agree with UCS, therefore, that a water solid condition should be avoided. Because TMI-1 procedures require commencement of plant cooldown if the heaters are inoperative, however, it may be possible to achieve cold shutdown before such condition is reached.⁸⁵

To confirm its conclusion that the HPI pumps could be relied upon to maintain the coolant pressure, the Licensing Board required the licensee to perform a demonstration of the ability of HPI to control pressure.⁸⁶ This test has already been accomplished.⁸⁷ UCS argues that (1) the requirement for a demonstration indicates that HPI pressure control is unproven, (2) the conditions for the test should be specified, (3) the safety relief valves rather than the letdown system should be included in the test, and (4) the test does not satisfy the issue raised by its contention, which is the need to reduce challenges to safety systems.⁸⁸ We disagree. In our view, the record

⁸¹ Jensen, fol. Tr. 8712 at 4.

⁸² Licensee Response to Appeal Board Order of July 14, 1982 (August 12, 1982) at 23-24.

⁸³ 14 NRC at 1269-70.

⁸⁴ UCS Brief at 18-19.

⁸⁵ See Section III(C) at p. 864, *infra*, for a discussion of protection against overpressurization during cold shutdown conditions.

⁸⁶ 14 NRC at 1269.

⁸⁷ In Board Notification BN-83-20 (Feb. 18, 1983), the staff reported that the pressure control test using HPI had been performed by licensee and was considered satisfactory.

⁸⁸ UCS Brief at 24-25. UCS contends that the pressurizer heaters should be safety-grade in order to limit the number of challenges to the emergency core cooling system (ECCS). *Id.* at 17, 20-21. While this concern appears to be outside the scope of this proceeding (*i.e.*, small break LOCA or loss of main feedwater), we believe that it should be addressed in terms of the sufficiency of the proposed modifications to the pressurizer

(Continued)

satisfactorily establishes that the pressurizer heaters are not the only means of maintaining reactor coolant pressure. The demonstration ordered by the Board merely confirms that conclusion. In this regard, the use of the let-down system is allowed to avoid unnecessary wear and tear on the safety relief valves. We consider this appropriate because safety relief valves have undergone a separate test program.⁸⁹

UCS analogizes its recommended upgrading of the pressurizer heaters (because they are the “preferred” means of pressure control) to the upgrading of the emergency feedwater system that has been ordered because it is part of the “preferred” method of decay heat removal. We believe the analogy is inappropriate. As discussed in this decision, the emergency feedwater system is being upgraded not merely because it is part of the “preferred” method of decay heat removal, but also because it is essential to provide core decay heat removal for certain small break loss of coolant accidents. Its role in removing decay heat is in marked contrast with the pressurizer heaters, for which there are available alternatives.

Finally, UCS charges that the Licensing Board erred in failing to find that the pressurizer heaters are “important to safety.”⁹⁰ The Lessons Learned Task Force stated that “maintenance of natural circulation capability is important to safety.”⁹¹ Therefore, it is the function of pressure control as opposed to the heaters themselves that is “important to safety.” We believe that the Licensing Board correctly determined that it is not necessary to upgrade the pressurizer heaters to full safety-grade status because other methods exist for providing pressure control and procedures require plant shut-down if the pressurizer heaters are inoperative.

c. Boiler-Condenser Process

Liquid natural circulation may be lost during a small break LOCA if the break is between 0.005 and 0.02 ft² in size because of steam collection in the high points of the reactor coolant system (particularly in the “candy canes”

heaters. The TMI-2 Lessons Learned Task Force recommended consideration of upgrading of the pressurizer heaters to full safety-grade status in order to decrease the number of demands for operation of the ECCS. See NUREG-0578, fn. 31, *supra*, at A-2. A major aspect of this concern for challenges to the ECCS is the design limit on the number of rapid cooling transients that the primary system can safely withstand. In particular, the inlet nozzles where the HPI cooling water enters the reactor coolant system undergo a thermal shock upon ECCS actuation. However, the Makeup and Purification System in the normal makeup mode could be used for pressure control if the pressurizer heaters failed. Keaten, *et al.*, fol. Tr. 7558 at 17. One inlet nozzle is used in the normal makeup mode, which operates almost continuously. Therefore, pressure control using this mode could be performed without causing a thermal shock to the nozzles. Tr. 8714-17 (Jensen).

⁸⁹ See our discussion of use of the safety relief valves during feed and bleed, pp. 853-54, *infra*.

⁹⁰ UCS Brief at 26-27.

⁹¹ See NUREG-0578, *supra*, note 31, at A-2.

as illustrated in Figure A-1). The loss of liquid natural circulation for these breaks will result in repressurization of the reactor coolant system since decay heat removal will not be adequate. Flow from the HPI pump will be decreased as pressure rises and, based on the assumptions employed, analyses predict that HPI will not be able to maintain system inventory.⁹² As the primary coolant level drops from the hot legs into the steam generators, the upper portion of the steam generator tubes will eventually contain steam that can, under proper conditions, be condensed by secondary cooling water. To accomplish this, the level of the secondary cooling water must be above that of the primary water level or the EFW spray must be operating.⁹³ This boiler-condenser mode of heat removal will reduce primary system pressure so that the HPI flow can exceed coolant lost out of the break.⁹⁴

A natural circulation flow can be achieved during the boiler-condenser process. The steam condensate in the primary system will be more dense than hotter coolant near the core itself and have a downward motion that will force small amounts of reactor coolant out of the core. In this manner, a small circulation flow can be developed.⁹⁵

In order to obtain circulation of primary coolant from the steam generators to the reactor pressure vessel, the coolant must flow up through the cold legs and pass through the reactor coolant pumps. Therefore, the cold legs must be full of water in order for the circulation process to occur. The point in the cold leg necessary to achieve natural circulation flow corresponds approximately to a level in the steam generators equal to 60 percent on the operating range.⁹⁶ In order to ensure that a condensing surface is available before the primary coolant level falls below the top of the cold legs, the TMI-1 procedures require, as an immediate action, that operators

⁹² It is important to note that in these analyses it is assumed that only one HPI pump is operable. The record indicates that the core could be adequately cooled without the use of the boiler-condenser process if two HPI pumps are available. See Jones and Broughton, fol. Tr. 5038 at 14; Tr. 4775-77 (Jones); and Tr. 5588-89 (Jensen). See Appendix B at pp. 923-24 for further discussion of the required assumptions.

⁹³ The emergency feedwater enters at the top of each steam generator through seven nozzles and sprays directly onto the outside of the steam generator tubes. Lic. Ex. 87 at Figures 2-1, 2-2. The efficiency of the EFW spray as a condensing agent must be considered in analyzing the boiler-condenser process. See pp. 843-44, *infra*.

⁹⁴ Jones, fol. R. Tr. 453 at 13. Sheron and Jensen, fol. R. Tr. 83 at 6. As noted by UCS, the transient may cycle in and out of the boiler-condenser mode. UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 38. However, the cycling would dampen as the decay heat rate falls. See, generally, R. Tr. 734-35 (Sheron). Once the HPI flow is sufficient to match inventory loss at high pressure, the primary system would remain full and the boiler-condenser process would not be needed.

⁹⁵ Jensen, fol. Tr. 4913 at 6.

⁹⁶ See figure fol. R. Tr. 461. The operating range in the steam generators extends from approximately one-sixth to two-thirds full. Thus, a 60 percent reading on the operating range indicates that the steam generator is about one-half full. See Lic. Ex. 87 at Figure 2-1.

raise the secondary water level to 95 percent on the operating range after the determination is made that the transient involves a LOCA.⁹⁷

In our November 5, 1982 memorandum and order, we indicated our preliminary view that the ability of the boiler-condenser mode of natural circulation to remove enough decay heat to prevent core damage had not been adequately demonstrated on the then existing record. In responding to our memorandum and order, licensee argued that the process was endorsed by witnesses for both the staff and the licensee, and that no witness presented testimony questioning the efficacy of that process.⁹⁸ Licensee witness Jones testified, however, that there have been no tests of this method of decay heat removal at TMI-1 and that the licensee does not intend to conduct any because there is insufficient instrumentation to control the process.⁹⁹ In addition, the original record did not include detailed computational analysis of the efficacy of the boiler-condenser process. As it existed, the record raised doubts about whether the process could be relied on to provide adequate protection of the public health and safety in the event of an accident. As discussed in ALAB-708, *supra*, we believed that a reopening of the record was needed to resolve these concerns. The record developed in the reopened hearing now convinces us that the boiler-condenser method will satisfactorily remove decay heat at TMI-1.

The licensee maintains, as a threshold matter, that the B&W emergency core cooling system (ECCS) evaluation model is an NRC-approved computer code under Appendix K to 10 CFR Part 50, and therefore is not open to challenge in this proceeding.¹⁰⁰ The B&W ECCS evaluation model was approved in September 1978 and our initial review showed no evidence that changes have been made since then for demonstrating compliance with 10 CFR §50.46.¹⁰¹ Accident analyses performed prior to the TMI-2 accident did not include breaks smaller than 0.04 ft².¹⁰² In those analyses,

⁹⁷ Lic. Ex. 48 at 3.0.

⁹⁸ Licensee Response of November 22, 1982 at 17. The licensee asserts that the boiler-condenser mode occurred during the TMI-2 accident. Tr. 4627-30, 4685-86 (Jones). See also Jones, fol. R. Tr. 53 at 17-18. Mr. Jones conceded that the first time at which it can be documented that adequate core cooling was established at TMI-2 was at 16 hours after the onset of the accident, when the reactor coolant pumps were started. Tr. 4655. Therefore, we do not believe that the boiler-condenser mode can be considered viable on the basis of the TMI-2 accident experience alone.

⁹⁹ Tr. 4687-88. Experimental tests of the boiler-condenser mode have been performed for primary systems with U-tube steam generators. See Ross and Capra, fol. Tr. 15806 at 34-35; Tr. 5223-24 (Jones). While these tests confirm the effectiveness of the boiler-condenser mode for plants with U-tube steam generators, we are not convinced that they establish the viability of this mode for plants like TMI that have a different primary system piping configuration and straight-through steam generators. In this regard we note that the absence of a test facility that conforms to the TMI-1 design is one of the concerns discussed in recent ACRS and staff correspondence. See letter from P. Shewmon to William J. Dircks (October 13, 1982); letter from Darrell G. Eisenhut to J. J. Mattimoe (March 25, 1982).

¹⁰⁰ Licensee Response of November 22, 1982 at 17-19.

¹⁰¹ Tr. 5159 (Jones).

¹⁰² Tr. 4691-92 (Jones); Tr. 5505-06 (Jensen).

reliance on the boiler-condenser process was unnecessary because the break was sufficiently large to permit adequate removal of decay heat through the break itself.¹⁰³ Following the TMI-2 accident, new analyses were performed, primarily to provide guidance for the preparation of operator procedures.¹⁰⁴ However, the staff group responsible for review of the B&W small break LOCA analyses, the Bulletins and Orders (B&O) Task Force, did not review the adequacy of the Appendix K model.¹⁰⁵ Thus, we do not consider a challenge to the ability of the model to predict correctly boiler-condenser flow an impermissible attack on the Commission's regulations.

Evidence in our reopened hearing showed that a revised B&W evaluation model was submitted in November 1982 for review by the staff for compliance with Appendix K to 10 CFR Part 50.¹⁰⁶ The new model includes a more detailed steam generator nodding arrangement consisting of six axial and two radial regions.¹⁰⁷ The licensee performed an analysis of a 0.01 ft² break using the new model. This predicted the capability of the boiler-condenser process.¹⁰⁸ In addition, the effectiveness of EFW spray flow in wetting the steam generator tubes (thus providing a steam condensing surface) was taken into account in the revised model.¹⁰⁹ Finally, the new model calculates heat transfer coefficients for the different regions of the steam generators based on the conditions present.¹¹⁰

In ALAB-708, *supra*, we asked the staff to provide evidence at the reopened hearing to show whether the staff had reviewed the B&W Appendix K model to determine its ability to calculate the effects of small breaks, including reliance upon the boiler-condenser process. 16 NRC at 1789.

¹⁰³ Tr. 4691-92 (Jones).

¹⁰⁴ Jones and Broughton, fol. Tr. 5038 at 4-5; Tr. 5517-18 (Jensen). For the analyses following the TMI-2 accident, the approved B&W evaluation model was modified by the addition of two control volumes (or nodes) to provide a more detailed examination of plant response during boiler-condenser conditions. Jones, fol. R. Tr. 453 at 3. As noted by UCS, the B&W evaluation model used to investigate the boiler-condenser process is not formally approved to meet Appendix K. UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 32.

¹⁰⁵ Tr. 5544-46 (Jensen). The staff provided the results of its review of the B&W small break LOCA analyses in NUREG-0565, "Generic Evaluation of Small Break Loss-of-Coolant Accident Behavior in Babcock & Wilcox Designed 177-FA Operating Plants" (January 1980). NUREG-0565 is included in the record as Board Exhibit 4.

¹⁰⁶ Jones, fol. R. Tr. 453 at 3-4.

¹⁰⁷ Lic. Ex. 86 at E-2 to E-3.

¹⁰⁸ *Id.* at E-5 to E-7. UCS charges that there has been no analysis of a small break for TMI-1 that assumes steam generator level is taken to 95 percent on the operating range and only one HPI pump is operated. UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 36. The analysis of a 0.01 ft² break in Licensee Exhibit 86 assumed only one HPI pump with the steam generator level at 50 percent (operating range) which is more conservative than the 95 percent level. See Lic. Ex. 86 at 5-9 and Tr. 5094-97 (Jones). We believe that UCS misinterpreted its cite (R. Tr. 613-14) to staff witness Jensen's testimony which we also find confusing.

¹⁰⁹ Lic. Ex. 87 at 2-20.

¹¹⁰ R. Tr. 482-84 (Jones). The old model used an overall heat transfer coefficient that was held constant throughout the transient. *Ibid.*

The staff testified that the equations and assumptions dealing with heat transfer between the primary system and the steam generators (including heat transfer by the boiler-condenser process) contained in the B&W evaluation model had been reviewed and approved.¹¹¹ UCS disagrees because the staff's audit calculations of the B&W analyses of a 0.01 ft² break with one HPI pump (as documented in NUREG-0565) do not show the establishment of the boiler-condenser process.¹¹² While we agree with UCS that the staff's audit calculations as documented in NUREG-0565 do not predict the boiler-condenser cooling mode, we do not believe that this fact is relevant to the question of whether the staff has reviewed and approved the heat transfer equations in the B&W evaluation model. The audit calculations did predict that for this break liquid natural circulation would be continuous for the most part and that the core would be adequately cooled. NUREG-0565, fn. 105, *supra*, at 4-28 *et seq.*

To determine if the boiler-condenser mode can remove sufficient decay heat to enable HPI flow to match leak flow, the licensee performed an analysis of the boiler-condenser mode.¹¹³ This analysis took into account (1) the impact of plugged tubes in the steam generators on heat removal capability, (2) a power level slightly higher than allowed at TMI-1, (3) flow from only one TMI-1 HPI pump minus losses out the break, (4) 1.2 times the American Nuclear Society (ANS) decay heat factor (see Appendix B at fn. 396, *infra*, of this decision for a discussion of this factor), and (5) effectiveness of the EFW spray (only ten percent of steam generator tubes are assumed wetted).¹¹⁴ With no credit taken for decay heat removal through the break, HPI flow would match core boil-off within approximately 1700 seconds.¹¹⁵ Licensee witness Jones testified, based on B&W analyses, that the core could not be uncovered within that time period.¹¹⁶ More specifically, it was estimated that sufficient inventory existed above the core to provide cooling until 3200 seconds.¹¹⁷

¹¹¹ Sheron and Jensen, fol. R. Tr. 83 at 5.

¹¹² UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 32-33. See also R. Tr. 554-57 (Jensen). We note that the staff verbal testimony is inconsistent with its written testimony which asserted that ". . . RELAP-4 predicted the boiler-condenser mode of natural circulation to be effective in removing decay heat and providing continued core cooling." Sheron and Jensen, fol. R. Tr. 83 at 6.

¹¹³ See Jones, fol. R. Tr. 453 at 15-17 and Lic. Ex. 87 at 3-5 to 3-8.

¹¹⁴ Lic. Ex. 87 at 2-9 to 2-11 and 3-5 to 3-8. R. Tr. 474-79 (Jones).

¹¹⁵ B&W analyses for a 0.04 ft² small break LOCA performed to illustrate compliance with 10 CFR §50.46 predicts that minimum inventory would be reached at 3000 seconds with no core uncover. Lic. Ex. 4.

¹¹⁶ Jones, fol. R. Tr. 453 at 16-17.

¹¹⁷ Lic. Ex. 87 at 3-7.

The staff also performed an analysis of the heat removal capability of the boiler-condenser mode.¹¹⁸ By determining an overall heat transfer coefficient from widely-accepted textbook equations, the staff determined that, at the time when the boiler-condenser process is predicted to commence only 7 percent of the steam generator tube surface area would be needed to remove the decay heat being produced.¹¹⁹ By raising the secondary water level in the steam generators to 95 percent on the operating range, a condensing surface of approximately 15 percent of the total tube surface area would be available above the top of the cold legs.¹²⁰ The fact

¹¹⁸ Sheron and Jensen, fol. R. Tr. 83 at 20-21. In evidence presented at the reopened hearing, the staff described a recent EG&G analysis of a 0.01 ft² small break LOCA using the RELAP5 computer code. *Id.* at 9-17. EG&G is a research organization that is conducting core cooling studies for the NRC. "RELAP5" refers to the fifth revision of a basic computer code used by the staff and its consultant EG&G in the analysis of the effects of small break LOCAs in the primary system. In that description, the staff states that "boiler-condenser natural circulation was not calculated to be established, but rather, decay heat was removed by intermittent establishment of a bubbly, two-phase 'chugging' type circulation." *Id.* at 10. According to the staff, steam flowed through the reactor vessel vent valves into the vessel downcomer which then forced primary water in the steam generators up into the hot leg candy canes. This relatively cool primary water acted to condense steam and thus lower the local pressure. Primary water was then forced over the candy canes into the steam generators in a normal circulation path. The staff states that the differences between this RELAP5 and the B&W analyses "are not obvious but may result from differences in calculational assumptions." *Id.* at 12.

Staff witnesses appeared to state that they believed the EG&G analysis presented a physically viable result. *See, generally*, R. Tr. 706-32 (Sheron and Jensen). However, the witnesses had not performed a detailed review of the assumptions and results of the analysis. In addition, the staff did not provide witnesses from EG&G nor an EG&G report to explain the analysis. The graphs fol. R. Tr. 83 at 13-16 included in the staff testimony indicate an intermittent circulation flow. However, in our opinion, the staff explanation of primary water being forced up through the steam generators by steam (partially condensed by HPI flow) is not illustrated in the graphs and appears to us to be contrary to some basic laws of physics. As a result, we cannot accept this staff explanation of the event on the record before us. The staff suggested that the 12 percent lower power level and higher HPI flow rate in the EG&G analysis than used in the B&W analysis may account for the differences. Sheron and Jensen, fol. R. Tr. 83 at 10. In addition, staff witness Jensen testified that the water level in the reactor vessel was much higher for the EG&G analysis than the B&W analysis. R. Tr. 723 (Jensen). Staff witnesses thought that these differences might account for the intermittent natural circulation flow. In the circumstances, when no EG&G report was presented and the witnesses had no personal knowledge of how EG&G reached its results, we are unprepared to rely on the staff's testimony. *Cf. Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-717, 17 NRC 365-68 (1983)*. We note that although the witnesses were 'hoping' to receive the explanatory text from EG&G in April 1983 (R. Tr. 624-25) no such information has been received by us as of the date of this decision. We must assume, therefore, that no further information has been received by the staff. Contrary to the UCS position (Proposed Findings on Reopened Hearing at 39-40), however, this does not disturb our conclusion that the boiler-condenser process can remove adequate core decay heat to allow HPI flow to prevent core uncovering.

¹¹⁹ Sheron and Jensen, fol. R. Tr. 83 at 20-21. UCS believes that we should reject this staff analysis because of late modifications which appeared to be made solely to ensure a favorable result. UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 40-41. We agree with UCS that more detailed justification for the changes should have been provided. However, we do not believe that there is sufficient reason to reject the analysis. For example, the staff modified the assumed temperature difference between the primary and secondary systems from 10° to 20°F. *See* Sheron and Jensen, R. Tr. 83 at 20. While this change may, on the surface, appear to be significant, it is actually small compared to the probable temperature differences during the boiler-condenser process. The saturation temperatures of 2500 psig (the setpoint pressure of the safety relief valves in the primary system) and 1100 psig (the approximate setpoint pressure of the secondary system safety relief valves) are approximately 668°F and 556°F, respectively. Therefore, we consider the staff analysis credible.

¹²⁰ *Ibid.*

that the EFW spray enters near the top of the steam generator produces additional steam condensation area.

UCS objects to the placement of reliance on the boiler-condenser process as a method of decay heat removal. In its original brief on appeal, it challenged the Licensing Board's finding that natural circulation was a valid means of decay heat removal because of the reliance placed on the boiler-condenser process.¹²¹ In addition, it took exception to that Board's finding that the boiler-condenser mode meets the requirements of General Design Criteria (GDC) 34 and 35 for a redundant, reliable means of removing core decay heat.¹²² Further, it charged that the Licensing Board failed to confront evidence demonstrating that the boiler-condenser mode is not sufficiently reliable because (1) there is no instrumentation to determine primary water level in the steam generators;¹²³ (2) emergency procedures require refilling of the primary system, which will prevent the establishment of the boiler-condenser mode;¹²⁴ and (3) the effectiveness of that process has not been tested.¹²⁵ Finally, UCS argued that the boiler-condenser mode is not sufficiently reliable because of its dependence on the emergency feedwater system.¹²⁶

As part of its presentation in connection with the issues examined in the reopened hearing, UCS raises additional arguments to support its contention that the boiler-condenser mode of natural circulation has not been proven viable.

To begin with, UCS asserts that the boiler-condenser process cannot be considered sufficiently reliable without an assurance that the assumptions regarding operator action made in the computer analyses are

¹²¹ UCS Brief at 2-3.

¹²² *Id.* at 8-9. See also 14 NRC at 1230. We agree with UCS that, prior to our reopening of the record on decay heat removal issues, the boiler-condenser mode of cooling had not been demonstrated to be sufficiently reliable to meet General Design Criteria 34 and 35. See Appendix A to 10 CFR Part 50. As discussed, we are satisfied with the supplemental evidence supporting the boiler-condenser process.

¹²³ While instrumentation to determine primary water level in the steam generators might be useful to alert the operators as to when boiler-condenser should begin to occur, it is not necessary for the operators to have this information in order to establish this cooling mode. In addition, primary system pressure reduction should provide indication of the commencement of boiler-condenser cooling. See generally Tr. 4861 (Jones); Sheron and Jensen, fol. R. Tr. 83 at 8 and 17-20; Jones, fol. R. Tr. 453 at 9; R. Tr. 498-99, 507-11, 520, 529-33 (Jones).

¹²⁴ UCS explains that refilling the primary system, as the operators are directed to do following a LOCA, would block the steam condensing surface in the steam generators and preclude boiler-condenser cooling. UCS Brief at 8. We agree that, if the primary system could be refilled, this would preclude the boiler-condenser mode until the primary level dropped sufficiently to expose a condensing surface. However, when the primary system is full, the boiler-condenser mode is not needed.

¹²⁵ UCS Brief at 8-9. UCS renews its objection to the lack of tests of the boiler-condenser process at a facility geometrically similar to TMI-1 in its proposed findings on the reopened hearing (at 36). As noted earlier, the lack of actual tests of boiler-condenser cooling was a significant factor in our decision to reopen the record on decay heat removal issues. We are satisfied, however, that the supplemental record adequately demonstrates the boiler-condenser process without the need for actual tests of this cooling mode prior to restart.

¹²⁶ UCS Brief at 9, 15. We have discussed this issue in detail earlier, pp. 831-35, *supra*.

appropriate.¹²⁷ We consider the TMI-1 emergency procedures adequate to enable the operators to take the proper actions for the establishment of the boiler-condenser process.¹²⁸ For example, we believe that the operators will have adequate information (*e.g.*, reactor coolant temperature) to determine whether a small break LOCA or an overcooling event is occurring and sufficient time to take the proper action (such as raise steam generator level to 95 percent on the operating range).¹²⁹ We note that in this analysis the ICS is assumed to be unavailable because it is not safety-grade. If it is available, however, it will act automatically to initiate EFV and fill the steam generators to the 50 percent level on the operating range.¹³⁰

Second, UCS claims that nonsafety-grade equipment is used to remove decay heat through the steam generators.¹³¹ Licensee agrees that the atmospheric dump valves and turbine bypass valves are not safety-grade but that these valves could be operated manually.¹³² In addition, the steam line safety relief valves would be available to remove decay heat.¹³³ These steam line safety relief valves are set to open at various pressures above approximately 1100 psig. The saturation temperature for 1100 psig (approximately 556°F) will be much lower than temperatures in the primary system. Thus, decay heat removal can be accomplished by the steam generators without the use of nonsafety-grade equipment; however, it will not be possible to commence plant cooldown without the use of nonsafety-grade equipment.¹³⁴

¹²⁷ Proposed Findings on Reopened Hearing (April 12, 1983) at 41-44. Contrary to the UCS view, we do not believe that UCS was denied the "... opportunity to test the reliability of the computer analyses." UCS Proposed Findings on Reopened Hearing at 43-44. UCS had a full opportunity to explore these matters during the hearing before the Licensing Board. We consider the record adequate in regard to emergency procedures in the event of a small break LOCA or main feedwater transient. Consequently, our limited reopening of the record excluded the adequacy of TMI-1 emergency procedures.

¹²⁸ See Lic. Ex. 48 at 3.0. In addition, Licensee Ex. 86 at p. E-5 predicted that the boiler-condenser process would not commence until 1500 seconds after initiation of the accident.

¹²⁹ The adequacy of operator training will be addressed in the management phase of this proceeding.

¹³⁰ In its proposed findings on the reopened hearing, UCS appears concerned regarding provisions in the Abnormal Transient Operating Guidelines (ATOG) for the use of the reactor coolant pumps to restore liquid natural circulation. UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 38-39. We do not share UCS' concerns since we believe that procedures should provide guidance to the operators for the use of any available equipment. The important point is that the primary objective is to maintain the core covered by coolant. This may be accomplished by HPI flow together with liquid natural circulation or the boiler-condenser process, or possibly feed and bleed alone.

¹³¹ UCS Brief at 109-10. UCS also urges that the high-point vents be installed before restart. This will be done. See Manganaro, fol. R. Tr. 53.

¹³² Tr. 16,557-61; 16,573-74 (Keaten and Colitz).

¹³³ Tr. 16,600-01 (M. Ross).

¹³⁴ The ability to achieve cold shutdown using only safety-grade equipment is not currently required by the regulations. Licensee does not plan to environmentally qualify equipment needed to achieve cold shutdown, and pursuant to the Licensing Board's directive, the staff has so notified the Commission. See LBP-82-27, 15 NRC 747, 750 (1982). Furthermore, the Commission has determined that it would be premature to impose

(Continued)

Finally, UCS contends that the NRC Office for Analysis and Evaluation of Operational Data (AEOD) has significant concerns regarding the reliability of the boiler-condenser process in the absence of experimental data.¹³⁵ At UCS' request, Harold L. Ornstein of the NRC Office for AEOD appeared as a witness for UCS pursuant to a subpoena issued by this Board to address AEOD comments on a draft staff memorandum concerning feed and bleed and the boiler-condenser process. *See* ALAB-715, 17 NRC 102 (1983). Based on witness Ornstein's testimony, we understand AEOD to have no significant differences with the licensing staff in its views as to whether the plant would successfully achieve the boiler-condenser mode.¹³⁶ As is obvious from our decision to reopen the record in this area, we also believed additional analysis was needed before the boiler-condenser process could be considered sufficiently reliable. We commend AEOD for identifying such areas to the NRR staff.

In summary, the analyses by the licensee (which have now been approved by the staff in Board Notification BN-83-21A, dated March 11, 1983) indicate that the boiler-condenser process is capable of removing core decay heat such that HPI flow will exceed break flow before core uncover occurs. We believe that the heat removal calculations include sufficient conservatisms to make a full scale test of the boiler-condenser process at TMI-1 unnecessary before restart. However, we recommend that this cooling process be studied further as part of continuing research in order to increase the current knowledge of thermal-hydraulic behavior during small break loss of coolant accidents.¹³⁷

d. Feed and Bleed

1. The method of core cooling referred to as "feed and bleed" relies on cool makeup water being added to the reactor coolant system at a sufficient rate to replace the hot coolant that escapes. Decay heat is removed by allowing the incoming water to absorb some of that heat and then be replaced by more cooling water. The makeup water is supplied by the HPI pumps initially from the Borated Water Storage Tank (BWST). When the BWST is emptied, the Decay Heat Removal (DHR) system can be used to supply water from the containment sump to the HPI pumps. The reactor coolant is

a requirement to environmentally qualify electric equipment necessary to achieve and maintain cold shutdown prior to final resolution of Unresolved Safety Issue A-45, Shutdown Decay Heat Removal Requirements. *See* 48 Fed. Reg. 2729 (January 21, 1983).

¹³⁵ UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 44-46.

¹³⁶ R. Tr. 782-83.

¹³⁷ Future experimental work is planned to investigate the boiler-condenser mode of cooling at an integrated systems test facility (GERDA). Jones, fol. R. Tr. 453 at 18.

expelled from the reactor coolant system through the break, the PORV, or the safety relief valves.

The licensee and staff do not rely on feed and bleed to provide adequate core cooling in the event of a small break LOCA or main feedwater transient.¹³⁸ Licensee asserts that feed and bleed is only necessary for events beyond the design basis such as (1) an extended loss of feedwater and (2) certain accidents with an extended loss of feedwater.¹³⁹ As mentioned previously, however, the Licensing Board relied on feed and bleed as a backup to the emergency feedwater system, which it considered not sufficiently reliable by itself. *See* p. 831, *supra*.

Based on the testimony of several staff and licensee witnesses,¹⁴⁰ the Licensing Board found that, in the event of a failure of the emergency feedwater system, the core could be adequately cooled using feed and bleed while repairs to the emergency feedwater system were being made.¹⁴¹ Furthermore, in its investigation of the reliability of the emergency feedwater system, the Licensing Board assumed "an additional safety factor of 100" because of the feed and bleed option.¹⁴² We conclude that there is insufficient evidence of record to support the Licensing Board's reliance on feed and bleed to provide core cooling at TMI-1. In reopening the record on decay heat removal issues, we anticipated that supplemental evidence would enable us to make a final decision on the viability of feed and bleed cooling at TMI-1. However, as we will discuss, it is not possible on the basis of the supplemented record to reach a final conclusion on this cooling process.

On September 14, 1982, we received Board Notification BN-82-93, which provided information on recent experimental testing of feed and bleed at a small research facility (Semiscale). The preliminary report from EG&G attached to BN-82-93 described a test that led to an uncovering of the core. It concluded that the results "tend to support a concern about the relative tenuousness of the process."¹⁴³ Also included was a staff memorandum that briefly discussed the test results. The staff document stated:

Although neither the staff nor the licensees or applicants have ever relied upon feed and bleed in order to meet the Commission's regulations, and although the staff has never concluded that all

¹³⁸ Tr. 4816-18 (Keaten); Tr. 5016 (Jensen); Tr. 5645-47 (Lanese).

¹³⁹ Jones, fol. Tr. 4589 at 3.

¹⁴⁰ *See, e.g.*, Jones, fol. Tr. 4589 at 1-4; Tr. 5586-89 (Jensen); Capodanno *et al.*, fol. Tr. 5642 at 1-3, 11; Tr. 6200-01, 16734-36, 16846-47, 16893-94 (Wermiel); Tr. 7704-09, 7806 (Keaten).

¹⁴¹ 14 NRC at 1370.

¹⁴² *Id.* at 1372.

¹⁴³ Letter from P. North, Manager of Water Reactor Research Test Facilities Division, EG&G, to R. E. Tiller, Director of Reactor Operations and Programs Division, Idaho Operations Office, Department of Energy, attached to BN-82-93, at 9.

plants with installed HPI and safety-relief systems can successfully 'feed and bleed,' we believe that there is an inherent margin of safety attributable to a feed and bleed capability.¹⁴⁴

We considered this statement inconsistent with the testimony of staff and licensee witnesses that feed and bleed may be needed in certain situations and could be used to successfully cool the reactor core.¹⁴⁵

On October 22, 1982, the staff provided us in Board Notification BN-82-107 the complete EG&G report of two Semiscale tests of feed and bleed and the staff's analysis of the results. The first test, S-SR-1, was performed using "high head" HPI pumps similar to those at TMI-1.¹⁴⁶ This test was terminated as a result of "operational problems with uncontrolled coolant leakage."¹⁴⁷ A second Semiscale test, S-SR-2, which used "low head" HPI pumps, resulted in excessive heating of the core simulator. The report concluded that feed and bleed appears feasible "but its viability depends on plant-specific characteristics and postulated scenarios."¹⁴⁸ We believe that these tests raise questions about the viability of the feed and bleed option at TMI-1.

As part of its effort to investigate feed and bleed, EG&G had performed an analysis of the Semiscale test S-SR-2 using the "RELAP5" computer code to determine whether the code could predict the test phenomena.¹⁴⁹ In response to our November 5, 1982 memorandum and order, the staff discussed the discrepancies that were found between the code and the test for the primary coolant inventory.¹⁵⁰ The staff indicated that EG&G was to perform the calculations with corrected HPI flow characteristics and expected this change to provide better agreement between the code and test results.¹⁵¹ The staff also described a feed and bleed analysis using the RELAP5 code for Midland Plant, a nuclear power facility which is similar to TMI-1.¹⁵² With only one HPI pump available and the safety relief valves performing the "bleed" function, the analysis had predicted that the core at Midland would be adequately cooled.

¹⁴⁴ Memorandum from Roger J. Mattson to Darrell G. Eisenhut attached to BN-82-93 at 1.

¹⁴⁵ See, e.g., Tr. 5587 (Jensen); Tr. 7806 (Keaten); Tr. 6126, 6200-01, 16723-24, 16734-35, 17014-15 (Wermiel).

¹⁴⁶ The term "high head" indicates that the pumps are capable of maintaining some water flow against a high pressure. For example, the TMI-1 HPI pumps can provide a 250 gallons per minute (gpm) flow into the primary system when the pressure in that system is 2500 psig. On the other hand, "low head" pumps can only maintain flow against a much lower pressure (e.g., 1500 psig).

¹⁴⁷ EGG-SEMI-6022, "Analysis of Primary Feed and Bleed Cooling in PWR Systems" at 20, 22 (September 1982) attached to BN-82-107 (hereinafter referred to as EG&G Report of September 1982).

¹⁴⁸ *Id.* at 111.

¹⁴⁹ *Id.* at Section 5.

¹⁵⁰ Affidavit of Brian W. Sheron at ¶¶15-17, attached to Staff Response of November 22, 1982 to Appeal Board Memorandum and Order of November 5, 1982.

¹⁵¹ *Id.* at ¶15.

¹⁵² *Id.* at ¶18.

The lack of ample evidence of record to support the Licensing Board's reliance on feed and bleed, together with the results of the Semiscale tests and confusing testimony concerning the reliance on feed and bleed by the staff and licensee, dictated a reopening of the record to resolve these issues. The staff evaluation of the Semiscale tests gave us some confidence that the viability of feed and bleed could be proven by further analysis. Therefore, in ALAB-708 at n.4, *supra*, we indicated that we would be prepared to conclude that feed and bleed had been adequately demonstrated for TMI-1, if (1) the re-analysis of the S-SR-2 test demonstrated the capability of the RELAP5 computer code to predict the feed and bleed phenomenon, and (2) the code predicted that feed and bleed will successfully provide core cooling using actual TMI-1 plant parameters.

At the reopened hearing, the staff provided the results of an EG&G analysis intending to demonstrate the capability of the RELAP5 computer code to predict Semiscale test S-SR-2.¹⁵³ While the predictions generally followed the actual data, the computer code, within its limited time run, underpredicted actual primary system inventory by 20 percent.¹⁵⁴ The staff noted that "the uncertainty in the inventory calculations is such that it must be accounted for when reaching conclusions on the efficacy of feed and bleed cooling."¹⁵⁵ We agree.

In response to our request for a plant specific analysis, the staff provided the results of an EG&G analysis using the RELAP5 code to determine whether feed and bleed can successfully cool the reactor core at TMI-1.¹⁵⁶ The analysis predicted that the core would remain covered and adequately cooled by feed and bleed.¹⁵⁷ However, the staff was not able to discuss specific uncertainties present in the analysis.¹⁵⁸ To account for these uncertainties, the staff assumed a 25 percent reduction in primary system inventory and found that the core would remain covered with a steam/water mixture.¹⁵⁹

¹⁵³ Sheron and Jensen, fol. R. Tr. 83 at 22-32. The full EG&G report is included in the record as UCS Exhibit 46.

¹⁵⁴ Sheron and Jensen, fol. R. Tr. 83 at 24.

¹⁵⁵ *Ibid.*

¹⁵⁶ *Id.* at 33-43. UCS condemns the EG&G analysis of feed and bleed because a loss of feedwater was assumed without a small break LOCA. UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 25. We consider this assumption conservative, however, because a break would assist in removing core decay heat and help to lower primary system pressure to allow increased HPI flow.

¹⁵⁷ Sheron and Jensen, fol. R. Tr. 83 at 33. The staff did not supply the EG&G report but simply discussed the results.

¹⁵⁸ *See, e.g.*, R. Tr. 278-80 (Sheron).

¹⁵⁹ Sheron and Jensen, fol. R. Tr. 83 at 42. The staff indicated that the 25 percent reduction in inventory was based on the 20 percent underprediction of system inventory by RELAP5 of the Semiscale S-SR-2 test. R. Tr. 298-99 (Sheron). As noted by UCS, the staff witnesses provided no evidence that the input data can be assumed to be within 25 percent of the true values. UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 28.

Finally, the results of an analysis of feed and bleed by the Los Alamos National Laboratory were discussed briefly in the staff testimony.¹⁶⁰ This analysis used a computer code known as TRAC to investigate the feed and bleed process at the Oconee Nuclear Station.¹⁶¹ It also predicts that feed and bleed will provide adequate core cooling.¹⁶²

The conclusions of these analyses lend some support for the position that feed and bleed can provide adequate core cooling at TMI-1.¹⁶³ However, because of the uncertainties involved in the analyses and the failure of the staff witnesses to adequately address those uncertainties in their testimony, we are unprepared to state conclusively that feed and bleed will successfully provide core cooling at TMI-1. As noted by UCS, staff witness Sheron testified at the reopened hearing that the adequacy of feed and bleed is within the range of experimental uncertainty.¹⁶⁴ Additional investigation of the uncertainties inherent in the analyses would be needed before a definitive statement on the viability of feed and bleed cooling could be made.

2. UCS raises other issues concerning the viability of the feed and bleed process at TMI-1.¹⁶⁵ First, it charges that the Licensing Board misplaced the burden of proof by allowing reliance on feed and bleed because it had not been shown to be unacceptable.¹⁶⁶ Furthermore, UCS claims that feed and bleed does not meet General Design Criteria 34 and 35 as a reliable means of removing core decay heat.¹⁶⁷ In this connection, UCS correctly notes that an event at the Crystal River Nuclear Generating Plant on February 26, 1980 was not an adequate demonstration of feed and bleed.¹⁶⁸ We agree with UCS that feed and bleed has not been adequately demonstrated on this record but we nevertheless disagree with it on other aspects of feed and bleed cooling.

¹⁶⁰ Sheron and Jensen, fol. R. Tr. 83 at 43. The actual Los Alamos National Laboratory report concerning feed and bleed is included in the record as UCS Exhibit 47.

¹⁶¹ The analysis used the B&W TRAC model for the Oconee nuclear power plants but was modified to include HPI and safety relief valve characteristics of TMI-1. The Oconee nuclear power plants are B&W designed pressurized water reactors with a slightly higher design power level than TMI-1. Sheron and Jensen, fol. R. Tr. 83 at 43.

¹⁶² Sheron and Jensen, fol. R. Tr. 83 at 43.

¹⁶³ Contrary to the UCS view, we do not believe that it is necessary to construct "operating maps" (*i.e.*, mass and energy balance diagrams for specific times) similar to those used by EG&G in order to perform an acceptable plant-specific analysis of feed and bleed. UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 24. While these maps provide general information on the viability of feed and bleed, we consider a properly developed computer code (which in effect is a time-dependent operating map) to be more useful.

¹⁶⁴ R. Tr. 235-37.

¹⁶⁵ See UCS Brief at 9-13, 104, 106-108. See generally UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 9-29.

¹⁶⁶ UCS Brief at 9. See 14 NRC at 1269-70.

¹⁶⁷ UCS Brief at 10.

¹⁶⁸ UCS Brief at 10-11. See Tr. 5011-12 (Jensen).

By using the HPI pumps and the safety relief valves, the feed and bleed process can be performed using only safety-grade equipment. Indeed, licensee relies on the use of the safety relief valves (rather than the PORV) to perform the "bleed" function.¹⁶⁹ UCS argues that the safety relief valves had not been tested or qualified for repeated use during feed and bleed and that the current testing program does not demonstrate actual conditions.¹⁷⁰ UCS also believes that the absence of a block valve for each safety relief valve requires full qualification of each valve to demonstrate its ability. We agree that the testing program could have been more representative of feed and bleed conditions. We also agree with UCS that some damage may occur to the safety relief valves during the feed and bleed cooling process. This damage, however, is likely to be limited to marring of valve seat surfaces which may result in leaking, but not total inability to operate. Therefore, we consider the testing program adequate to demonstrate the basic capability of the safety relief valves to perform the bleeding function if needed.

UCS also raised some further concerns. First, it charged that feed and bleed is not sufficiently reliable since cold shutdown cannot be achieved.¹⁷¹

¹⁶⁹ Correa and Urquhart, fol. Tr. 8746 at 1. Tr. 8761-62 (Jones). During the steam generator tube break accident that occurred at the R. E. Ginna Nuclear Power Plant on January 25, 1982, the steam line safety relief valves associated with the damaged steam generator opened several times as a result of high reactor coolant system pressure. (See NUREG-0909, "NRC Report on the January 25, 1982 Steam Generator Tube Rupture at R. E. Ginna Nuclear Power Plant" (April 1982)). If the pressurizer safety relief valves are used for feed and bleed, the reactor coolant system pressure will remain above the setpoint of the steam line safety relief valves. As noted by UCS, a steam generator tube break would result in this pressure being applied to the steam line safety relief valves which would discharge directly to the environment. Brief at 23. Therefore, for this type of accident, some means must be used to lower reactor coolant system pressure below the setpoint of the steam line safety relief valves. The staff implied that the EFW system would be relied upon to lower reactor coolant system pressure in this situation. See Affidavit of Jensen, attached to Staff Response to Appeal Board's order of July 14, 1982, at 8.

In Board Notification BN-83-47 (dated April 4, 1983), the staff indicated that applicants for operating licenses will be required to have safety-grade PORVs in order to provide rapid depressurization capability in the event of a steam generator tube break accident. The staff did not state what action, if any, will be required for operating plants. In ALAB-724, 17 NRC 559 (1983), we noted that a steam generator tube break accident, in our opinion, is outside the scope of this proceeding which has focused on the capability to close the PORV or its block valve. (See also our discussion of the PORV in Section III(C) of this decision.) Because we have no evidence concerning the rapid depressurization capability of the TMI-1 PORV, we take no position as to its reliability in performing this function.

¹⁷⁰ UCS Brief at 22. See also UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 16-19. UCS Contention 6 asserted that appropriate qualification testing of reactor coolant system relief and safety valves had not been performed to verify the capability of these valves to function during normal, transient, and accident conditions. See 14 NRC at 1375. When UCS withdrew its sponsorship of the contention, it was retained as a Board question. In resolving this question, the Licensing Board found that a valve testing program being conducted by the Electric Power Research Institute (EPRI) was adequate to reveal any design deficiencies in the safety and relief valves at TMI-1. 14 NRC at 1378-79. In response to our request (see ALAB-708, *supra*) concerning the possible effect of two-phase flow through the valves on feed and bleed, the licensee described the EPRI testing program at the reopened hearing on decay heat removal. See, e.g., Jones and Lanese, fol. R. Tr. 111 at 3-5; Tr. 137-39, 144-47, 171 (Lanese). The test program for a safety relief valve similar to one at TMI-1 consisted of 31 tests with one open/shut cycle each. Of these tests, four were performed in which the valve was required to relieve liquid. Licensee considered these 31 tests to provide satisfactory demonstration of the ability of the safety relief valve to perform during feed and bleed. R. Tr. 383-86 (Correa).

¹⁷¹ UCS Brief at 15, 22.

We agree that the safety relief valves cannot be used to lower reactor coolant system pressure to reach cold shutdown. However, we consider that adequate means (such as PORV, pressurizer vent, or steam generator feedwater if natural circulation can be restored) are available to depressurize the primary system if it is desired to proceed to cold shutdown following an accident.¹⁷²

Second, UCS argues that the operator actions associated with feed and bleed involve a complex decision process.¹⁷³ The licensee considers the operator actions necessary to initiate feed and bleed cooling to be simple.¹⁷⁴ To initiate feed and bleed at TMI-1, the operator would just need to actuate the HPI mode of the ECCS.¹⁷⁵ As the Borated Water Storage Tank (BWST) approaches the end of its water supply, the operator would be required to switch the HPI pump suction to the reactor building sump via the Low Pressure Injection system. This switchover will not be required for approximately 19 hours after the accident.¹⁷⁶ By this time, the operating staff should be substantially reinforced such that this switchover should not be a burden on the operators.¹⁷⁷ In sum, we agree with licensee that feed and bleed does not involve complex operator actions and that adequate procedures to achieve and maintain this cooling process currently exist. *See, e.g., Lic. Ex. 48.*

Third, UCS points out that the staff had not performed an analysis of the long-term capability of feed and bleed.¹⁷⁸ Rather, the staff assumed that feedwater would be restored within a few hours.¹⁷⁹ We do not find this assumption unreasonable. Following an accident, the plant staff would be supplemented and re-establishment of steam generator feedwater would be a high priority task.

Finally, UCS contends that it is unwise to exceed the pressure/temperature limits of the reactor vessel because of the potential for brittle failure.¹⁸⁰ We agree that feed and bleed operation at high pressures for an extended period may place undesirable stresses upon certain components at the point of entry to the reactor vessel as primary system temperature falls. However, we find that ample means are available to mini-

¹⁷² *See* fn. 134, *supra*.

¹⁷³ UCS Brief at 15. UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 22-23.

¹⁷⁴ Licensee's Brief of May 10, 1982, at 84, fn. 52.

¹⁷⁵ Keaten and Jones, fol. Tr. 4588 at 12. Jones, fol. Tr. 4589 at 3.

¹⁷⁶ Tr. 4777-79 (Keaten and Jones); Wermiel, *et al.*, fol. Tr. 6035, at 6-7; Tr. 6690-91 (Jensen).

¹⁷⁷ We appreciate that operators must be properly trained to employ the feed and bleed method. The adequacy of such training will be examined in the management phase of the case and has not been considered here. For present purposes we note only that the operating procedures appear workable and we see no reason why adequate training cannot be developed.

¹⁷⁸ UCS Proposed Findings on Reopened Hearing at 12. *See generally*, R. Tr. 184-199.

¹⁷⁹ R. Tr. 187.

¹⁸⁰ UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 28-29.

mize this effect (e.g., (1) reducing HPI flow rate while maintaining an adequate subcooling margin as the decay heat rate drops, (2) lowering primary system pressure by use of the PORV and its block valve, or the pressurizer vent, and (3) establishment of natural circulation upon restoration of steam generator feedwater). Following any feed and bleed operation, the staff would undoubtedly require extensive analysis of any possible deleterious effects upon reactor vessel strength.¹⁸¹

3. We consider the EFW system sufficiently reliable for events within the limited scope of this proceeding. However, the staff has indicated that feed and bleed is relied upon for those events for which the EFW system is not fully safety-grade, such as a main steam line break.¹⁸² Furthermore, the staff testified that the EFW system function following a safe shutdown earthquake has not been demonstrated since portions of the system piping and controls are not Seismic Category I.¹⁸³ While these events (such as a main steam line break and a severe earthquake) are outside our purview, it is necessary to note our concerns over the possible reliance upon feed and bleed. If the staff wishes to rely on feed and bleed, regardless of whether the event postulated is within the scope of the restart proceeding, then it should promptly complete its analysis of the feed and bleed process to assure its viability.

B. Pressurizer Heater Circuitry

1. Background

Natural circulation is a method of transporting decay heat to the steam generators following a shutdown of the reactor. See note 9 and accompanying text, *supra*. In order to prevent the formation of steam bubbles that might interrupt natural circulation, it is necessary to maintain the reactor coolant system at a pressure above the saturation pressure for the existing reactor coolant temperature. This is normally accomplished by means of the electric pressurizer heaters which produce a saturated steam/water mixture in the pressurizer that can be used to control pressure throughout the reactor coolant system.¹⁸⁴

Short-term recommendation No. 8 in CLI-79-8 requires the licensee to comply with the Category A recommendations as specified in Table B-1 of

¹⁸¹ We note that the staff and the B&W Owners Group are investigating the pressurized thermal shock (PTS) issue on a generic basis. See letter of March 15, 1983 from Guy S. Vissing, NRC Division of Licensing, to B&W Owners Group.

¹⁸² Tr. 6126, 6200-201, 16,846-47, 16,869-70 (Wermiel). See also UCS Proposed Findings on Reopened Hearing (April 12, 1983) at 9-10.

¹⁸³ Wermiel, R. Tr. 83 at 2.

¹⁸⁴ See Appendix A, Section C, Reactor Coolant System, *infra*, for additional discussion of the pressurizer heaters.

NUREG-0578 n.31, *supra*.¹⁸⁵ One of those recommendations was the modification of TMI-1 to provide the capability, in the event of loss of off-site power, to supply electricity from an emergency power source to a number of pressurizer heaters and their associated controls when necessary to establish and maintain natural circulation at hot standby conditions.¹⁸⁶ The pressurizer heaters are not “safety-grade,” however,¹⁸⁷ so some mechanism or procedure must be designed to ensure that a failure in the pressurizer heaters, such as a short circuit, will not disable the entire onsite emergency power supply. The staff therefore required that the connections between the pressurizer heaters and the onsite emergency power supply be protected by safety-grade circuit breakers.¹⁸⁸ UCS Contention 4 asserts that

Rather than classifying the pressurizer heaters as safety-grade, the staff has proposed simply to add the pressurizer heaters to the on-site emergency power supplies. It has not been demonstrated that this will not degrade the capacity, capability and reliability of these power supplies in violation of GDC 17. Such a demonstration is required to assure protection of public health and safety.

14 NRC at 1270.

The circuit design proposed by the licensee would allow the connection of either of two pressurizer heater banks (each with a power requirement of 126 kilowatts (kw)) to an engineered safeguards (ES) electrical bus.¹⁸⁹ Simultaneous connection of a heater bank to both the ES and nonsafety buses is prevented by use of a Kirk Key interlock device.¹⁹⁰ In addition, the TMI-1 emergency procedures prohibit the connection of both heater banks to emergency power.¹⁹¹

The circuit to each heater bank begins with a diesel generator supplying emergency power to a 4160 volt ES bus through a circuit breaker. See attached Figure 1, p. 857, *infra*.¹⁹² From this bus, the current passes through a circuit breaker, a 4160/480 volt transformer, and another circuit breaker (referred to as the main bus breaker) to reach a 480 volt ES bus. From there, the current must pass through the main feeder circuit breaker, the

¹⁸⁵ See 10 NRC at 145.

¹⁸⁶ Staff Ex. 1 at C8-3.

¹⁸⁷ For a discussion of the term safety-grade, see our disposition of UCS Contention 14, pp. 873-77, *infra*.

¹⁸⁸ Staff Ex. 1 at C8-6.

¹⁸⁹ See Lic. Ex. 1 at 2.1-7. An engineered safeguards electrical bus supplies emergency power from a diesel generator to certain plant equipment such as the emergency core cooling system that may be needed in the event of a loss of normal offsite power or an accident. TMI-1 has two diesel generators with each supplying power to its own 4160 volt ES bus.

¹⁹⁰ A Kirk Key interlock consists of a disconnect device that must be inserted in the circuit from the heater bank to either the nonsafety or ES bus to allow power to be supplied to the heaters. See Lic. Ex. 1 at 2.1-7b to 7c; Tr. 9412-16 (Torcivia and Shipper).

¹⁹¹ See Lic. Ex. 50 at 12.0.

¹⁹² Figure 1 may also be found in Lic. Ex. 1, Figure 2.1-4, and 14 NRC at 1272.

DIAGRAM OF PRESSURIZER HEATER CIRCUITS
 (Source: Tercivie and Shipper, II, Tr. 9094 et 9)

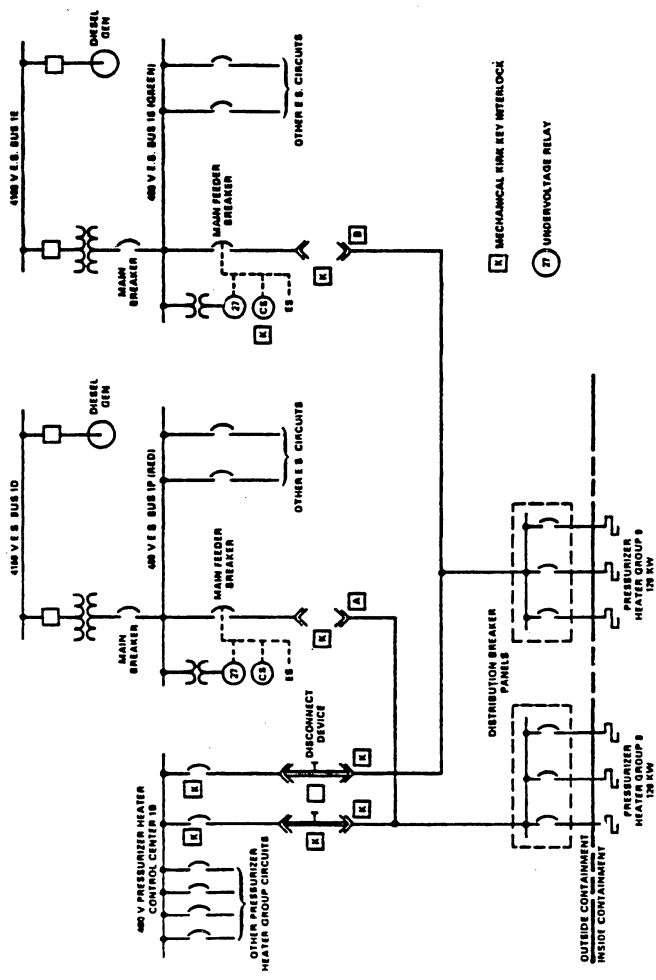


FIGURE 1

disconnect device, and a set of three circuit breakers (labelled distribution breakers) to reach the pressurizer heater bank.

The main feeder breakers and distribution breakers are built to safety-grade standards.¹⁹³ The distribution breakers are not considered safety-grade, however, because they are not located in an area that is seismically qualified.¹⁹⁴

The breakers are coordinated to limit the extent of the total system that will be tripped as a result of a fault current (*i.e.*, short-circuit) caused by heater failure.¹⁹⁵ The trip settings are as follows: distribution breaker at 900-1000 amps (0.2 sec), main feeder breaker at 1200-1250 amps (0.2 sec), and main bus breaker at 4000 amp (15 sec). The fault current is assumed to be 4000 amperes resulting from a three-phase bolted fault (line to line).¹⁹⁶ It peaks quickly at 4000 amps and decreases to a plateau of 2000 amps after approximately 2 seconds.¹⁹⁷ On this assumption, the fault current would not reach the trip setting of the main bus breaker that provides power to the 480 volt ES bus.¹⁹⁸

In addition to an overcurrent trip, the main feeder breaker will also trip in the event of either (1) an engineered safeguards actuation system (ESAS)¹⁹⁹ signal or (2) any one of three undervoltage relay signals.²⁰⁰ The undervoltage relays will trip open the breaker if the voltage on the ES bus drops to 430v for 1.5 seconds.²⁰¹

UCS claims that the TMI-1 design does not meet the provisions contained in Regulatory Guide 1.75 regarding the type of device necessary to isolate nonsafety-grade equipment from the emergency power supply.²⁰²

¹⁹³ See Tr. 9111-12 (Torcivia). The 4160 volt electrical buses 1D and 1E and the 480 volt buses 1P and 1S are part of the two redundant Class 1E emergency electrical systems. FSAR I, note 56, *supra*, at 8-4; FSAR II, note 56, *supra*, at 8.2-4 through 5.

¹⁹⁴ Tr. 9112, 9120 (Torcivia).

¹⁹⁵ Tr. 9115-16 (Torcivia).

¹⁹⁶ Tr. 9104-06, 9212-13 (Torcivia). A three phase bolted fault is a defective point in a three phase electric circuit caused by the crossing of lines which then are assumed bolted together to reduce resistance between the lines.

¹⁹⁷ See graph fol. Tr. 9424.

¹⁹⁸ The staff testified that the assumed fault current would not reach the trip setting of the circuit breaker that connects the diesel generator to the 4160 volt ES bus. Tr. 9769-70, 9796-97 (Fitzpatrick). Also, the staff and licensee indicated that the diesel generator could survive the fault current even if no circuit breakers tripped open. Tr. 9833 (Fitzpatrick), 9220 (Torcivia).

¹⁹⁹ The terms "engineered safeguards actuation system" (ESAS) and "engineered safety feature actuation system" (ESFAS) were used interchangeably in this proceeding. See our discussion of these terms in Section F of Appendix A, *infra*.

²⁰⁰ Lic. Ex. 1 at 2.1-7. Other nonsafety loads are also isolated by circuit breakers that trip upon an ESAS. See, e.g., Tr. 9355, 9565, 9574-76 (Shipper); 9701-02, 9794 (Fitzpatrick).

²⁰¹ Tr. 9425-26 (Torcivia).

²⁰² UCS Brief at 29-30. Regulatory Guide 1.75, "Physical Independence of Electric Systems," is referenced by Staff Ex. 1, NUREG-0680, TMI-1 Restart (June 1980) at C8-6 in connection with the requirement for safety-grade circuit breakers. This guide is included in the record as UCS Exhibit 29. Regulatory Position 1 of the guide provides, in part, that "[i]nterrupting devices actuated only by fault current are not considered

(Continued)

UCS asserts, therefore, that a single failure can result in the loss of both emergency power supplies in violation of General Design Criterion 17, 10 CFR Part 50, Appendix A. According to UCS, the TMI-1 design is contrary to Regulatory Guide 1.75 because the nonsafety-grade pressurizer heaters would only be isolated from other critical circuits by electrical breakers that depend on high fault current for their activation.²⁰³

The Licensing Board agreed with UCS that the main feeder breakers do not meet the provisions of Regulatory Guide 1.75 pertaining to isolation devices.²⁰⁴ The Board found, however, that these provisions are inapplicable to the *reconnection* of nonsafety loads *after initial isolation*.²⁰⁵ As a consequence, the Board was required to determine whether the methods developed by the licensee for post-isolation reconnection were adequate to protect the public health and safety. The Board concluded that, subject to certain conditions and an empirical test, such methods are adequate.²⁰⁶

2. Analysis

We find, as did the Licensing Board, that Regulatory Guide 1.75 does not cover, and was not intended to cover, the post-isolation conditions that UCS postulates.²⁰⁷ Nevertheless, the design and procedures developed by the licensee are adequate to assure reasonable protection of the public health and safety. If an accident occurs, the ESAS signal would automatically isolate the pressurizer heaters from the emergency power supply in accor-

to be isolation devices within the context of this document." The basis for this position is that tripping of the main circuit breakers would cause the loss of emergency power to redundant 'divisions' of equipment. It is recognized that proper breaker or fuse coordination would preclude such an event. However, because the main breakers are in series with the fault and could experience momentary currents above their setpoints, it is prudent to preclude the use of interrupting devices actuated only by fault current as acceptable devices for isolating non-Class 1E circuits from Class 1E or associated circuits. In particular, the guide states that breakers that trip on an accident signal are acceptable. UCS Ex. 29 at 1.75-2. UCS argues that the electrical breakers cannot be considered safety-grade if they do not meet the provisions of Regulatory Guide 1.75. UCS Brief at 30-33.

²⁰³ See UCS Proposed Findings of Fact and Conclusions of Law on UCS Contentions 1, 2, 3, 4, 5 and 10 (June 1, 1981) at 42-45. UCS argued below that the ESAS trip of the main feeder breaker does not meet Regulatory Guide 1.75 because (1) a fault may occur without an accident if the pressurizer heaters are connected after a loss of normal offsite power, and (2) the ESAS may be bypassed, thus preventing the automatic trip of the main feeder breaker, if the pressurizer heaters are connected after an accident. *Id.* at 45-47. These specific arguments regarding the reconnection of the heaters have not been pressed on appeal. In any event, we do not believe that reconnection of the heaters to the onsite emergency power supply could endanger the emergency power supply.

²⁰⁴ 14 NRC at 1275.

²⁰⁵ *Ibid.*

²⁰⁶ *Id.* at 1275-76. UCS' objections to the Licensing Board's delegation of authority to the staff for monitoring this test are addressed in Part IV of this decision.

²⁰⁷ Contrary to UCS' assertion, the Board did not find specifically that the TMI-1 design violated Regulatory Guide 1.75. See UCS Brief at 30. While it found that the main feeder breakers do not meet the provisions of Regulatory Guide 1.75, the Board considered those provisions inapplicable. See p. 859, *supra*.

dance with the provisions of Regulatory Guide 1.75. See note 202, *supra*. No one challenges this aspect of the licensee's design. UCS argues, however, that after the breakers have been tripped, the pressurizer heaters could be reconnected to the emergency power supply so that a faulty pressurizer heater could at that time disable the entire emergency supply. In our judgment, once the reactor is shut down and cooldown is under way, the emergency circuitry is adequately protected from pressurizer heater failure by the series of electrical breakers utilized by the licensee.

UCS' principal argument to the contrary, in this regard, is that the breakers are not safety-grade because they do not conform to certain of the provisions of Regulatory Guide 1.75. As we explained earlier, we believe the Licensing Board correctly found that such provisions are not intended to govern reconnection of the heaters to the emergency power supply during reactor cooldown following an accident or loss of off-site normal power; thus, a failure to conform to Regulatory Guide 1.75 does not constitute a violation of General Design Criterion 17. In our view, the Licensing Board was correct in concluding that, during cooldown, the pressurizer heaters may be safely reconnected if adequate diesel generator capacity is available and all systems have stabilized. 14 NRC at 1276.²⁰⁸

UCS argues, in addition, that there is no basis for approving the licensee's design when other, preferred designs are available, *i.e.*, use of safety-grade pressurizer heaters or isolation devices that meet the provisions of Regulatory Guide 1.75.²⁰⁹ As noted earlier, we believe that the design and devices chosen by the licensee do not violate General Design Criterion 17 and are sufficient to ensure that the public will be adequately protected. In such circumstances, we see no basis for preferring UCS' approach.

For the above reasons we affirm, with one clarification, the Licensing Board's decision on this issue. We require that TMI-1 emergency procedures clearly indicate that the plant be subcritical or in a hot standby condition before the pressurizer heaters are connected to the emergency power supply.²¹⁰

²⁰⁸ We note that UCS charged that the Licensing Board erred "in disregarding and failing to confront substantial evidence showing that a combination of the TMI-1 design and its operating procedures fail to meet the pertinent lesson learned from the TMI-2 accident with regard to redundancy of the power supply." UCS Brief at 37. UCS refers to the licensee's emergency procedure for a loss of pressurizer heaters where the operator is directed not to connect the heaters to the emergency power supply if only one diesel generator is available. *Ibid.* See Lic. Ex. 50 at 12.0. This exception has been rendered moot as a result of licensee plans to delete this limitation from the emergency procedure. See letter from licensee's counsel to the Appeal Board (August 20, 1982).

²⁰⁹ UCS Brief at 33-37.

²¹⁰ We place this specific condition on the operation of TMI-1 because the record is not clear as to the requirement for the plant to be subcritical or, at least, in a low power condition before connecting the pressurizer heaters to emergency power. Licensee witness Shipper testified that the pressurizer heaters may be connected to emergency power in situations other than a loss of offsite power. Tr. 9427. He indicated that in such a situation the plant would have to be taken to a "hot standby" condition. *Ibid.* According to the TMI-1 FSAR, in the hot standby condition, the reactor would be critical but below two percent in

(Continued)

C. Power Operated Relief Valve (PORV)

UCS introduced a contention concerning the importance to safety of the power operated relief valve (PORV), its block valve, and their instrumentation and controls. It asserts that failure of these components can cause or aggravate a LOCA, that they are essential to mitigate the consequences of accidents, and that they are, therefore, important to safety and must meet all safety-grade design criteria.²¹¹ The Licensing Board found, on the contrary, that the PORV and its block valve need not be required to meet all safety-grade design criteria except those applicable to their role as a part of the reactor coolant system pressure boundary. Central to the Board's determination were its interrelated conclusions that (a) neither the PORV nor its associated block valve, instruments and controls are required to mitigate the consequences of design basis LOCAs, and (b) the consequences of any LOCA that might be caused or aggravated by failure of the PORV can be safely mitigated by safety-grade equipment.²¹² As we explain below, we agree with the Board that for TMI-2 type accidents, which are the subject of this case, the plant modifications already in place make it unnecessary to require that the PORV and its associated components be upgraded to full safety-grade status as a condition of restart.

The PORV and two safety relief valves are designed to open if reactor coolant pressure rises above certain setpoints. The opening of the PORV and its failure to reclose automatically, along with the operators' failure to detect the open PORV and terminate the LOCA by closing the block valve, contributed to the seriousness of the accident at TMI-2. In its August 9, 1979 Order and Notice of Hearing, therefore, the Commission directed that the licensee make certain improvements to the PORV, block valve, and their instrumentation and controls as specified in Table B-1 of NUREG-0578. See CLI-79-8, 10 NRC 141.²¹³ UCS agrees that these im-

power level. See FSAR I, *supra* note 56, at Chapter 15 p. 1-1. Staff witness Fitzpatrick understood that the heaters would be connected to emergency power only after a loss of offsite power. See Tr. 9713. TMI-1 emergency procedures for a loss of the pressurizer heaters suggest that the plant would be taken to a shutdown condition before the heaters would be connected to the emergency power supply. See Lic. Ex. 50 at 10.0 to 12.0. The Licensing Board did not explicitly address this matter.

²¹¹ UCS Contention 5 is reprinted in its entirety in 14 NRC at 1277.

²¹² 14 NRC at 1282.

²¹³ For example, the capability to supply emergency power to the PORV and its block valve has been provided and position indication has been installed on the PORV. Lic. Ex. 1 at 2.1-3 and 2.1-7c. TMI-1 emergency procedures instruct the operator to close the block valve in the event of a loss of reactor coolant. Lic. Ex. 47 at 3.0, Ex. 48 at 2.0. In addition, the block valve and its controls appear to be capable of withstanding severe earthquakes and environmental conditions. Tr. 8768 (Correa); Tr. 8994-98 (Correa and Urquhart). The licensee and staff testified that the main difference between the block valve and a full safety-grade component is in regard to the single failure criterion. Tr. 8792-93 (Correa); Tr. 8830-31 (Jensen). (See our discussion of the environmental qualification issue in Part IV of this decision.)

provements are necessary. It claims, however, that they are not sufficient to provide adequate protection for the health and safety of the public.²¹⁴

To begin with, UCS argues that, even though the Licensing Board appeared to agree that the design of the PORV was inconsistent with General Design Criterion (GDC) 14,²¹⁵ it refused to direct corrective action because TMI-1 is an operational plant.²¹⁶ We believe this is an oversimplification of the Licensing Board's finding.

Although the Board appears to suggest that TMI-1's status as an operating plant bears upon the design criteria it must meet, we believe the Board fundamentally rested its conclusion on a finding that the requirements now imposed are sufficient to meet the criterion that there be an extremely low probability of abnormal leakage, rapidly propagating failure, and gross rupture of the pressure boundary. There is no regulatory definition of "low probability." The Board, however, endorsed the staff's determination that General Design Criterion 14 is satisfied by the plant improvements,²¹⁷ provided the licensee documents that in the long term the PORV will open in less than 5 percent of all anticipated overpressure transients.²¹⁸ The Board found that reasonable progress toward such long term demonstration had been made, but that such demonstration need not be made as a condition of restart.²¹⁹ We agree that the requirements of GDC 14 are met and that the safety of TMI-1 will not be compromised by any inadvertent and potentially excessive actuation of the PORV because the block valve is available to mitigate a failure of the PORV to close.²²⁰

²¹⁴ UCS Brief at 39. Pollard, fol. Tr. 9027 at 5-1.

²¹⁵ General Design Criterion 14, "Reactor Coolant Pressure Boundary," of Appendix A to 10 CFR Part 50 states:

The reactor coolant pressure boundary shall be designed, fabricated, erected, and tested so as to have an extremely low probability of abnormal leakage, of rapidly propagating failure, and of gross rupture.

²¹⁶ UCS Brief at 41, 45.

²¹⁷ New position indication instrumentation makes it easier to identify the PORV as a potential source of leakage while inverted PORV and reactor trip setpoints will reduce the frequency of PORV challenges. In this latter regard, the PORV setpoint was below that of the reactor trip pressure prior to the TMI-2 accident in order to limit the number of reactor trips. Since then the setpoints have been modified so that the reactor will trip at 2300 psig rather than 2355 psig and the PORV will lift at 2450 psig instead of 2255 psig. The setpoints of the safety relief valves remain at 2500 psig. Tr. 7354-55 (Lanese); Correa, Urquhart and Jones, fol. Tr. 8746 at 3. In addition, as noted above, the block valve is highly qualified, emergency power will be supplied to it, and revised procedures alert the operator to the use of the block valve.

²¹⁸ 14 NRC at 1280. The requirement to document that the PORV will lift in less than five percent of overpressure transients is embodied in Items II.K.2.14 and II.K.3.7 of Staff Ex. 12 (letter dated April 22, 1981 from John F. Stolz, NRC, to H. D. Hukill, Metropolitan Edison Co.).

²¹⁹ 14 NRC at 1279, 1395.

²²⁰ We also note that, in the event of failure of both the PORV and its block valve, B&W analyses predict that the emergency core cooling system (ECCS) can safely provide core cooling. Correa, Urquhart, and Jones, fol. Tr. 8746 at 3. See also Lic. Ex. 5 at Section 6.2.3. The staff requires that the high-point vents to be installed in the hot legs of the reactor coolant system be safety-grade and satisfy the single failure criterion to ensure low probability of inadvertent actuation. Staff Ex. 1 at C8-60. UCS argues that these same requirements should be applied to the PORV. Brief at 48. We find that the concern for inadvertent actuation of the PORV has been effectively resolved by the availability of the block valve.

UCS also asserts that the Licensing Board erred in failing to find that the PORV should be safety-grade to limit challenges to the safety relief valves.²²¹ In support of this argument, UCS observes that the change of the PORV pressure setpoint has reduced the differential between the PORV and safety relief valve release pressures to only 50 psi, and suggested the possibility of increased safety relief valve challenges.²²² Even though the PORV setpoint is now closer to that of the safety relief valve, the reactor trip level has been lowered 150 psi below the PORV setpoint. As a consequence, the reactor trip will occur earlier in a transient and help to limit pressure rise in the reactor coolant system. Therefore, the large pressure differential between the reactor trip and PORV lift points will reduce the potential for reactor coolant system pressure rising to the PORV setpoint.²²³ In sum, it does not appear that the proximity of the PORV and safety relief valve release positions will result in increased challenges to the safety relief valves. We note that the proposed setpoints are not permanent but can, in any event, be changed if experience demonstrates that the safety relief valves are being challenged at more than the expected rate.

Similarly, UCS charges that the Licensing Board erred in failing to find that the PORV must be safety-grade in order to limit challenges to the ECCS.²²⁴ The TMI-2 Lessons Learned Task Force in NUREG-0578 stated that a lesson learned from the TMI-2 accident is “that the frequency with which some safety systems . . . are called upon to function . . . may exceed their generally understood and previously accepted design basis.”²²⁵ In particular, the staff group has recommended specific changes to decrease the frequency of challenges to the ECCS.²²⁶ UCS does not argue that the number of design cycles will be exceeded. It contends, rather, that it is generally desirable to reduce the number of challenges to the ECCS, and relies on the Lessons Learned Task Force recommendations as set out in NUREG-0578 to support its overall approach. The Lessons Learned Task Force did not expressly include upgrading of the PORV as a means of reducing the number of challenges to the ECCS among its specific recommendations in NUREG-0578, although it did suggest in general terms that upgrading of the PORV and other associated systems be considered.²²⁷ The staff

²²¹ UCS Brief at 47.

²²² UCS Proposed Findings of Fact and Conclusions of Law on UCS Contentions Nos. 1, 2, 3, 4, 5 and 10 at 89 (June 1, 1981).

²²³ The licensee testified that the pressure is not expected to cause a PORV opening during operational transients if feedwater is delivered in a timely fashion to the steam generators. Correa, Urquhart and Jones, fol. Tr. 8746 at 3.

²²⁴ UCS Brief at 46.

²²⁵ NUREG-0578, fn. 31, *supra*, at 6.

²²⁶ *Ibid.*

²²⁷ *Id.* at A-3.

testified that the frequency of such challenges has been reduced by other modifications, such as (a) providing emergency power to the PORV and block valve, (b) providing indirect valve position indication for the PORV and safety relief valves, and (c) inverting the PORV and reactor trip pressure setpoints to lessen the likelihood of PORV actuation.²²⁸ In such circumstances, we cannot conclude that the upgrading of the PORV to reduce the number of challenges to the ECCS is necessary.²²⁹

UCS claims that the PORV plays a role with regard to protection against overpressurization of the reactor vessel during low temperature conditions and for that reason should be safety-grade.²³⁰ The use of the PORV to provide overpressure protection during cold shutdown conditions is a normal plant function not associated with either a small break LOCA or loss of feedwater, and thus is outside the scope of this proceeding. The Licensing Board nonetheless discussed the issue.²³¹ UCS objects to the Board's purported failure to address its evidence regarding the need for the PORV during low temperature conditions. However, the Licensing Board examined UCS' presentation and concluded that the PORV is merely a backup to operator action and thus need not be safety-grade to mitigate transients during low temperature conditions. The licensee testified that the operator would have ten minutes to take action to mitigate an overpressurization event during cold shutdown conditions because normally a steam bubble is maintained in the pressurizer.²³² If an overpressurization event were to occur during a cold shutdown condition with no bubble in the pressurizer, the PORV also should only serve a secondary safety function as a backup to operator actions (*e.g.*, shutoff HPI and increase letdown flow) to terminate the event.²³³

Finally, UCS maintains that the Licensing Board should have found that (1) use of the PORV is needed to depressurize the reactor coolant system during inadequate core cooling conditions, and (2) procedures employing safety-grade equipment (without dependence on the PORV for these conditions) do not exist.²³⁴ The use of the PORV in inadequate core cooling

²²⁸ Jensen, fol. Tr. 8821 at 5.

²²⁹ As noted earlier with regard to challenges to the safety relief valves, additional modifications can be undertaken if, contrary to our expectation, it becomes apparent that the proposed modifications have not reduced the frequency of ECCS actuations to an acceptable level.

²³⁰ UCS Brief at 42. At low temperature conditions, the structural components of the reactor coolant system may be susceptible to brittle fracture if an overpressurization event were to occur.

²³¹ 14 NRC at 1281.

²³² Tr. 8755-56, 8976-79 (Jones).

²³³ During the long-term cooldown of the reactor coolant system following a small break LOCA, the break would assist in mitigating an overpressurization event if one should occur.

²³⁴ UCS Brief at 44.

conditions is also outside the scope of this proceeding.²³⁵ Nonetheless, the Board considered UCS' arguments. In rejecting them, the Board recognized that use of the PORV is only one means of depressurizing the primary system. It found, contrary to UCS' argument, that the emergency procedures to mitigate inadequate core cooling also direct that an alternate method, *i.e.*, use of the steam generators, be used to depressurize the reactor coolant system.²³⁶ We agree with the Licensing Board that use of the PORV is not the only method available to depressurize the primary system.

In sum, we affirm the Licensing Board's determination that, on the basis of the existing record, it is not necessary to upgrade the PORV and block valve to full safety-grade status for their use during events that have a reasonable nexus to the TMI-2 accident (*i.e.*, a small break LOCA or main feedwater transient).²³⁷ In so finding, we have rejected several UCS arguments for upgrading the PORV to safety-grade because they concern events outside the scope of this proceeding. We note, however, that UCS has made some reasonable arguments for upgrading the PORV and we believe they should be considered in connection with the concerns we raised in ALAB-724, where we discussed recent information received from the staff in which it recommends that the PORV be made fully safety-grade in order to provide a rapid depressurization capability in the event of a steam generator tube break accident.²³⁸

D. Safety Systems Bypass and Override

During the TMI-2 accident, as the Licensing Board points out, one of the automatic safety systems, *i.e.*, the emergency core cooling system, was terminated prematurely by the reactor operators. Full flow from the high pressure injection system to the reactor coolant system was stopped. This reduction in emergency cooling flow significantly contributed to the severity of the accident.²³⁹ Intervenors UCS and Steven Sholly argued below that a design that permits an operator to interrupt completion of an automatic safety function violates Commission regulations. They also urged that, in light of the errors made during the course of the TMI-2 accident, the TMI-1 design must be modified to prevent the operators from terminating the

²³⁵ Procedures to mitigate inadequate core cooling conditions rely on nonsafety-grade equipment because these conditions are beyond the design basis of the plant. Tr. 8763 (Jones).

²³⁶ 14 NRC at 1282. See Lic. Ex. 48 at 25.0-28.0.

²³⁷ UCS' argument that the PORV must be safety-grade because of its role in feed and bleed is discussed in Section III(A), *supra*.

²³⁸ This is a change from the staff position presented to us that there is no need for the PORV to be fully safety-grade. See Staff Brief (May 20, 1982) at 23-24.

²³⁹ 14 NRC at 1259, 1266.

completion of an automatically initiated safety function. UCS Contention 10 stated:

The design of the safety systems at TMI is such that the operator can prevent the completion of a safety function which is initiated automatically; to wit: the operator can (and did) shut off the emergency core cooling system prematurely. This violates §4.16 of IEEE-279 as incorporated in 10 CFR 50.55a(h) which states: "The protection system shall be so designed that, once initiated, a protection system action shall go to completion." The design must be modified so that no operator action can prevent the completion of a safety function once initiated.²⁴⁰

Such modification, UCS urges on appeal, would be relatively simple and would result in a significant improvement in safety.²⁴¹

The Licensing Board found that the TMI-1 design is consistent with Commission regulations because those regulations, both in terms and as reasonably interpreted, do not prohibit operator intervention. It nonetheless noted that operator procedures contemplate completion of all safety functions for postulated design basis accidents. Improper operator intervention is thus a potential problem, the Board believed, only for unforeseen events. As to those, the Board found, on balance, that it is preferable to preserve operator flexibility despite the possibility that operators could intervene in error.²⁴² The Board summarized its findings as follows (*id.* at 1266):

The Board decides against UCS Contention 10. First, the Commission regulation incorporating IEEE Std. 279 does not apply to this facility. Second, the TMI-1 protection system conforms to IEEE Std. 279 and the language of the standard does not prevent operator interference with safety system operation. Third, nothing in IEEE Std. 279 suggested by UCS persuades us that it is necessary or appropriate to extend application of the standard. Fourth, one lesson learned from the TMI-2 accident is not to eliminate the operator's role by the increased use of automation, but to improve the operator's understanding and capability to cope with the unusual and unexpected. Though the Board agrees with UCS that during the TMI-2 accident operator intervention in the operation of the high pressure injection system was premature and was the cause of core damage (UCS proposed finding ¶244), the Board does not agree with the remedy sug-

²⁴⁰ See *id.* at 1258. The Licensing Board subsequently limited this contention to emergency core cooling, emergency feedwater and containment isolation systems. See *id.* at 1258 n.81.

²⁴¹ Electrical industry standards are coordinated by the Institute of Electrical and Electronics Engineers (IEEE) through a committee network consisting of volunteer electrical experts. Electrical standards developed by IEEE are identified by a specific number followed by the revision year (*e.g.*, IEEE 279-1968). IEEE industry standards are occasionally incorporated in terms in Commission regulations.

²⁴² *Id.* at 1258-67.

gested by UCS for the reasons discussed above. In summary, the Board concludes that the plant design changes suggested in UCS Contention 10 and discussed in the hearing are not justified and that these changes should not be made.

UCS challenges the Licensing Board's view regarding the applicability of the Commission's regulations and its conclusion that operator intervention should be permitted.²⁴³ We find the Board's legal conclusions and interpretations correct, its overall decision reasonable, and thus affirm.

The Licensing Board rejected UCS' assertion that the TMI-1 design violates Commission regulations because IEEE Standard (Std) 279, as embraced in 10 CFR §50.55a(h), does not apply to TMI-1.²⁴⁴ The Board was correct. The express terms of 10 CFR §50.55a(h) limit application of IEEE Std 279 to plants that received construction permits after January 1, 1971. TMI-1 received its construction permit in May 1968.²⁴⁵

UCS on appeal concedes that, by its terms, IEEE Std 279 does not require the design modifications that it recommends.²⁴⁶ UCS argues, nevertheless, that IEEE Std 279 should be read broadly to embrace the modifications it proposes in order to effectuate the underlying intent of the requirement.²⁴⁷ The Licensing Board disagreed. It found that IEEE Std 279 was intended to apply only to the "protection system" that *actuates* the equipment that performs the safety function, not to the subsequent operation of the safety function itself (such as the actual pumping of water into the reactor).²⁴⁸ The Board's interpretation of the intent underlying IEEE Std 279 is reasonable and supported by the record. Licensee witness Patterson explained that the requirements of IEEE Std 279 were intended to ensure that, once initiated, the protection system continued to completion (*i.e.*, actuation of safety equipment).²⁴⁹ Staff witness Sullivan similarly testified that the purpose of IEEE Std 279 is to require that the protection system continue to demand

²⁴³ Mr. Sholly has not appealed the Board's disposition of this issue.

²⁴⁴ 14 NRC at 1260.

²⁴⁵ See Lic. Ex. 1 at 1-1.

²⁴⁶ UCS Brief at 67.

²⁴⁷ *Id.* at 68-74.

²⁴⁸ 14 NRC at 1261. IEEE Std 279-1968, "Proposed IEEE Criteria for Nuclear Power Plant Protection Systems," states:

For purposes of these Criteria, the nuclear power plant protection system encompasses all electric and mechanical devices and circuitry (from sensors to actuation device input terminals) involved in generating those signals associated with the protective function. These signals include those that actuate reactor trip and that, in the event of a serious reactor accident, actuate engineered safeguards such as containment isolation, core spray, safety injection, pressure reduction and air cleaning.

UCS Ex. 16 at 3.

²⁴⁹ See Clark, *et al.*, fol. Tr. 6225 at 3-4; Tr. 6228.

the safety function (e.g., core cooling) until deliberate operator intervention even if the initiating parameter returns to normal.²⁵⁰

In this connection, UCS argues that the requirements of IEEE Std 279, although perhaps not directly applicable, have nonetheless been applied to equipment that is not strictly part of the automatic protection system.²⁵¹ Witness Pollard testified, for example, that Section 7.3 of NUREG-75/087, the then-effective Standard Review Plan for Review of Safety Analysis Reports for Nuclear Power Plants,²⁵² applied IEEE Std 279 to engineered safety features, such as the high pressure injection system.²⁵³ Licensee witness Clark also acknowledged that the principles of IEEE Std 279 — although not the standard itself — had been applied elsewhere.²⁵⁴ Staff witness Sullivan agreed that the principles of IEEE Std 279 were being applied beyond the protection system but stated that this was due to the general applicability of those principles.²⁵⁵ Importantly, however, as noted by licensee witness Patterson, the 1968 and 1971 versions of IEEE Std 279 state that they apply to the actuation of engineered safety features, but not the completion of their safety function,²⁵⁶ and even UCS witness Pollard testified that he knew of no plants that had an interlock system such as UCS is proposing in connection with the operation of the high pressure injection system.²⁵⁷ We recognize that the staff may have applied the principles of IEEE Std 279 beyond the protection system; but it has not applied the standard for the purposes that UCS proposes.

Finally, UCS contends that the Institute of Electrical and Electronics Engineers has more recently developed IEEE Std 603 explicitly to extend IEEE Std 279 to the operation of systems actuated by the protection system. Section 4.4 of IEEE Std 603-1977 requires that safety systems, once initiated, continue to completion except that such requirement does not preclude certain operator intervention as identified in the design basis. See UCS Ex. 15 at 14. In UCS' view, this standard requires a designer to define explicitly all the conditions under which operator intervention is permitted.²⁵⁸ Staff witness Sullivan testified, however, that he does not in-

²⁵⁰ Sullivan, fol. Tr. 6602 at 4.

²⁵¹ UCS Brief at 68.

²⁵² NUREG 75/087 has been reissued as NUREG-0800 (July 1981).

²⁵³ Pollard, fol. Tr. 6410 at 10-12, 10-13; Tr. 6761-62.

²⁵⁴ Tr. 6299 (Clark).

²⁵⁵ Tr. 6626-27 (Sullivan).

²⁵⁶ IEEE Std 279-1968 and 1971 state:

These signals include those that actuate reactor trip and that, in the event of a serious reactor accident, actuate engineered safeguards such as containment isolation, core spray, safety injection, pressure reduction, and air cleaning.

UCS Ex. 16 at 3; Lic. Ex. 16 at 7.

²⁵⁷ Clark *et al.*, fol. Tr. 6225 at 3-4 (Patterson); 6468-70 (Pollard).

²⁵⁸ UCS Brief at 69.

interpret IEEE Std 603 to prohibit operator intervention in unforeseen circumstances.²⁵⁹ The Licensing Board, after reviewing the conflicting testimony and opinion and construing the language, concluded that even IEEE Std 603-1977 does not support UCS' argument that the TMI-1 design should preclude operator interference.²⁶⁰

We do not believe that IEEE Std 603-1977 should be relied on to expand or modify the provisions of IEEE Std 279 as suggested by UCS.²⁶¹ IEEE Std 603 has not been codified or endorsed as regulatory guidance and thus has no regulatory significance.²⁶² As a result, we see no basis for upsetting the Licensing Board's ultimate determination regarding the applicability of IEEE Std 603.

Given that no regulatory requirement is violated by the TMI-1 design, the heart of UCS' argument on appeal is its judgment that the potential for operator error is nevertheless sufficient to warrant placing ultimate reliance on automatic safety systems. We are uncomfortable, however, with the evidentiary and analytical predicates that underlie UCS' position. UCS witness Pollard uses the example of the automatic initiation of the high pressure injection (HPI) system and states

For example, if the high pressure injection system has been automatically started because of low pressure in the reactor coolant system, it should remain in operation until 1): the low pressure injection system is in operation and pumping 1000 gpm in each line and the situation has been stable for 20 minutes, or 2): all hot and cold leg temperatures are at least 50°F below the saturation temperature, the hot leg temperature is less than 50°F above the secondary side saturation temperature, and termination is necessary to prevent indicated pressurizer level from going off-scale high.²⁶³

Mr. Pollard suggests that the reactor operator should be prevented from shutting off the HPI prematurely. He states

This could be accomplished, for example, by interlocking the operator's controls for the high pressure injection system with the signals from low pressure injection flow, a 20 minute timer and the satura-

²⁵⁹ See, e.g., Tr. 6609, 6656-57. See also Tr. 6745-49.

²⁶⁰ 14 NRC at 1262-64.

²⁶¹ While the version of IEEE Std 603 in evidence is simply a "trial use" standard, licensee witness Patterson testified that IEEE Std 603 had been revised as an "approved full standard" but was not in print. However, he did not believe that the staff had adopted the standard. Tr. 6231-32. This revised standard has now been issued as IEEE Std 603-1980.

²⁶² See UCS Ex. 15 at 1; Tr. 6606-08 (Sullivan).

²⁶³ Pollard, fol. Tr. 6410 at 10-17. We note that these are essentially the same criteria now specified in the TMI-1 emergency procedures that must be met before the reactor operator is allowed to throttle high pressure injection flow. See Lic. Ex. 48 at 8.0.

tion meters such that the controls would be ineffective in stopping high pressure injection until the conditions specified above were met. The same type of design changes need to be undertaken for the auxiliary feedwater system and the containment isolation system.²⁶⁴

In this connection, Mr. Pollard asserts that

in any case you are talking about adding in the case of high pressure injection three or so relay or switch contacts, each representing the three conditions specified in the licensee's testimony. One would indicate that you had the 50 degree sub-cooling margin, another to find out when you have the low pressure injection flow above 1,000 gallons per minute, and whatever conditions you would choose to define as stable.²⁶⁵

In our view, Mr. Pollard understates the likelihood that additional sensors may be needed to ensure isolation of the new circuitry from existing plant circuitry, the redundancy requirements for such equipment, and the additional minicomputer capacity likely to be required to process the various signals and determine the proper action.²⁶⁶ Equally important, Mr. Pollard concedes that, if failure occurred in any of the new circuitry, the interlocks might not lift to allow shutoff of such items as the HPI even when stability returned. In this event, he suggested that operator intervention could — indeed, would — remedy the problem.²⁶⁷ This suggestion is tantamount to a recognition that operator action to correct unforeseen occurrences that may arise will always be potentially necessary. The UCS proposal simply would inject undue complication without any likely improvement in the overall level of safety.²⁶⁸

²⁶⁴ Pollard, fol. Tr. 6410 at 10-18 through 10-19.

²⁶⁵ Tr. 6432.

²⁶⁶ See generally Clark *et al.*, fol. Tr. 6225 at 4-6.

²⁶⁷ See Tr. 6521.

²⁶⁸ UCS argues that the statements provided to the Licensing Board on March 18, 1982, by certain staff members support the UCS testimony. UCS Brief at 71-72. This group of staff members, known as the Martin group, were prominent in the preparation of NUREG-0600, "Investigation into the March 28, 1979 Three Mile Island Accident by Office of Inspection and Enforcement," and prepared recommendations with respect to changes in plant design and operation needed as a result of the TMI-2 accident. See UCS Motion to Reopen Record, to Permit the Taking of Depositions, and for Costs Against the Staff (September 10, 1981). At the reopened hearing on March 18, 1982, staff witness Hunter, a member of the Martin team, testified that the team had recommended an interlock to prevent operator intervention with safety systems. Tr. 27,141. Mr. Hunter believed that an interlock might prevent operator intervention for approximately five minutes but could be defeated by management control. Tr. 27,142-44. With regard to the use of interlocks at other plants, Mr. Hunter testified that the interlocks were needed at plants, unlike TMI-1, that use concentrated boric acid to prevent recriticality in the event of a main steam line break. Tr. 27,175-76. The Licensing Board denied the UCS motion to reopen to admit evidence surrounding the positions of these staff members of the Martin team. See LBP-82-34A, 15 NRC 914 (1982). UCS took exception to this ruling, but failed to brief the exception within the required time period. See UCS' Exception to Memorandum and Order Denying Motions to Reopen Record (May 6, 1982). Therefore, we need not address these staff statements in our decision. In any event, we believe that the use of the interlock at other

(Continued)

The Licensing Board concluded that ultimate reliance should continue to be placed, as it has been historically, on the reactor operators. The Board observed that

the immediate actions of protective systems . . . are automated and the operator action is simply to verify that the automatic circuitry has functioned properly. Subsequent bypass of . . . circuits . . . proceeds on a much more deliberate basis. The operators have ample opportunity to verify that the conditions prerequisite to bypass are in fact met. They can, as appropriate, refer to written operating procedures and/or consult with their immediate supervisor prior to bypassing an automatic system. It is fully appropriate, therefore, that this type of action remain under operator control. The Board . . . again notes the importance of operator training.

Though the Board agrees with UCS that during the TMI-2 accident operator intervention in the operation of the high pressure injection system was premature and was the cause of core damage, the Board does not agree with the remedy suggested by UCS. . . .

14 NRC at 1266 (citations omitted). In reviewing the Licensing Board's conclusions, and UCS' arguments to the contrary, we must be mindful that we are concerned with operator intervention in the context of unforeseen accidents and circumstances, *i.e.*, those for which no automatic, mechanical safety system or procedure can be devised in advance.²⁶⁹ Licensee witness Clark testified that it is just as difficult to foresee all possible sequences of events and reduce them to automatic circuitry as it is to foresee all possible sequences of events and reduce them to operating procedures.²⁷⁰ Ultimate responsibility for responding to unforeseen events must, in the final analysis, rest with people, either the equipment designers or operating personnel. Therefore, we see no basis on which to overturn the Licensing Board's judgment that properly trained personnel should make the final decision regarding accident mitigation procedures.²⁷¹

plants is justified since a certain amount of time is needed to flush the boric acid into the reactor coolant system. However, this short-time simple interlock is quite different from the elaborate interlock system proposed by UCS.

²⁶⁹ Operator procedures for predictable accidents are specific regarding when a safety system, like high pressure injection, may be interrupted. Tr. 6245-46 (M. Ross).

²⁷⁰ Tr. 6246-47.

²⁷¹ Such an approach, we note, is essentially consistent with the recent amendment of the Commission's regulations clarifying that licensees may take reasonable action that departs from license conditions or technical specifications in an emergency when such action is needed to protect the public health and safety. See 48 Fed. Reg. 13966 (Apr. 1, 1983).

E. System Classification and Interaction

Nuclear power plants must be designed in conformity with requirements set out in the Commission's General Design Criteria (GDC), 10 CFR Part 50, Appendix A. GDC 1 states, *inter alia*, that

Structures, systems, and components important to safety shall be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed.

The structures, systems and components that are "important to safety" are defined as those that "provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public." 10 CFR Part 50, Appendix A, Introduction.

In its Contention 14, UCS asserts that "all systems and components which can either cause or aggravate an accident or can be called upon to mitigate an accident must be identified and classified as components important to safety and required to meet safety-grade design criteria."²⁷² More specifically, it claims that certain systems previously classified as not related to safety are, in fact, important to safety within the meaning of the GDC, yet no systematic effort has been made to identify such systems or upgrade their reliability. UCS argues that the failure of so-called nonsafety systems can have a bearing on the operation of safety systems, and claims that a staff proposal simply to undertake a study of "systems interactions" problems is insufficient. In UCS' view, the Licensing Board erred in failing to require, as a prerequisite for restart, studies of the interaction between nonsafety systems and those important to safety.

In support of its argument, UCS asserts that various systems, structures and components now classified as nonsafety related can have an adverse effect on the integrity of the core because they can affect temperature, pressure, flow or reactivity. This can occur in two ways. First, improper functioning of certain nonsafety systems can result in unanticipated or additional challenges to the safety systems and thus aggravate accident conditions or complicate accident mitigation. Second, nonsafety systems may be used to mitigate accidents in ways not contemplated in the safety analysis, as they were during the TMI-2 accident. Finally, UCS maintains that a number of pieces of equipment do not meet safety-grade requirements and that, absent upgrading to full safety-grade status, there can be

²⁷² UCS Contention 14 is reprinted in its entirety in 14 NRC at 1340-41. In its First Special Prehearing Conference Order, the Licensing Board limited the consideration of this contention to the "core cooling system." LBP-79-34, 10 NRC 828, 837 (1979).

no finding of reasonable assurance that the plant is sufficiently safe to resume operations.

The Licensing Board rejected UCS' arguments. In so doing, however, the Board recognized that systems not now fully safety-grade can potentially affect core reactivity and primary coolant temperature, pressure or flow.²⁷³ As a result, the Board ordered that TMI-1 be included by the staff in generic reviews of systems interaction but it did not require the conduct of such review as a condition for restart.²⁷⁴ The Board indicated, based on its review of the evidence, that it was unaware of any nonsafety systems at TMI-1 that can adversely affect the integrity of the core. While urging that improvements be made to existing nonsafety systems that will significantly reduce the rate of challenge to safety-grade systems, the Board found that limited upgrading as suggested by the staff is sufficient to provide any necessary improvement in plant safety.²⁷⁵

Finally, the Board declined to adopt UCS' position that "important to safety" was equivalent to "safety-grade," and stated that, in its view, there is no need to bring all systems now classified as "nonsafety" up to full safety-grade status.²⁷⁶ We address the UCS appeal in separate discussions of (1) the definition and application of the various terms used by the parties, (2) the need for upgrading plant structures, systems and components, and (3) plans for systems interaction studies.²⁷⁷

1. Definitions

To begin with, we agree with the Licensing Board that the General Design Criteria do not require that all structures, systems and components important to safety meet safety-grade requirements. "Important to safety" is defined in the regulations to include those structures, systems and components necessary to meet the statutory requirement of providing reasonable assurance that the facility can be operated without undue risk to the public health and safety. There is no definition of "safety-grade" in the

²⁷³ 14 NRC at 1347.

²⁷⁴ *Id.* at 1352-53.

²⁷⁵ *Id.* at 1353.

²⁷⁶ *Ibid.*

²⁷⁷ In reaching its conclusions, the Licensing Board relied in part on the testimony of staff witness J. Conran. UCS argues that Mr. Conran is not qualified to present the staff's testimony because his experience is in the area of safeguards rather than systems interaction and his testimony places heavy reliance on the views of other individuals. UCS Brief at 93. The Licensing Board specifically found that he was qualified (14 NRC at 1352), and we see no reason to upset that determination. Nevertheless, we have relied on Mr. Conran's testimony only in regard to the status of the staff's efforts to resolve the systems interaction issue, a matter on which he appears to have direct knowledge.

regulations, but the term as used in Commission parlance refers to equipment that meets extremely rigid design criteria so as to produce the highest degree of reliability. See, e.g., *Sacramento Municipal Utility District (Rancho Seco Nuclear Generating Station)*, ALAB-655, 14 NRC 799, 808 (1981).²⁷⁸ UCS witness Pollard testified that all structures, systems and components that provide the statutorily required reasonable assurance that the plant can be operated without undue risk to the public are referred to *interchangeably* as important to safety, safety-grade, or safety related.²⁷⁹ Although the definitional distinctions are hardly a model of clarity, we disagree with Mr. Pollard's assertion.²⁸⁰

GDC 1 requires that structures, systems and components "important to safety" must meet standards "commensurate with the importance of the safety function to be performed." GDC 2, which requires that all structures, systems and components "important to safety" be capable of withstanding the effects of natural phenomena such as earthquakes without loss of function, admittedly renders GDC 1 somewhat ambiguous. We believe that the design criteria must be read together and that, so read, they do not support UCS' argument that "important to safety" and "safety-grade" are synonymous.

General Design Criterion 1 plainly contemplates a range of safety requirements dependent on function, rather than a single requirement to which all structures, systems and components must conform, as the Licensing Board noted. See 14 NRC at 1344-45. Appendix A to 10 CFR Part 100 illustrates the concept established in GDC 1 (*i.e.*, gradations in quality level corresponding to relative safety importance) by identifying explicitly a select sub-class of structures, systems and components (from the broad class of those "important to safety") that is required for the performance of specific, critical safety functions (*e.g.*, safe shutdown, accident prevention and consequence mitigation). Specifically, Section III(c) of Appendix A defines the "Safe Shutdown Earthquake" (the most

²⁷⁸ In general, safety-grade structures, systems and components must be capable of withstanding severe effects of postulated earthquakes or adverse environments caused by such factors as radiation, temperature, humidity and caustic sprays, and still perform their safety function. If safety-grade electrical equipment must operate in the event of a loss of offsite power, it is supplied with emergency power by either batteries or a diesel generator. A system in this most important class must have suitable redundancy such that, if a single failure occurs, the safety function could still be performed. The regulations define a single failure as an active or passive failure in an electrical system but only as an active failure in a fluid system. See Appendix B of this decision. See also *Florida Power and Light Co.* (St. Lucie Nuclear Power Plant, Unit No. 2), ALAB-603, *supra*, note 37.

²⁷⁹ Pollard, fol. Tr. 8091 at 14-3 through 14-4.

²⁸⁰ The definition of "safety related" was discussed at the hearing but is no longer critical to a determination of the issues on appeal. We shall, as a result, limit our discussion to the definitions and distinctions between the terms "important to safety" and "safety-grader." We note, however, that insofar as the qualification of electrical equipment is concerned, the Commission has issued a regulation that effectively defines "safety related" as equivalent to "safety-grade." See 10 CFR §50.49, 48 Fed. Reg. 2729 (Jan. 21, 1983).

severe seismic event analyzed for a nuclear power plant) and requires that certain structures, systems and components be designed to remain functional for that event.²⁸¹

The licensee divided equipment into two broad categories, *i.e.*, (1) equipment used to provide the greatest assurance of protection that is designed and constructed to the highest standards, and (2) systems designed to somewhat less stringent but still rigorous standards, that are used in the general operation of the plant or to control less severe transients. The acceptability of the less stringent standard lies in the reduced consequence if these systems fail during a transient and the lack of *ultimate reliance* placed on them in the event of a serious accident. In other words, if these less critical control systems fail to perform their function, they are supported by the safety-grade equipment fully capable of meeting the resulting event.²⁸²

As we read the regulations, therefore, all structures, systems and components encompassed by the term "important to safety," including the "safety-grade" sub-class, are necessary to meet the broad safety goal articulated in the GDC, *i.e.*, to provide reasonable assurance that a facility can be operated without undue risk to the health and safety of the public, as required by statute. Only "safety-grade" structures, systems and components, however, are relied upon to meet critical safety functions, such as those identified in 10 CFR Part 100: accident prevention, safe shutdown, and accident consequence mitigation. In short, not all equipment that may play some safety role at a plant need meet safety-grade criteria.

This interpretation of the General Design Criteria appears to be consistent with the staff's historic approach. The Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, NUREG-0800 (July 1981), for example, provides guidance for the staff in its review of applications to construct and operate new nuclear power plants. As outlined in the Standard Review Plan, the staff evaluates a wide range of systems, structures and components, some of which are safety-grade and some of which are not.

The staff has identified various structures, systems and components that must remain operable following a design seismic event (or safe shutdown earthquake) and has listed them in detail in Regulatory Guide 1.29,

²⁸¹ "Functional" may be defined as that operability necessary to assure (1) the integrity of the reactor coolant pressure boundary; (2) the capability to shut down the reactor and maintain it in a safe shutdown condition; or (3) the capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to the guideline exposures of 10 CFR Part 100.

²⁸² Keaten and Brazill, fol. Tr. 7558 at 14.

“Seismic Design Classification.”²⁸³ Regulatory guides describe methods acceptable to the NRC staff for implementing specific parts of the Commission’s regulations,²⁸⁴ and Regulatory Guide 1.29 is intended to describe an acceptable method of complying with General Design Criterion 2. In the present context, therefore, the listing of certain structures, systems and components that must remain operable following a design seismic event, and the exclusion of others, constitutes some evidence of the staff’s interpretation of the requirements set out in GDC 2. In our view, the Standard Review Plan and Regulatory Guide 1.29 support the staff’s assertion, and the Licensing Board’s finding, that equipment “important to safety” may include both safety-grade and nonsafety-grade equipment, depending on the function and degree of reliance placed on the equipment.²⁸⁵

In sum, nothing in the regulations supports UCS’ assertion that the term “important to safety” must be read as equivalent to “safety-grade.”²⁸⁶

Before leaving the subject of definitions, we believe one additional point is in order. To be considered safety-grade, a system must be able to remain operative after a design seismic event and to function in any harsh environment which may be expected at its location after an accident. In our opinion, however, GDC 1 requires even more. GDC 1 states:

Where generally recognized codes and standards are used, they shall be identified and evaluated to determine their applicability, adequacy, and sufficiency and shall be supplemented or modified to assure a quality product in keeping with the required safety function.

The standards or codes (IEEE, ASME, etc.) that must be met by safety-grade structures, systems or components have been reasonably identified

²⁸³ The current version of Regulatory Guide 1.29 is Revision 3 (September 1978). See UCS Ex. 22.

²⁸⁴ *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 & 2), ALAB-644, 13 NRC 903, 937 (1981).

²⁸⁵ UCS claims that Regulatory Guide 1.29 is not a valid list of safety-grade equipment because it specifically includes the feedwater system and implies the inclusion of the PORV, neither of which are safety-grade at TMI-1. UCS Brief at 96. See also Tr. 8537-42 (Conran). As the licensee correctly points out, however, systems and components may have to be safety-grade for certain purposes but not others. Thus, the PORV, together with its block valve, must be — and, in fact, are — safety-grade insofar as they are part of the reactor coolant pressure boundary, even though the PORV is not safety-grade for its pressure relief function and thus is not included in terms in Regulatory Guide 1.29. But see ALAB-724, 17 NRC 559 (1983). The emergency feedwater system is included in the guide because it must now be safety-grade, even though that was not a requirement at the time TMI-1 was licensed. Licensee’s Brief in Opposition to Exceptions of Other Parties to the PID on Plant Design and Procedures, Separation, and Emergency Planning Issues, at 18 n.12 (May 10, 1982).

²⁸⁶ UCS refers us to the Commission’s Advance Notice of Proposed Rulemaking, cited by the Licensing Board (14 NRC at 1345-46), which suggests that there are simply two categories of equipment — safety-grade and nonsafety-grade — and that items that are not safety-grade receive no regulatory supervision. Although that is plainly what the advance notice of rulemaking suggests, we believe it is overstated. As noted above, the Standard Review Plan calls for staff review of nonsafety-grade items, and there is testimony in the record that the staff reviews equipment that is not safety-grade. See Tr. 7685-94 (Keaten). In our view, the advance notice should be read as indicating merely that the staff devotes most of its review to safety-grade items.

by the staff. In addition, comprehensive standards for equipment of lesser importance to safety should be established or, if only portions of a system should be safety-grade, some criteria for the level of upgrading should be formulated.²⁸⁷ Because we have considered the need for upgrading those structures, systems and components within the ambit of this case, attention to these matters need not delay restart; we nonetheless believe the staff should begin a prompt and careful review of this matter.²⁸⁸

2. *Upgrading*

Apart from its conclusion that the Commission's regulations do not require upgrading of nonsafety systems to safety-grade standards, the Licensing Board found no evidence in the record that there were specific nonsafety systems at TMI-1 that might, by themselves, cause core damage.²⁸⁹ When directed by UCS to specific nonsafety systems that were potential hazards, the Board carefully examined the interaction of those systems with the safety systems.²⁹⁰ Although expressly acknowledging that there may be unforeseen interactions between safety and nonsafety systems that could compromise safety, the Licensing Board was satisfied that the existing safety systems are sufficient in the interim to prevent accidents or, if necessary, to mitigate their consequences even if nonsafety systems failed; thus, it concluded that an upgrading of all nonsafety systems to safety-grade was neither necessary nor desirable.²⁹¹ We see no basis upon which to upset the Licensing Board's determination.

A key element in UCS' argument that nonsafety systems were erroneously classified and thus must be upgraded is its observation that nonsafety systems were employed to mitigate the TMI-2 accident. There is no doubt

²⁸⁷ See, for example, our discussion of the PORV in Section III (C), *supra*.

²⁸⁸ UCS charges that the definitions of the various terms presented by the staff witness "were largely a *post hoc* attempt for purposes of this litigation to construct a factually logical explanation to support what the Staff has required (and failed to require) for TMI-1." UCS Brief at 91. We do find the staff's use of the various terms confusing and its attempt to define them somewhat belated. Indeed, the large amount of testimony received did little to reduce the confusion regarding the definitions. See, e.g., Conran, fol. Tr. 8372 and Tr. 8404 *et seq.*; Pollard, fol. Tr. 8091 and Tr. 8092 *et seq.* It seems clear that, despite the importance of these terms in setting safety requirements, they had not been specifically defined or consistently applied.

²⁸⁹ 14 NRC at 1347.

²⁹⁰ UCS witness Pollard raised questions regarding various nonsafety systems, such as the reactor coolant pumps, the PORV and its block valve, and the emergency feedwater system. Pollard, fol. Tr. 8091 at 14-4 through 14-6. These matters were examined by the Licensing Board and we have reviewed its determinations elsewhere in this opinion.

²⁹¹ 14 NRC at 1347.

that such systems were so employed.²⁹² We agree with the Licensing Board's assessment, however, that such use does not mandate an upgrading of all these systems to safety-grade status. We note, in this connection, that there were no failures of safety-grade equipment to perform their intended safety functions during the TMI-2 accident.²⁹³ Improper operator intervention interfered with the proper functioning of the safety equipment but there is no evidence that upgrading nonsafety equipment would ameliorate that problem. We fully appreciate that changes in equipment design can, in some circumstances, compensate for potential operator error. But we cannot conclude that the general upgrading of nonsafety systems to safety-grade as recommended by UCS would even achieve that purpose.

UCS argues that the staff did not perform a careful analysis to determine whether any nonsafety-grade equipment should be upgraded.²⁹⁴ We disagree. The staff's Lessons Learned Task Force reviewed the TMI-2 accident in great detail.²⁹⁵ Those structures, systems, and components that were involved in either the cause or mitigation of that accident have been identified.

UCS does not believe that analyses were performed to determine the level of reliability attained by partial upgrading, and to compare this reliability to that of a fully safety-grade component.²⁹⁶ We agree with UCS that staff witness Conran did not provide reliable evidence of the extent of the staff's efforts in this regard.²⁹⁷ However, the need for upgrading of particular components (e.g., the PORV and the reactor coolant pumps) is addressed in great detail elsewhere in the record.²⁹⁸ In addition, the sufficiency of the long and short term restart requirements (including upgrading) was the subject of Licensing Board Question 2.²⁹⁹ Therefore, we believe that the

²⁹² UCS charges that the Licensing Board erred in failing to find that the staff witness had no basis for claiming that, during the TMI-2 accident, nonsafety systems were used only after improper operation of safety systems had resulted in core damage. UCS Brief at 97. See Conran, fol. Tr. 8372 at 8. UCS notes that Mr. Conran did not know whether the pressurizer heaters or the reactor coolant pumps were used before core damage occurred. UCS Brief at 98. See Tr. 8603 (Conran). The evidence shows that the reactor coolant pumps were used before core damage occurred during the TMI-2 accident, so we must agree with UCS that Mr. Conran had no basis for the statement that nonsafety systems were used only after improper operation of safety systems had resulted in core damage. See UCS Ex. 1.

²⁹³ Keaten and Brazill, fol. Tr. 7558 at 15.

²⁹⁴ UCS Brief at 98.

²⁹⁵ See e.g., NUREG-0578, *supra*; NUREG-0585, "TMI-2 Lessons Learned Task Force Final Report" (October 1979).

²⁹⁶ UCS Brief at 99. UCS takes specific exception to the Licensing Board finding that partial upgrading of the PORV is a significant improvement to safety. UCS Brief at 100. See 14 NRC at 1349.

²⁹⁷ See Tr. 8606-20 (Conran). We note that Mr. Conran indicated that, while his expertise in this area was limited, the testimony of other witnesses concerning specific application of other UCS contentions provides more justification for staff decisions. Tr. 8619-20.

²⁹⁸ See our discussion in Sections A, B, and C of this Part.

²⁹⁹ See 14 NRC at 1389-96.

record sufficiently addresses partial upgrading despite staff witness Conran's limited knowledge of the technical bases and need for upgrading.

The Licensing Board also believed that the UCS position would militate against or discourage making improvements in safety without upgrading to a fully safety-grade system.³⁰⁰ UCS disagrees.³⁰¹ UCS refers to testimony by witness Pollard that partial upgrading might be justified from an engineering standpoint if it were based upon the results of technical analyses assessing the degree of improvement to safety gained by the partial upgrade and comparison with the degree of improvement to be gained by full upgrade, and establishing that the partial upgrade causes no adverse effects on plant safety.³⁰² We agree with the UCS explanation that it does not propose to exclude consideration of partial upgrades. And, while we are not prepared to endorse the Board's view that a requirement that equipment be upgraded to full safety-grade would necessarily compromise safety improvement, we believe, contrary to the UCS position, that the need for partial upgrading of particular plant items at TMI-1 has been adequately considered by the staff and the Board.

Finally, UCS claims that certain instruments are relied upon by the operator to determine the need for initiating or terminating safety systems and, as a result, should be safety-grade.³⁰³ In particular, UCS asserts that both the core exit (incore) thermocouples and the pressurizer level instruments should be safety-grade because they are relied upon to indicate to the operator when HPI can be throttled.³⁰⁴ However, licensee witness Keaten testified that the 50°F subcooling margin, as specified by plant procedures, is a basic criterion which must be achieved before throttling is permitted.³⁰⁵

³⁰⁰ *Id.* at 1346.

³⁰¹ UCS Brief at 94.

³⁰² *Id.* at 92. See also Tr. 8123 (Pollard). Later in its appeal brief, UCS states that, "once a system is determined to be important to safety, and its design basis established, it must meet the applicable GDC." UCS Brief at 97. Apparently, UCS would allow partial upgrading only for plant equipment not determined to be important to safety.

³⁰³ UCS Brief at 100.

³⁰⁴ *Ibid.*

³⁰⁵ Tr. 7594-96. Licensee's TMI-1 emergency procedures provide:

Note: With NO RCP's running, the degree of subcooling shall be determined by the saturation meter or the five highest and operable incore thermocouples, depending on the ability to establish or verify Natural Circulation flow. (*i.e.*: no flow, use 5 highest and operable incore thermocouples) . . .

11. a. Throttle HPI after bypassing ESAS only when one of the following conditions exists:

- (1) The LPI system is in operation and flowing at a rate in excess of 1000 gpm in each line and the situation has been stable for 20 minutes.
- (2) The degree of subcooling is at least 50°F (as determined by saturation meter or 5 highest and operable incore thermocouples) and the action is necessary to prevent pressurizer level from going off scale high.

Note: If the degree of subcooling cannot be maintained at $\geq 50^\circ\text{F}$, full HPI shall be reinitiated.

Note: The degree of subcooling beyond 50°F shall be limited by the applicable pressure-temperature restrictions of Fig. 1 or 2.

Lic. Ex. 48 at 7.0-8.0.

The operator is directed to use the five highest and operable incore thermocouples if the reactor coolant pumps are not operating and natural circulation flow cannot be established.³⁰⁶ It is obvious that this procedure, as currently written, depends upon a reliable means of obtaining incore thermocouple temperature readings.³⁰⁷

The normal means of obtaining incore thermocouple readings is use of the plant computer. Tr. 7410 (Keaten). The staff, in Supplement 1 of NUREG-0752, "Control Room Design Review Report for TMI-1" (April 1981), proposed a requirement that the licensee provide a backup display capability for the incore thermocouples with a power supply independent of that of the plant computer prior to exceeding five percent of rated power.³⁰⁸ Licensee counsel indicated the licensee's commitment to follow these staff proposals.³⁰⁹ The Licensing Board found this new equipment necessary before plant operation above five percent of rated power.³¹⁰ We agree.

In addition, the licensee is committed to providing a backup display system in accordance with the long-term requirements of Item II.F.2 of NUREG-0737, "Clarification of TMI Action Plan Requirements."³¹¹ Staff witness Silver explained that compliance with the long term requirements of NUREG-0737 for a fully safety-grade display system would satisfy the less stringent requirements of NUREG-0752.³¹² In its response to our order of July 14, 1982, the licensee indicated that the safety-grade backup display system as required for long-term item II.F.2 of NUREG-0737 would be completed (except for environmental qualification) by October 1, 1982.³¹³

The planned safety-grade backup display system, combined with the availability of many incore thermocouples and their manifest reliability under adverse conditions, satisfy us that the incore thermocouples will be a reliable backup to the saturation meter.³¹⁴ Until the display system is made fully safety-grade, we require, as a condition of restart, that the TMI-1

³⁰⁶ Lic. Ex. 48 at 7.0. We assume that the procedure intends "liquid" natural circulation as opposed to the boiler-condenser mode.

³⁰⁷ In the event of a small break LOCA, it appears from the procedure that the operator might be required to use the incore thermocouples instead of the saturation meter. For example, the operator is now required to trip the reactor coolant pumps immediately upon an HPI actuation. Lic. Ex. 48 at 2.0. In addition, liquid natural circulation would be lost because of excessive steam voiding for all small break LOCAs greater than 0.005ft². Tr. 4683-84 (Jones).

³⁰⁸ Staff Ex. 15 at 10-12.

³⁰⁹ Tr. 21,431-32 (Baxter).

³¹⁰ 14 NRC at 1306.

³¹¹ Staff Ex. 14 at 29.

³¹² Tr. 21,360-65 (Silver).

³¹³ See Licensee's Response (Aug. 12, 1982) at 4. See our discussion of the environmental qualification issue at pp. 891-94, *infra*.

³¹⁴ Licensee witness Keaten testified that most of the 52 incore thermocouples are still operating at TMI-2. Tr. 7607. See generally Tr. 7622-28.

emergency procedures direct that operators rely on the redundant indication closest to saturation in determining if the criteria to permit throttling of HPI have been met.

Once 50°F subcooling is achieved, one criterion for throttling of the HPI (*see fn. 305, supra*) is the desire to prevent the pressurizer level from going offscale. However, the operating procedures also state that HPI shall be reactivated if the 50°F subcooling margin cannot be maintained. Therefore, the subcooling margin becomes the controlling parameter regardless of the pressurizer level reading. Based on its limited use in throttling HPI, we do not consider it necessary to upgrade the pressurizer level instruments to full safety-grade as a result of their use in this regard.³¹⁵

3. *Systems Interaction Studies*

The gist of UCS' argument regarding the need for a study of systems interaction is that there are unforeseen, *i.e.*, as yet undiscovered, problems that may compromise accident prevention or mitigation in some unexplored way, just as they did during the TMI-2 accident. Stated differently, there has been no comprehensive analysis to demonstrate that nonsafety-grade systems will not initiate or aggravate an accident.³¹⁶ We agree. We are also completely in agreement with UCS' judgment, endorsed by the Licensing Board, that such analysis should be undertaken. The issue before us, however, is whether restart must be delayed until that analysis is complete. UCS urges that restart be deferred until comprehensive systems interaction studies are undertaken. We find that the Licensing Board's requirement that systems interaction studies be conducted as a long-term objective is satisfactory.

To begin with, the systems interaction study recommended by UCS extends far beyond the issues embraced within this proceeding. The Licensing Board found that known systems interaction problems have been satisfactorily corrected. The Board also concluded that the existence of serious and unidentified interactions problems is "improbable."³¹⁷ To the extent that

³¹⁵ On April 14, 1983, we received information concerning licensee's planned change in the criteria for throttling the HPI pumps from a subcooling margin of 50°F to 25°F. *See* letter from licensee's counsel to Appeal Board (April 14, 1983). That information indicates that the reduction in subcooling margin for TMI-1 is supported on the grounds that a specific check at TMI-1 shows an error band of approximately $\pm 20^\circ\text{F}$ for the primary coolant instrumentation temperature above 300 psig. The original 50°F subcooling margin had been accepted on the assumption of 45°F instrument error. Thus the new proposal continues to allow the same 5°F margin as originally contemplated. The staff has accepted this change on the basis that the lower subcooling margin will allow better plant control during recovery operations. *See* Board Notification BN-83-34A (April 28, 1983), Enclosure 1. No objections have been received from the other parties. We agree to this change, providing the 20°F error in the TMI-1 instrumentation is not exceeded.

³¹⁶ UCS Brief at 87.
³¹⁷ 14 NRC at 1347.

such problems are associated with matters within the scope of this proceeding, we agree; we have obviously not examined matters outside that scope. We also believe that existing systems can provide reasonable assurance of adequate safety while further study goes on. In such circumstances, we find that the study UCS proposes is the type of long-term potential improvement in plant safety that need not delay restart.

We are concerned, however, that such study proceed promptly. During the course of the hearing, staff counsel indicated to the Licensing Board that the staff intended to impose a requirement for a systems interaction study on the licensee if the initial studies on five plants prove to be useful and worthwhile.³¹⁸ In addition, licensee indicated that, as a response to the Advisory Committee on Reactor Safeguards (ACRS), it will perform a probabilistic risk assessment (PRA) study.³¹⁹ The Licensing Board discussed systems interaction studies with regard to UCS Contention 14 and Board Question 3.³²⁰ Initially, it found that "TMI-1 shall be included by the staff in generic reviews of systems interactions."³²¹ The Licensing Board later explained that the staff's plan conformed to the intent of its order.³²²

On appeal, UCS argues that the Board has removed any requirement that systems interaction analyses be done specifically for TMI-1.³²³ It claims, in addition, that the staff has no plan to take the first step of the effort outlined in NUREG-0578, which is undertaking a comprehensive study to identify potentially adverse systems interactions at TMI-1. UCS believes that NUREG-0585, *supra* note 295, required the licensee to evaluate the inter-

³¹⁸ Tr. 27,012-13.

³¹⁹ Tr. 27,010-15. The ACRS made the following recommendations with respect to systems interaction studies for TMI-1:

In accordance with our previous recommendations, we believe that the [l]icensee should conduct reliability assessments of the plant as modified. Such assessments should accelerate the acquisition of potentially significant safety information and would expedite the development of the basis for further changes, should they be necessary. They would also provide the [l]icensee with additional technical insight into the safety of the plant. In addition, we believe the [l]icensee should examine the plant from the standpoint of systems interactions that may degrade safety. Although both of these studies should be conducted on a timely basis, their completion should not be a condition for restart.

Staff Ex. 14, Appendix C at 2.

³²⁰ 14 NRC at 1350-51, 1409-12. Systems interaction is classified as Unresolved Safety Issue A-17. *See, e.g.*, Tr. 8357-58 (Conran); NUREG-0606, Unresolved Safety Issues Summary, Vol. 4 No. 3 at 23.

³²¹ 14 NRC at 1353.

³²² LBP-82-27, 15 NRC 747, 751 (1982).

³²³ UCS Brief at 101. While UCS refers to an ACRS recommendation for "timely" systems interaction studies (UCS Brief at 89), we note that the ACRS specified that completion of the studies should not be a condition of restart. *See* note 319, *supra*.

action between nonsafety and safety-grade systems.³²⁴ But, staff and licensee witnesses testified that the systems interaction recommendation in NUREG-0585 had not been imposed on any plant, including TMI-1.³²⁵ We find nothing in the record that disputes this position. While we believe that the examination of systems interaction problems should be given a high priority, we agree with the Licensing Board that such examination can most usefully be conducted on a generic basis.

UCS argues that it is unacceptable to acknowledge that an unresolved safety problem exists and then to act as if TMI-1 can be operated without restriction, having taken no steps nor even committed to any future steps for resolving the problem.³²⁶ We agree in principle with UCS that there must be a justification for allowing a nuclear power plant to operate when a safety issue remains unresolved. We disagree, however, with the UCS argument that no steps have been taken to address the problem or that resolution of all problems must precede restart. Several modifications to TMI-1 (e.g., upgrading of the PORV and its block valve) are the result of lessons learned from the TMI-2 accident regarding the effect that a failure of a nonsafety-grade system (i.e., main feedwater) may have on the operation of the plant. In addition, the emergency feedwater system is being modified to provide control independent of the nonsafety-grade Integrated Control System.³²⁷ These modifications illustrate the effort by the staff and licensee to provide for the safe mitigation of an accident having a nexus to the TMI-2 accident. Furthermore, as discussed elsewhere, the Licensing Board examined various nonsafety systems, both on its own initiative and in response to UCS contentions, to determine what improvements must be made in the short term. We are satisfied that, in light of required improvements, systems interaction studies are not necessary to provide reasonable assurance that the plant can be operated safely.³²⁸

³²⁴ Pollard, fol. Tr. 8091 at 14-8. While NUREG-0585 is not part of the record, the witnesses did refer to the document. UCS cites NUREG-0578 (see note 31, *supra*), which states (at 18):

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

³²⁵ Tr. 8696-704 (Conran), 7817-18 (Keaten).

³²⁶ UCS Brief at 102.

³²⁷ See our discussion of plant modifications, in Sections III (A), (B) and (C).

³²⁸ See generally our earlier discussion of the concept of "necessity" at pp. 825-28, *supra*.

We also believe that reasonable progress has been made toward the commencement of the study of systems interaction. We recognize that a standard methodology for these studies is still under development.³²⁹ Staff witness D. Ross testified that it would be premature to order licensees to perform these studies prior to staff endorsement of a single best method or until it is prepared to state the criteria for such studies.³³⁰ We agree.

In response to a question we posed, the staff indicated that the testimony concerning the future plans for systems interaction studies is no longer correct.³³¹ It appears that staff management concern regarding cost-benefit projections for the originally proposed systems interaction studies has delayed the approval of staff plans. As a result, the funds to initiate the studies have been, to use bureaucratic jargon, "de-obligated." The staff indicated in its response to us that several options are being considered on the most appropriate approach for moving forward. One alternative would entail the review of results of several plant specific studies before determining the need for systems interaction studies at other plants such as TMI-1.³³²

While there is no specific deadline for the performance of a systems interaction study, we believe that every effort should be made to initiate the program as soon as possible. We realize that the costs involved in performing a detailed systems interaction study are substantial. It may be possible to perform a generic study on a number of plants in order to limit the costs. In any event, progress toward final resolution of this safety issue cannot be made until staff management establishes a clear program. We recommend that this effort be given a high priority.³³³

³²⁹ For example, staff witness Rowsome testified that the development of this standard methodology is delaying performance of these studies. Tr. 16,915.

³³⁰ Tr. 15,618.

³³¹ Affidavit of James H. Conran (Aug. 6, 1982), attached to Staff Response to Appeal Board Order of July 14, 1982 (Aug. 9, 1982).

³³² *Id.* at 4-5.

³³³ We note with concern recent information provided to us in Board Notification BN-83-17 (February 18, 1983) that indicates the systems interactions effort may have been seriously hampered. In that document, staff member Conran modifies his testimony in the *Shoreham* proceeding because of an apparent reduction in the priority of the staff's efforts to address Unresolved Safety Issue A-17, "Systems Interaction in Nuclear Power Plants." The staff responded to Mr. Conran's concerns in Board Notification BN-83-44 (April 4, 1983) by providing a tentative schedule for the resolution of the systems interaction issue (*i.e.*, development of possible licensing requirements) by October 1984. The staff also indicated that a methodology comparison study was under way at the Indian Point Unit 3 nuclear power plant. *Id.* at 6-7. We believe the establishment of a specific time schedule and the on-going effort to develop a methodology demonstrate reasonable progress toward resolution of this unresolved safety issue. However, it is not clear from BN-83-44 whether the studies will involve PRA or systems interaction. As noted by UCS, the ACRS recommended the performance of both. UCS Brief at 90 n.12. Even more recently, we received Board Notification BN-83-57 (May 3, 1983) providing a statement of differing professional opinion by Mr. Conran regarding certain aspects of existing policy and practice in the areas of systems interaction and safety classification. We agree with Mr. Conran that the system interaction program should be continued

(Continued)

IV. LEGAL ISSUES

A. Delegation of Decisional Authority to the Staff

In its order instituting this special proceeding, the Commission directed the Licensing Board to determine whether the short-term and long-term actions recommended by the Director of NRR were necessary and sufficient to provide reasonable assurance that Unit 1 can be operated without endangering the health and safety of the public. The Board also was given authority to impose any limitations or conditions necessary to protect the public health and safety. The Commission delegated to the staff, however, the responsibility for ensuring satisfactory completion of any actions required by the Board. See CLI-79-8, *supra*, 10 NRC at 148-49.³³⁴

UCS argues that the Licensing Board has improperly delegated to the staff certain responsibilities to resolve disputed, substantive technical issues.³³⁵ UCS' objection centers on the Board's decision to have the staff (i) monitor a test involving the connection of the pressurizer heaters to the emergency diesels,³³⁶ and (ii) approve the licensee's proposal regarding a long-term solution to the so-called "steam generator bypass logic problem."³³⁷ For reasons set out below, we affirm the Board's results, with certain modifications.³³⁸

1. Connection of Pressurizer Heaters

Pressurizer heaters are used to produce a saturated steam water mixture in the pressurizer in order to control pressure throughout the reactor coo-

as a high priority task and not subordinate to PRA activities. As we discussed earlier, however, we believe that a standard methodology must be developed before the staff orders licensees to perform systems interaction studies. Finally, we also agree with Mr. Conran that the staff should increase its efforts to formalize the definitions of the safety classification terms "important to safety," "safety-grade," and "safety related."

³³⁴ The Board allowed, nonetheless, to require the staff to inform it of any detailed steps the staff believes necessary to implement actions the Board may require.

³³⁵ See UCS Brief at 57-61.

³³⁶ 14 NRC at 1276.

³³⁷ *Id.* at 1374.

³³⁸ UCS also argues that the Board improperly permitted the staff to establish license conditions. That objection has been rendered moot. As a procedural matter, the Board directed the staff to present a plan for implementation of the Board's decision, including proposed license conditions, to the Board for prior approval. *Id.* at 1418-22. UCS and other parties were given an opportunity to comment on the staff's plan. Following the submission of comments the Board concluded that the implementation plan was generally satisfactory, but required certain modifications and additions. The Board then approved the modified plan. See LBP-82-27, 15 NRC 747 (1982). UCS did not except to this order. Thus, UCS has raised no substantive objections, and indicated at oral argument that its procedural claim regarding the delegation of authority has become moot. App. Tr. 176-77. We agree.

lant system. The use of pressurizer heaters, and potential problems associated with the connection of an adequate number of such heaters to the onsite emergency power supply for maintenance of natural circulation in the event of a loss of offsite power, are discussed in Section III(B), *supra*. The licensee has developed procedures that permit the connection of either of two groups of nonsafety-grade pressurizer heaters to the emergency onsite power supply. At the hearing, UCS claimed, among other things, that the licensee had not performed a “qualification test” to demonstrate the reliability of the emergency diesel generators (DGs) to start and their capability to supply the additional load represented by the pressurizer heaters.³³⁹ UCS did not question the licensee’s testimony that each DG has a rated capacity sufficient to handle the additional load and that the DGs had been tested at their rated capacity on a monthly basis during the operation of TMI-1. Rather, UCS argued that proper qualification of the DGs requires that a reliability goal be established and that a test be performed to determine that the reliability goal has been met.³⁴⁰

The Licensing Board concluded that the licensee had demonstrated that the pressurizer heater loads could be connected to the onsite emergency power supply without degrading the capacity, capability or reliability of that supply. Nonetheless it required that the staff (i) verify that plant procedures include provisions to assure that, until stabilization has been achieved following the event that caused the disconnection, heater loads will not be reconnected to the on-site power supply after they have been automatically separated, and (ii) monitor a test of the connection and energization of the heaters from the DGs, and evaluate the results. 14 NRC at 1276. It is the monitoring of the test and the evaluation of results by the staff to which UCS objects.³⁴¹

We believe the Licensing Board has essentially fulfilled its responsibility to resolve contested issues. Following its review of the record, the Board determined that the licensee’s overall approach to assuring that the pressurizer heaters would be available was satisfactory, and that the addition of the heaters to the emergency DGs would not degrade the capability or reliability of the emergency power supply. Stated differently, the Board concluded, albeit without quantification, that any necessary reliability objective had been reached.

The Board required the staff simply to monitor a test of the connection of the heaters to the DGs. If, as the Licensing Board apparently expected, the

³³⁹ See Pollard, fol. Tr. 9607 at 4-11 to 4-12.

³⁴⁰ *Ibid.*

³⁴¹ UCS does not challenge in terms either the Board’s underlying substantive findings regarding the adequacy of the DGs to handle the load once the heaters are added, or the requirement that the staff verify that plant procedures are in place to prevent premature reconnection. See UCS Brief at 28-38.

test confirms the Board's substantive conclusion regarding the proper operation of the heaters, nothing further need be done. The monitoring of the test and the evaluation of the results does not, in our judgment, involve decisional responsibility, and is within the authority conferred on the staff by the Commission. If, however, the connection of the heaters does cause a short circuit or other disablement of the emergency power supply, some corrective action would be required. Consideration of what corrective action is appropriate may extend beyond assuring satisfactory implementation of the Board's decision and, as UCS suggests, involve determinations of a decisional nature. If, for reasons that we and the Licensing Board are unable to foresee, the test fails to confirm the Licensing Board's conclusions, we believe the staff must advise the Commission of that fact and indicate what corrective actions are contemplated. The Commission can then consider at that time whether it is necessary to accord the parties an opportunity to address the issue of necessary corrections or changes.

2. *Steam Generator Bypass Logic Problem*

As we discuss more fully in Section III(A) and Appendix A of this decision, the feedwater systems provide coolant to the steam generators. If there should be a main steam line break from a steam generator, the Main Steam Line Rupture Detection System (MSLRDS) automatically terminates flow to that steam generator to prevent overpressurization of the containment building. Cooling would nonetheless be maintained using the remaining steam generator. The evidence reveals, however, that a reduction in pressure below a certain level could also cause the MSLRDS to terminate feedwater although there was no actual break in the steam generator. Depressurization in both steam generators could therefore cause the automatic interruption of feedwater to both steam generators. This automatic interruption of all feedwater can be overridden by operator action in the control room so that feedwater could be restored.³⁴² The Board apparently determined that existing procedures are not adequate to ensure that the operators can promptly bypass the detection system. As a result, it required, prior to restart, that (1) the licensee propose for staff approval a long-term solution to the steam generator bypass logic problem for implementation as soon as possible after restart, and (2) the staff certify to the Commission that the licensee has made reasonable progress in initiating its program for

³⁴² Tr. 5924-26 (Lanese). See also p. 834, *supra*.

the long-term solution.³⁴³ UCS claims that this delegation of authority to the staff contravenes the Board's responsibility to decide litigated issues.

We believe that the development of a solution to the steam generator bypass logic problem may go beyond the implementation of the Board's decision and involve the resolution of disputed matters. If so, such determinations must be made by an adjudicatory body, not the staff. That is not to say, however, that the Board's procedural approach is irrevocably flawed. The Board did not find that the solution to the steam generator bypass logic problem must be in place before restart.³⁴⁴ We agree with the Licensing Board that the licensee, prior to restart, should propose a long-term solution to the bypass problem; but the proposal should be submitted for Commission, rather than staff, approval. The Commission can then consider whether the licensee's proposal is reasonable and whether the licensee has made reasonable progress toward initiating its program. It can also decide whether, or to what extent, it is necessary to accord the parties an opportunity to address the licensee's proposal and its implementation.

B. Unresolved Generic Safety Issues

In its Contention 17 UCS sought to litigate the question "whether [TMI-1] should be allowed to operate in the absence of a resolution of unresolved generic safety issues." UCS Brief at 61.³⁴⁵ The Licensing Board rejected this contention for lack of specificity. LBP-79-34, *supra*, 10 NRC at 838. UCS maintains that its contention was sufficiently specific by virtue of its inclusion of two illustrative examples. The Licensing Board expressly permitted litigation of the issues raised by those examples; UCS now asserts, however, that there must be either a resolution of *all* generic unresolved safety problems applicable to TMI-1, or a rational justification for

³⁴³ 14 NRC at 1373-74. At the hearing, staff witness Rowsome indicated that the staff would like to see a design in which there is an interlock so that both steam generators cannot automatically be isolated by an indication of low pressure. The development of such a design is a long-term item. Tr. 16,922-23.

³⁴⁴ We address UCS' objection to the Licensing Board's decision to allow restart while a solution to the steam generator bypass logic problem is being developed in Section III(A), *supra*.

³⁴⁵ Contention 17 states:

The accident at TMI-2 was caused or aggravated by factors which are the subject of Regulatory Guides not used in the design of TMI and factors which are under study as unresolved safety problems applicable to TMI. For example, interaction between non-safety and safety systems created demands on the safety systems that exceeded the latter's design basis. In addition, the absence of an automatic indication system as required by Regulatory Guide 1.47 contributed to operation of the plant with the auxiliary feedwater system completely disabled. It cannot be concluded that the health and safety of the public is adequately protected unless and until it has been shown that there are specific design features in TMI-1 to resolve each applicable unresolved safety problem identified in NUREG-0410 and to demonstrate compliance with each applicable Regulatory Guide.

the plant's operation in the absence of such resolution.³⁴⁶ We affirm the Licensing Board's disposition of this issue.

We indicated in *Gulf States Utilities Co.* (River Bend Station, Units 1 & 2), ALAB-444, 6 NRC 760, 772-73 (1977), that parties interested in litigating unresolved safety issues must do something more than simply offer a checklist of unresolved issues; they must show that the issues have some specific safety significance for the reactor in question and that the application fails to resolve the matters satisfactorily. Except for the two specific matters raised and resolved by the Board, UCS has made no effort to meet this test. In such circumstances, we agree with the Licensing Board that Contention 17 is not sufficiently specific.

Our *River Bend* opinion nonetheless states that adjudicatory boards in construction permit proceedings must be able to find reasonable assurance that a facility can be operated without undue risk to the public irrespective of what matters may or may not have been properly placed in controversy. *Id.* at 774. In operating license proceedings we search the record under our customary *sua sponte* authority, 10 CFR §2.785(b)(2), to ensure that there are no significant safety issues requiring corrective action. *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-491, 8 NRC 245, 247-48 (1978). See generally, *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-728, 17 NRC 777, 806-08 (1983). The Licensing Board in the instant case looked at various unresolved safety issues insofar as they had a nexus to the TMI-2 accident and determined that there was no impediment to restart of TMI-1. The Board thus fulfilled whatever independent responsibility it may have in light of our *River Bend* and *North Anna* decisions.

C. Other Generic Issues

As a general rule, "licensing boards should not accept in individual license proceedings contentions which are (or are about to become) the subject of general rulemaking by the Commission." *Potomac Electric Power Co.* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-218, 8 AEC 79, 85 (1974). As a corollary, certain issues included in an adjudicatory proceeding may be rendered inappropriate for resolution in that proceeding because the Commission has taken generic action during the pendency of the adjudication. See *Rancho Seco*, *supra*, 14 NRC at 816-17. There may nonetheless be situations in which matters subject to generic consideration may also be evaluated on a case-by-case basis where

³⁴⁶ UCS Brief at 62.

such evaluation is contemplated by, or at least consistent with, the approach adopted in the rulemaking proceeding. *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-675, 15 NRC 1105, 1112 (1982). As explained in more detail below, we find that two issues litigated during the course of the hearing — the need for a water level meter and the requirement for environmental qualification of certain electric equipment — have been removed from consideration in this case by Commission determinations applicable to all nuclear power plants.

1. *Water Level Meter*

In its partial initial decision, the Licensing Board found that instrumentation and procedures as proposed by the licensee if restart is authorized are adequate to permit operators to recognize and implement actions to avoid or correct conditions of inadequate core cooling.³⁴⁷ No one challenges that conclusion. The Board indicated, however, that a meter (or its equivalent) to measure water level in the core should be required for the long term. It declined to order installation of such a meter or establish a timetable for development, preferring, instead, to leave “to the Staff and the Commission to require the installation at TMI-1 consistent with the treatment of other similar reactors.”³⁴⁸ The licensee excepts to the Board’s determination regarding the long term need for a vessel level meter.

Subsequent to the Board’s decision, the Commission announced institution of a generic program looking toward the development and installation of vessel level meters at all reactors. It found acceptable the designs proposed by Combustion Engineering and Westinghouse, but only generally described the design characteristics that are to be required in Babcock and Wilcox reactors such as TMI-1. Licensees were instructed to submit detailed engineering, procurement, and installation schedules for acceptable instrumentation and the staff was authorized to negotiate a practical schedule for implementation of the required additional instrumentation and upgrading of existing instrumentation for each operating reactor. As part of this program, the staff directed the licensee to install an inadequate core cooling detection system. *See* 47 Fed. Reg. 57163, 57164 (Dec. 22, 1982). The licensee has advised us that it will comply with the staff’s order, that there is no longer any dispute regarding the licensee’s exception, and

³⁴⁷ 14 NRC at 1244.

³⁴⁸ *Id.* at 1244-45.

urges us to vacate the Board's recommended long-term condition as unnecessary.³⁴⁹

We agree that the licensee's exception has been overtaken by the Commission's generic action. The long-term requirement imposed by the Licensing Board is consistent with the Commission's decision. In such circumstances, we believe the proper procedure is to dismiss the exception and refrain from any explicit comment on the Board's decision. See *Rancho Seco*, *supra*, 14 NRC at 816-17.³⁵⁰

2. Environmental Qualification

Safety systems at nuclear power plants must be designed to perform their intended safety functions despite changes in the surrounding environment that may result from an accident.³⁵¹ UCS Contention 12, which was adopted as a Board question, alleges that restart of TMI-1 should not be permitted until all safety related equipment has been shown to be environmentally qualified under Commission regulations. Board Question/UCS Contention 12 stated:

The accident demonstrated that the severity of the environment in which equipment important to safety must operate was underestimated and that equipment previously deemed to be environmentally qualified failed. One example was the pressurizer level instruments. The environmental qualification of safety related equipment at TMI is deficient in three respects: (1) the parameters of the relevant accident environment have not been identified; (2) the length of time the equipment must operate in the environment has been underestimated; and (3) the methods used to qualify the equipment are not adequate to give reasonable assurances that the equipment will remain operable. TMI-1 should not be permitted to

³⁴⁹ See letter from licensee's counsel to the Appeal Board (January 25, 1983).

³⁵⁰ We note again, as we did recently in *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 & 2), ALAB-728, *supra*, 17 NRC at 777 n.99, (1983), that much of the difficulty in formulating arguments for or against the proposed water level indicator has been due to the Commission's procedures in this matter. In ALAB-728, we said:

In a departure from the normal engineering development process, the Commission issued the NUREG-0737 requirement II.F.2 for new instrumentation to detect inadequate core cooling before the performance characteristics of such a system had been tested.

Indeed, in most cases the staff has announced that installation of a water level indicator system must proceed, but will be reviewed for acceptability only after installation, testing and calibration have been completed. As we noted above, the TMI-1 licensee was required to submit detailed engineering, procurement and installation schedules before the instrumentation has been tested for reactor operation. Under the circumstances we believe that interested persons may express their concerns about the installed instrumentation in a petition filed pursuant to 10 CFR §2.206.

³⁵¹ The criteria for the so-called environmental qualification of safety systems are found in GDC 1 and 4, 10 CFR Part 50, Appendix A; Criterion III, 10 CFR Part 50, Appendix B; and 10 CFR §50.55a(h).

resume operation until all safety related equipment has been demonstrated to be qualified to operate as required by GDC 4. The criteria for determining qualification should be those set forth in Regulatory Guide 1.89 or equivalent.³⁵²

UCS had earlier filed a petition with the Commission seeking environmental qualification of electrical components at all nuclear power plants, including TMI-1. UCS urged the Commission to shut down all operating plants until proper qualification was achieved. The Commission responded to the UCS petition in two decisions, *Petitions for Emergency and Remedial Action*, CLI-78-6, 7 NRC 400 (1978) and CLI-80-21, 11 NRC 707 (1980). In the latter decision, the Commission announced its intention to institute a rulemaking proceeding to determine whether, or to what extent, a uniform standard for environmental qualification of equipment at all plants should be adopted. It declined to shut down all plants pending completion and implementation of the rulemaking. For the interim, the Commission approved a staff plan to evaluate the qualification of electrical safety equipment at each plant in accordance with criteria established in "Guidelines for Evaluating Environmental Qualification of Class 1E Electrical Equipment in Operating Reactors," and NUREG-0588, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment."³⁵³ The Commission expressly found that "current Commission requirements . . . and those actions we order today provide reasonable assurance that the public health and safety is being adequately protected during the time necessary for corrective action."³⁵⁴

As part of its decision, the Commission directed the staff to complete plant-specific reviews of environmental qualification and issue individual Safety Evaluation Reports (SERs) by February 1, 1981. Such reports are available for review by the public. The Commission also established a schedule for environmental qualification of safety related equipment. Persons seeking a hearing with regard to the staff's report on a specific plant must petition the Commission pursuant to 10 CFR §2.206.³⁵⁵

The Licensing Board reviewed the evidence regarding environmental qualification, made various substantive findings, and imposed certain conditions for restart, to which the licensee has acquiesced. The heart of the Board's decision, however, is its conclusion that the issue as litigated in this case has been addressed generically by the Commission in CLI-78-6 and CLI-80-21, and that there is no basis for treating TMI-1 differently than

³⁵² 14 NRC at 1396.

³⁵³ 11 NRC at 710-11.

³⁵⁴ *Id.* at 709.

³⁵⁵ *Id.* at 714-15.

other operating reactors.³⁵⁶ UCS argues that the Commission's determinations did not excuse any licensee from an obligation to modify or replace inadequate equipment promptly. UCS claims that the Licensing Board was obligated to determine, presumably independently of Commission determinations, whether the plant can be operated safely while environmental qualification is undertaken.³⁵⁷

We believe that the Licensing Board correctly determined that the issue of environmental qualification of safety related equipment must be resolved outside this proceeding. (As a consequence, we find it unnecessary to reach the merits of UCS' individual arguments regarding equipment qualification.)³⁵⁸ All issues of environmental qualification as litigated in this case are fully embraced within the determinations announced by the Commission in CLI-80-21 and the ensuing rulemaking.³⁵⁹ The Commission established the substantive criteria for equipment qualification at TMI-1 (and all other plants) and set a deadline by which qualification must be demonstrated.³⁶⁰ It approved the staff's plan for interim review of each plant's compliance with newly developed environmental qualification criteria and established the procedural vehicle by which interested parties can challenge staff determinations regarding individual plants. As part of its ongoing review of the issue, the Commission observed:

The Commission has received, and the staff has evaluated, each operating plant licensee's justification for continued operation. On the bases of these analyses, the Commission has determined that continued operation of these plants pending completion of the equipment qualification program, will not present undue risk to the public health and safety.

³⁵⁶ 14 NRC at 1403.

³⁵⁷ UCS also objects to certain of these findings and conclusions, arguing that the record does not establish that the electrical equipment is properly qualified and can withstand even a design basis small break LOCA. UCS claims, in addition, that the new equipment and instrumentation installed as part of the TMI-2 lessons learned has not even been reviewed for environmental qualification. UCS Brief at 76-77.

³⁵⁸ In our order of July 14, 1982 (unpublished), we directed the licensee and staff to answer certain questions arising out of the plant design and procedures phase of this proceeding. On July 26, 1982, the licensee filed an objection to one of the questions, asserting that the issue raised, *i.e.*, environmental qualification, went beyond the scope of this proceeding. In ALAB-685, 16 NRC 449 (1982), we suspended the licensee's obligation to file the data. In view of our conclusions with regard to the issue of environmental qualification, we sustain the licensee's objection and withdraw question III.E.

³⁵⁹ See 47 Fed. Reg. 2876 (Jan. 20, 1982) and 48 Fed. Reg. 2729 (Jan. 21, 1983).

³⁶⁰ Originally, the Commission required that all equipment be environmentally qualified by June 30, 1982. The date was recently changed to the end of the second refueling outage after March 31, 1982, or by March 31, 1985, whichever is earlier. See 10 CFR §50.49(g), 48 Fed. Reg. at 2733. See generally 47 Fed. Reg. 28363, 28364 (June 30, 1982).

See 47 Fed. Reg. at 28363. In such circumstances, we find that the issue of environmental qualification has been removed from consideration in this case.³⁶¹

V. CONCLUSION

We are satisfied with the reliability of those systems, structures and components that we have examined in this proceeding except that the reliability of the feed and bleed process has not been adequately proven on the basis of the record before us. In light of the record, we impose the following conditions:

1. Until the EFW system is made fully safety-grade, an auxiliary operator shall be dispatched to the EFW flow control valve area, upon any EFW auto-start condition, in order to take manual control of the valves, if needed; that person shall not be required to perform any other duties until the control room operators verify that EFW flow is being delivered to the steam generators and the EFW system is controlled by the ICS or through the manual station in the control room. *See pp. 833-34, supra.*
2. Before the pressurizer heaters are connected to the emergency power supply at TMI-1, the reactor shall be subcritical or in a hot standby condition. *See p. 860, supra.*
3. Until the backup display system for the incore thermocouples is made fully safety-grade, the TMI-1 emergency procedures shall direct that operators rely on the redundant indication closest to saturation in determining if the criteria to permit throttling of HPI have been met. *See pp. 880-81, supra.* We assume, based on licensee testimony, that the backup display system has been made safety-grade except for environmental qualification.³⁶² The licensee shall complete the environmental qualification program in accordance with the schedule established by the Commission.³⁶³
4. If the test of the connection of the pressurizer heaters to the diesel generators causes a short circuit or other disablement of the emergency power supply, the staff must advise the Commission

³⁶¹ In reaching its decision, the Licensing Board expressly considered whether, despite the Commission's findings, TMI-1 should be considered differently from other plants. It concluded that it should not. In reaching this conclusion, it approved certain restart conditions proposed by the staff, in which the licensee acquiesced. *See 14 NRC at 1404-05.*

of that fact and indicate what corrective actions are contemplated. The Commission can then consider whether it is necessary to accord the parties an opportunity to address the issue of necessary corrections or changes. *See* pp. 886-87, *supra*.

5. Licensee shall submit to the Commission prior to restart a proposed long-term solution to the steam generator bypass logic problem. *See* p. 888, *supra*.

As explained in detail above, the scope of this proceeding does not embrace various safety questions not having a nexus to a small break loss of coolant accident or a loss of main feedwater. In particular, we have not considered whether the emergency feedwater system can withstand a postulated safe shutdown earthquake or attempted to determine the implications of the lack of environmental qualification of certain electrical equipment. In addition, as we pointed out in ALAB-724, 17 NRC 559, the staff has changed its position and now argues that the PORV should be safety-grade because of its use in depressurizing the primary system in the event of a steam generator tube break accident. In that same opinion, we noted that recent information indicates that the last two PORVs removed from TMI-1 were heavily corroded and probably would not have functioned had they been needed. These matters and the steam generator repair action are all before the Commission for its separate and exclusive determination. In light of the bifurcation of issues between the adjudicatory boards and the Commission, only the Commission can determine — after examining all systems and considering information within and outside this record — whether there is reasonable assurance that Three Mile Island Unit No. 1 can be operated without endangering the health and safety of the public.

It is so ORDERED.

FOR THE APPEAL BOARD
C. Jean Shoemaker
Secretary to the
Appeal Board

³⁶² *See* Licensee's Response (August 12, 1982) at 4.

³⁶³ *See* our discussion of this issue in Part IV, *supra*, at pp. 891-94.

APPENDIX A — Description of TMI Unit 1

This appendix describes the principal structures, systems and components that make up Unit 1 at the Three Mile Island Nuclear Station.³⁶⁴ Although not intended to provide detailed design information, it should provide sufficient information to permit the reader to understand, in a general way, the operation of a Babcock & Wilcox (B&W) designed pressurized water nuclear power plant. The following structures, systems and components are described:

- A. Reactor Core
 - B. Reactor Coolant System (RCS)
 - C. Secondary System
 - 1. Main Steam System
 - 2. Condensate System
 - 3. Feedwater System
 - (a) Main Feedwater (MFW) System
 - (b) Emergency Feedwater (EFW) System
 - D. Reactor Protection System (RPS)
 - E. Engineered Safeguards (ES)
 - 1. Emergency Core Cooling System (ECCS)
 - (a) High Pressure Injection (HPI)
 - (b) Reactor Core Flooding
 - (c) Low Pressure Injection (LPI)
 - 2. Containment Systems
 - F. Engineered Safeguards Actuation System (ESAS)
 - G. Electric Power
 - 1. Offsite Power System
 - 2. Onsite (Emergency) Power System
 - H. Makeup and Purification System
 - I. Decay Heat Removal (DHR) System
 - J. Control Systems
 - 1. Integrated Control System (ICS)
 - 2. Automatic Reactor Coolant Pressure Control
 - 3. Automatic Pressurizer Level Control
 - K. Heating, Ventilation and Air Conditioning (HVAC) Systems
- A functional description of the major plant systems is provided in Fig. A-1.

³⁶⁴ See generally FSARs I, II, note 56, *supra*.

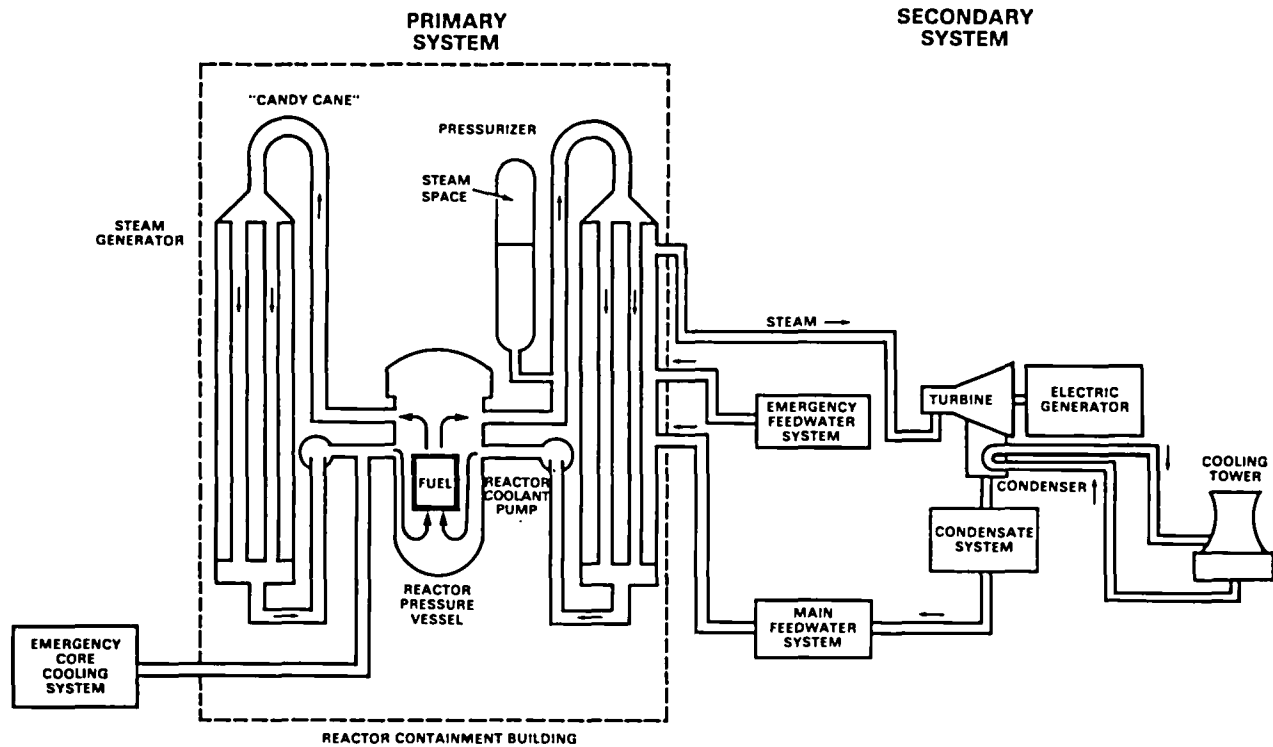


Figure A-1 Functional Description

A. Reactor Core

The heat source of a nuclear power plant is, for the most part, the energy released when the nucleus of the uranium isotope U-235 splits after absorbing a free neutron.³⁶⁵ This splitting process, known as fission, creates radioactive fission products and enough free neutrons to enable the process to propagate (*i.e.*, maintain criticality). The nuclear fuel is in the form of uranium dioxide (UO₂) pellets that are encased in long zircalloy tubes, commonly referred to as the fuel cladding.

The fission process is controlled partly by a neutron-absorbing metal alloy contained in a large number of control rods. Approximately sixty control rod assemblies, spaced throughout the reactor core, are used to help control the fission process.³⁶⁶ The control rod assemblies are driven in and out of the core by screw action drive mechanisms. To stop the fission process quickly, the rods are allowed to fall by gravity into the core. This is referred to as a reactor trip or scram.

B. Reactor Coolant System (RCS)

Reactor coolant contained in the so-called primary coolant system³⁶⁷ flows through the reactor pressure vessel and removes heat from the fuel. *See Fig. A-2.* The coolant then flows by way of piping called hot legs to a large number of tubes inside two steam generators where heat is transferred to essentially nonradioactive water that circulates around the outside of the steam generator tubes.³⁶⁸ The reactor coolant water is then pumped back to the vessel to remove more heat from the reactor core. There is one "hot leg" to each steam generator and two "cold legs" from each steam generator back to the reactor pressure vessel. Forced flow is maintained by the use of four reactor coolant pumps (RCPs), with one in each cold leg.

The reactor coolant is maintained at a high pressure (approximately 2150 pounds per square inch gage (psig)) in order to prevent it from boiling and thus forming steam even though the coolant temperature is quite

³⁶⁵ The release of energy as a result of the splitting of other isotopes of uranium and plutonium has a significant effect in the present light water reactors only near the end of the operating cycle.

³⁶⁶ In a B&W reactor, boron is normally dissolved in the reactor coolant to provide additional reactivity control. According to its updated FSAR, TMI-1 will be operated with the control rods withdrawn and soluble boron mainly providing the reactivity control. FSAR II, *supra*, n.56, at 3.1-1.

³⁶⁷ The terms "primary coolant system," "reactor coolant system," and "primary system" are all used to identify the system which circulates cooling water through the reactor core and the primary side of the steam generators.

³⁶⁸ Very small amounts of primary-to-secondary leakage are allowed during normal operation.

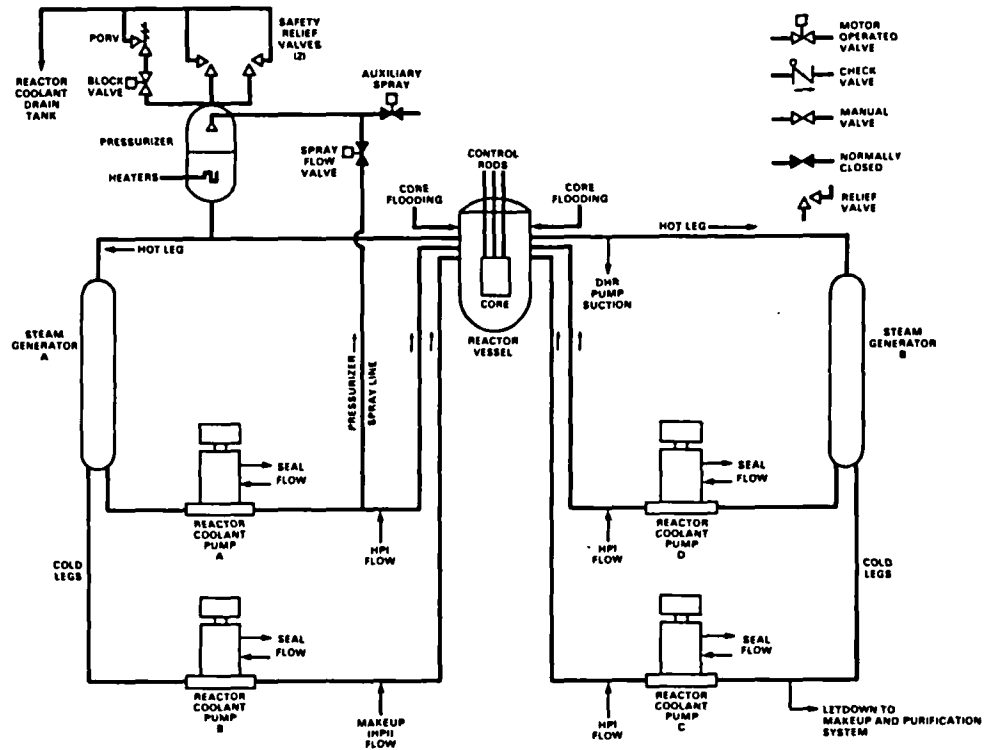


Figure A-2 Reactor Coolant System (See License Exhibit 1, Volume 4, Drawing C-302-650)

high (approximately 575°F).³⁶⁹ This pressure is maintained by the use of a large vessel (called a pressurizer) connected to one of the hot legs. By means of electric heaters, the coolant in the pressurizer is maintained at the saturated temperature for the system pressure.³⁷⁰ With the steam and liquid water in the pressurizer constituting a saturated system, raising the temperature of the reactor coolant in the pressurizer will result in an increase in the reactor coolant system pressure. Conversely, a spray nozzle in the pressurizer provides for pressure reduction by spraying reactor coolant into the steam volume. Reactor coolant for spraying is normally supplied through a connection to the RCP discharge side of a cold leg; the pressure at the top of the pressurizer is slightly lower than that in the cold leg and this pressure differential forces coolant through the spray line into the pressurizer. During low pressure conditions when the reactor coolant pumps are not operating, the Decay Heat Removal (DHR) System can be used to supply an auxiliary spray flow.

Overpressure can be relieved by the operation of either a power operated relief valve (PORV)³⁷¹ or two safety relief valves attached to the top of the pressurizer. If pressure rises above certain setpoints, the PORV and safety relief valves will open automatically to allow steam to escape from the pressurizer. The PORV can also be operated remotely by the reactor operator from the control room. An associated block valve located between the pressurizer and the PORV can be shut readily by the reactor operators if the PORV does not close completely following actuation. The safety relief valves open upon direct pressure, have no remote operation capability, and no block valves.

Under appropriate conditions, with no reactor coolant pumps operating, it is possible to achieve a condition known as "natural circulation" because of the density difference between the reactor coolant in the core and in the steam generators. The reactor coolant in the steam generators will be cooled as long as there is cooling water in the secondary side of the steam generators. The cooled primary water in the steam generator will have a greater density than the coolant in the core. Since the center of the cooling region of the steam generators is above the reactor core, the cooler water

³⁶⁹ Pressure is normally discussed in terms of pounds per square inch gage (psig), which is the pressure measured above or below atmospheric pressure so that the measured system pressure is independent of variations in atmospheric pressure. Atmospheric pressure is often colloquially known as barometric pressure. At sea level, the atmospheric pressure is approximately 14.7 pounds per square inch. At atmospheric pressure water will boil and become steam at 212°F.

³⁷⁰ The saturated temperature for a steam/water mixture at a given pressure is that temperature at which the steam/water mixture is in equilibrium.

³⁷¹ This relief valve was referred to as a *pilot* operated relief valve and *power* operated relief valve, interchangeably. See, e.g., FSAR II, *supra*, note 56, at 1.3-6, 4.2-19, and 7.3-11.

should flow downward and force the less dense reactor coolant out of the core to the steam generators. This natural circulation flow, if maintained, can remove sufficient decay heat following reactor shutdown to adequately cool the core. In this connection, one aspect of the reactor coolant system for the type of reactor used at TMI-1 that deserves special note is the high loop (called a "candy cane") in each of the hot legs. *See* Fig. A-1. These loops are the highest points in the reactor coolant system. In order to have liquid natural circulation, the hotter water from the core must be forced over these loops to reach the steam generators.

The operator is provided with a wide variety of instrumentation to monitor the conditions within the RCS. For example, just above the top of the reactor core are 52 core-exit (or incore) thermocouples to measure the temperature of the reactor coolant as it leaves the core area. The operator also has available reactor coolant pressure and other temperature indications. From this information the degree of subcooling, *i.e.*, the difference between the actual temperature and the saturation temperature at the existing system pressure, can be derived. Recently installed instrumentation (referred to as a subcooling meter) automatically computes the degree of subcooling and presents the information to the operator.

C. Secondary System

The function of the secondary system is to remove heat from the reactor coolant system (primary system). *See* Fig. A-1. Secondary system water (at a lower pressure than the primary system) flows around the outside of the steam generator tubes absorbing heat and turning to steam in the process. In normal operation, this steam is used to turn a turbine generator to produce electricity. After passage through the turbine system, the steam-water mixture is led to the main condenser where the remaining steam is condensed, and then returned as feedwater to the steam generators. The secondary system includes the main steam, condensate, and feedwater systems. Separation of the primary and secondary cooling systems must be maintained not only to keep required pressure differences but also to enable the secondary system to be relatively free of radioactivity.

1. Main Steam System

There are four main steam lines (two from each steam generator) connecting the steam generators to the high and low pressure turbines with a main steam isolation valve in each line. *See* Fig. A-3. There are a total of 18

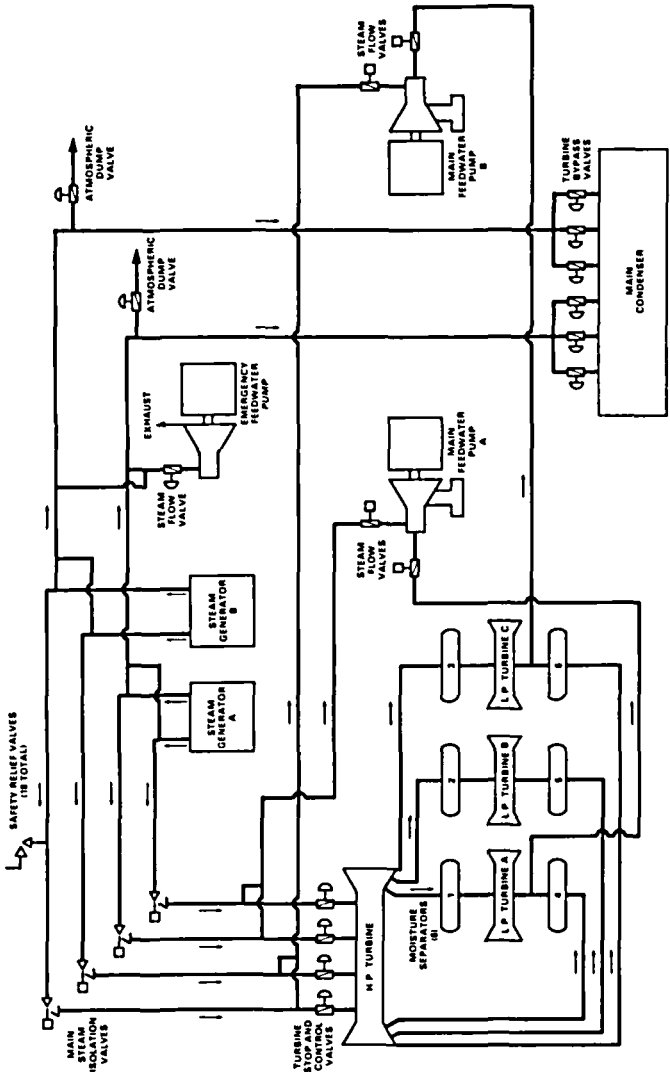


Figure A.3 Main Steam System (See Licenses Exhibit 1, Volume 4, Drawing C-302-011)

safety relief valves that can relieve full steam load divided among the four main steam lines. One line from each steam generator has a power operated atmospheric steam dump valve with a relieving capability of 3 percent of full load steam rate. Between the steam generators and the main steam isolation valves, steam can be routed via a steam flow valve to supply the turbine-driven emergency feedwater pump. In this manner, steam will be available to power the turbine-driven emergency feedwater pump even if the main steam isolation valves are shut. Between the main steam isolation valves and the turbine, steam is extracted to supply the two turbine-driven main feedwater pumps.

Steam flow can be bypassed around the turbine and sent directly to the main condenser by lines connected upstream of the main steam isolation valves. Therefore, when necessary, it is possible to condense steam (approximately 20 percent of full load steam rate) produced in the steam generator without turning the turbine.

2. *Condensate System*

The function of the Condensate System (*see* Fig. A-4) is to return the condensed steam to the feedwater system after purification and addition of any necessary chemicals. The steam is condensed by cooling water that flows through tubes in the main condenser. A vacuum is maintained in the main condenser with the exhaust continuously monitored for radioactivity. At TMI-1, cooling water is sent through tubes in the condenser where the heat is removed and dissipated to the environment by the use of two natural draft cooling towers.

The steam condensate is collected in the hotwell of the main condenser. From there, it is pumped back to the feedwater system by a set of three condensate pumps and a set of three condensate booster pumps. Polishers are used to clean the condensate to prevent buildup of impurities in the steam generators. Radioactive fission products that may have leaked through the steam generator tubes into the secondary system are thus removed. Also, the condensate polishers and chemical additions are used to control corrosion in the secondary system.

Two condensate storage tanks with a capacity of 250,000 gallons each are connected to the condensate system to supply makeup water to replace leakage and provide for storage of excess condensate.

In order to increase the overall efficiency of the plant, steam is extracted from the turbine set and used to preheat the feedwater after it leaves the condensate booster pumps. The feedwater is heated by a drain cooler and four feedwater heaters in each of two feedwater supply lines.

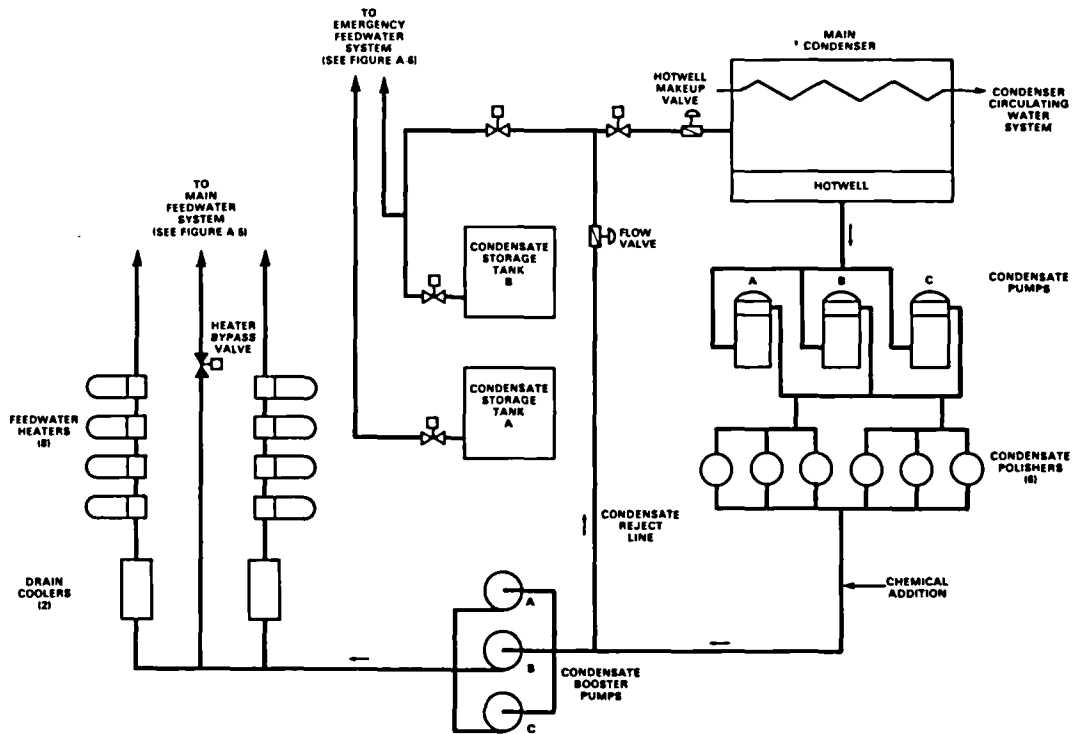


Figure A-4 Condensate System (See Licensee Exhibit 1, Volume 4, Drawing C-302-101)

3. Feedwater System

(a) Main Feedwater (MFW) System

This system is the normal means of injecting feedwater into the secondary side of the steam generators where it is then heated to become steam. See Fig. A-5. After leaving the condensate system, two steam turbine-driven main feedwater pumps send the feedwater to a common "header," where feedwater flow is split, *i.e.*, separate lines go to each steam generator. An isolation valve and control valve are located in each feedwater line. The control valve is operated automatically by the Integrated Control System (ICS). Feedwater heaters are located between the main feedwater pumps and the control valves.

(b) Emergency Feedwater (EFW) System

In the event that the main feedwater system is not available, an emergency feedwater system (*see* Fig. A-6) can be used to supply sufficient feedwater to the steam generators to remove core decay heat following reactor shutdown. This system consists of one steam turbine-driven and two motor-driven pumps. The individual flow capacities of the motor-driven and turbine-driven pumps for TMI-1 are 460 and 920 gpm, respectively, at 1020 psig. Emergency feedwater is normally drawn from the condensate storage tanks (CST) but the main condenser hotwell or an emergency river water source can also be used. The pumps feed a common header where one emergency feedwater line is directed to each steam generator, with an emergency feedwater control valve and a cavitating venturi in each line.³⁷² While the motor-driven pumps can operate with onsite emergency power, the steam turbine-driven pump can be used to provide feedwater even during a loss of all offsite power and onsite AC power (referred to as a station blackout).

D. Reactor Protection System (RPS)

The purpose of the RPS is to insert the control rods rapidly into the core (referred to as a reactor trip) in order to stop the fission process, if necessary. The system is designed to monitor various plant parameters, such as temperature, pressure and power output, and it will, in certain

³⁷² A cavitating venturi is a passive flow restricting device to limit the amount of flow in the event of a pipe break downstream of the venturi.

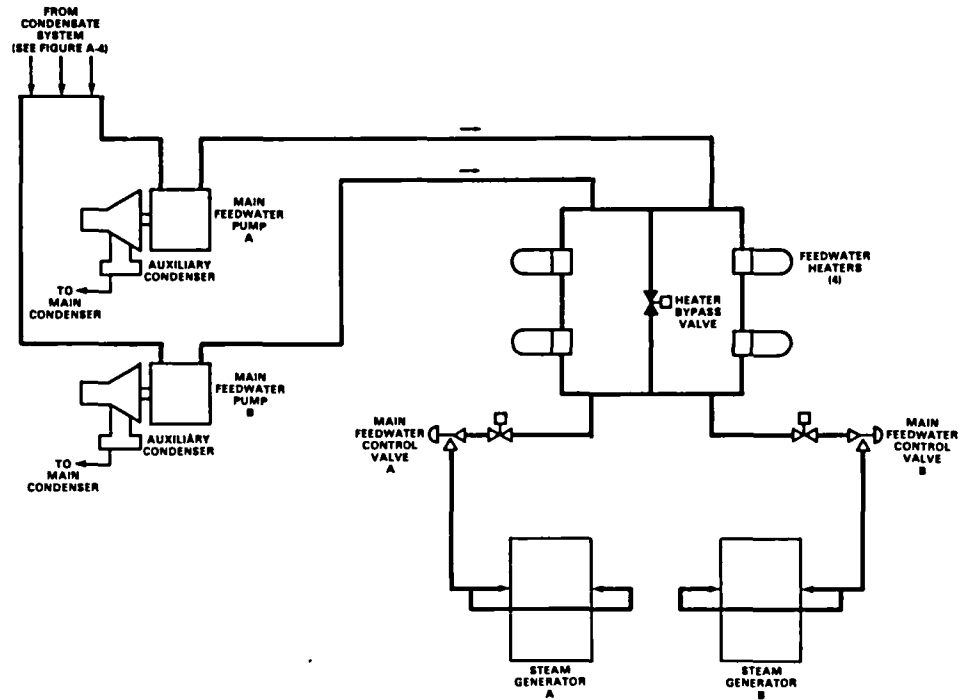


Figure A-5 Main Feedwater System (See Licensee Exhibit 1, Volume 4, Drawing C-302-081)

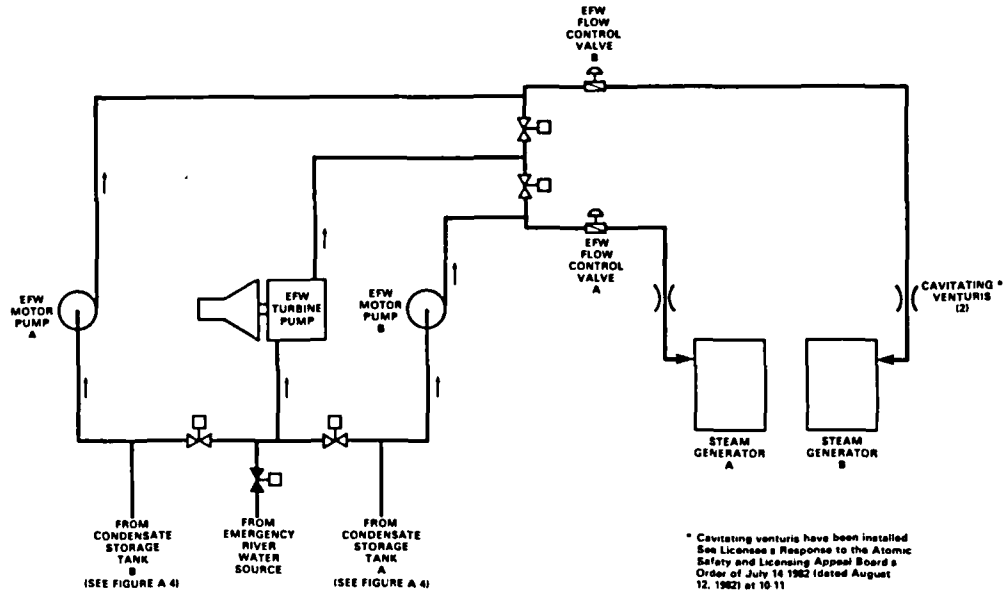


Figure A-6 Emergency Feedwater System (See Licensee Exhibit 1, Volume 4, Drawing C-302-081)

circumstances, automatically initiate a shutdown or “trip” of the reactor. In addition, a loss of power or both main feedwater pumps initiates a reactor trip. Any two of the four independent protection channels which comprise the system can cause a reactor trip. The reactor can also be tripped manually by the reactor operator. An individual channel of the RPS may be bypassed to allow maintenance and testing.

When at least two protection channels sense the need for a reactor trip, power is interrupted to the control rod drive mechanisms. This causes the drive mechanisms to disengage from the control rod leadscrews such that the rods fall by gravity into the core. The RPS is capable of stopping the fission process and thereby lowering the heat generation rate to a few percent of full power immediately.

The reactor protection system is designed such that, once two channels sense a need for a reactor trip, the trip signal will “lock in.” That is, if the measured parameter returns below the actuation setpoint, the trip signal will not clear itself. This prevents the control rod drive mechanism from trying to catch the rods as they fall into the reactor core. See discussion of safety system override in Section III(D), *supra*.

E. Engineered Safeguards (ES)

The systems that comprise the engineered safeguards are designed to have sufficient redundancy to ensure that the core is adequately cooled and that containment integrity is maintained in the event of the most severe loss of coolant accident. The engineered safeguards include (1) the emergency core cooling systems and (2) the containment systems.

1. Emergency Core Cooling System (ECCS)

The ECCS consists of the High Pressure Injection (HPI) mode of the Makeup and Purification System, Reactor Core Flooding, and the Low Pressure Injection (LPI) mode of the Decay Heat Removal System.³⁷³ Each is a necessary part of the overall ECCS to provide full protection across the entire spectrum of break sizes. For example, high pressure injection is needed for small breaks in the reactor coolant system that do not cause sufficient depressurization to allow the use of low pressure injection.

³⁷³ While not specifically considered part of the ECCS, the EFW system is relied upon to help provide core cooling for certain small break loss of coolant accidents. Reliance on the EFW system is an issue in this proceeding and is discussed in Section III(A), *supra*.

(a) High Pressure Injection (HPI)

The Makeup and Purification System in the HPI mode can provide cooling water up to the maximum pressure that the reactor coolant system can maintain (*i.e.*, the pressurizer safety relief valve setpoint). The pathway of the HPI mode is provided in the diagram for the Makeup and Purification System. *See* Fig. A-7. In this mode, there are two separate injection trains; each train is capable of supplying 100 percent of the design HPI flow rate which is approximately 250 gpm at the pressurizer safety relief valve setpoint (approx. 2500 psig).³⁷⁴ This flow rate increases as the reactor coolant system pressure decreases.

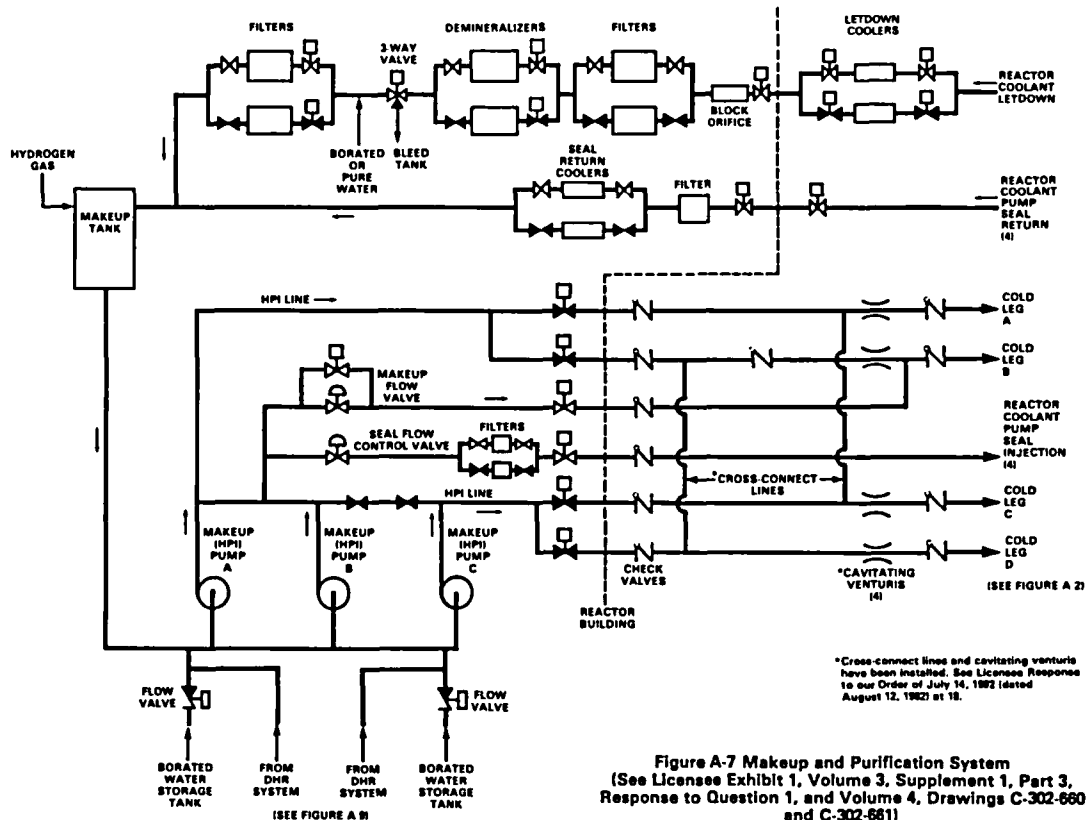
Water with a boron concentration of approximately 2270 parts per million (ppm) is initially drawn from the Borated Water Storage Tank (BWST) that has a capacity of 360,000 gallons. If the BWST is depleted, the Decay Heat Removal System can supply cooling water to the HPI mode from the reactor building sump. After leaving the HPI pumps, each train splits into two lines with an automatic isolation valve and cavitating venturi in each line. This design allows HPI flow to be injected into each of the four cold legs of the reactor coolant system.³⁷⁵

(b) Reactor Core Flooding

Two core flood tanks are capable of injecting water directly into the reactor pressure vessel. *See* Fig. A-8. Each tank contains approximately 7800 gallons of cooling water with a high concentration of boron (approx. 2270 ppm). The cooling water is maintained at 600 psig pressure by nitrogen gas in each core flood tank. When reactor pressure falls below 600 psig, the check valve in each injection line will be forced open, allowing the cooling water to flow directly into the reactor pressure vessel. There are no motor-operated valves that must change position for this cooling water to be provided to the reactor core. Both tanks are assumed available to meet design requirements.

³⁷⁴ While there are three HPI pumps, only two are automatically supplied emergency on-site power in the event of a loss of offsite power. Tr. 4832-35, 4866-67 (Keaten and Jones).

³⁷⁵ The addition of the cavitating venturis and cross-connect lines will make it no longer necessary for the operator to balance flow in the HPI lines manually by valve adjustments in the event of a small break loss of coolant accident. Jensen, fol. Tr. 5496 at 7.



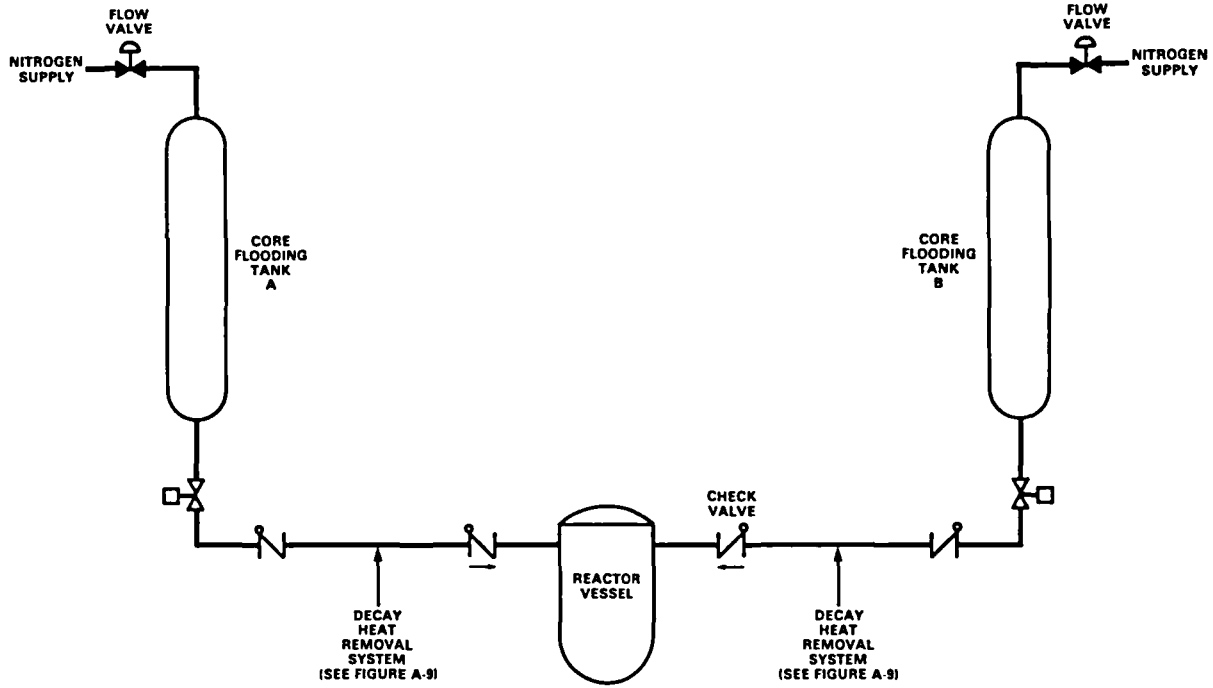


Figure A-8 Reactor Core Flooding (See Licensee Exhibit 1, Volume 4, Drawing C-302-711)

(c) Low Pressure Injection (LPI)

The Decay Heat Removal (DHR) System in the LPI mode can provide high flow rates at low pressures to provide core cooling for large breaks in the reactor coolant system. The pathway of the LPI mode is provided in the diagram for the Decay Heat Removal System (Fig. A-9). In this mode, there are two separate injection trains with each train capable of supplying 100 percent of the design LPI flow rate. Each train can supply approximately 3000 gpm at 100 psig.

Initially water for each train is drawn from the BWST. Each LPI train supplies cooling water to an injection line shared with the core flooding system. Cooling water flow will not commence until the reactor coolant system pressure falls below the discharge pressure of the LPI pumps (approx. 150 psig) and check valves in the injection lines open. Once the BWST is depleted, the coolant can be drawn from the containment sump. As mentioned earlier, the LPI pumps can also be used to supply the HPI pumps.

2. Containment Systems

The reactor building which houses the reactor coolant system is a large reinforced concrete structure that is lined with carbon steel. The walls are approximately three feet thick with the foundation approximately ten feet thick. It is possible to isolate the reactor building from the environment by the closure of isolation valves. These valves provide a double barrier so that no single failure can result in leakage to the environment. Automatic closure of specific isolation valves is provided by various signals such as high building pressure, reactor trip, and low reactor coolant system pressure. The reactor building is equipped with spray and air cooling systems to maintain the pressure and temperature in the building below design limits. A hydrogen recombiner system is available to control combustible gases inside the building in the event of an accident.

F. Engineered Safeguards Actuation System (ESAS)

The purpose of the ESAS is to detect a break in the reactor coolant system by monitoring reactor coolant system pressure and reactor building pressure. The ESAS is a three channel system where a trip of any two channels will initiate an actuation signal.

The ECCS will be initiated by the ESAS when reactor coolant system pressure becomes too low (approx. 1600 psig with a backup signal at 500 psig) or reactor building pressure becomes too high (approx. 4 psig). The

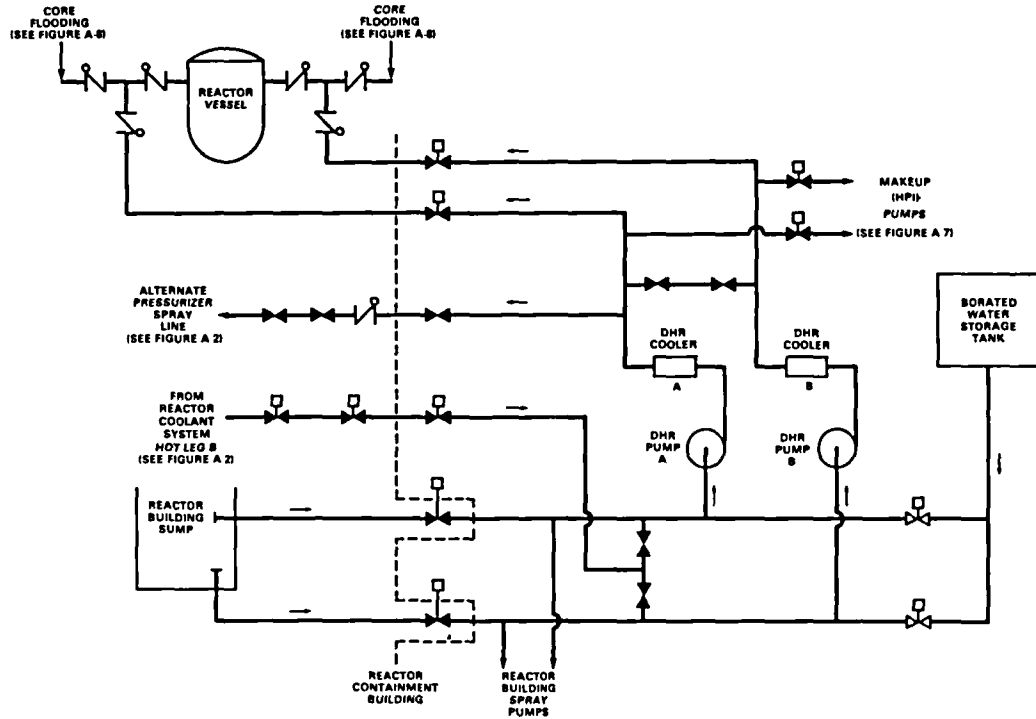


Figure A-9 Decay Heat Removal System (See Licensee Exhibit 1, Volume 4, Drawing C-302-640)

ESAS sends a signal to start two of the three HPI pumps and open the four HPI discharge isolation valves, and switch the suction source to the Borated Water Storage Tank. The ESAS also sends a signal to start both LPI pumps and open the discharge and suction valves. In addition, the ESAS assures the availability of several supporting systems that provide cooling water to vital systems and components. In order to provide emergency power, the two diesel generators will be started upon an ESAS signal.

Upon a low RCS pressure (1600 psig) or a high reactor building pressure signal (4 psig), the ESAS will also send a signal to close certain containment isolation valves and actuate the reactor building cooling system. A higher reactor building pressure signal (30 psig) will result in initiation of the reactor building spray system and closure of additional containment isolation valves.

Similar to the reactor protection system, the ESAS will “lock in” if two channels sense the need for actuation of engineered safety features. However, the automatic ESAS signal will only *initiate* the ECCS and containment isolation functions. See Section III(D), *supra* of this decision. Once initiated, the ECCS can be throttled or stopped altogether by the operator. Also, containment isolation valves may be controlled by operator action.

G. Electric Power

The electric power system provides power from offsite sources for normal plant operation and emergency power from onsite sources during abnormal and accident conditions.³⁷⁶

1. Offsite Power System

Electric power from the offsite transmission network to the onsite electric distribution system is supplied by multiple physically independent circuits designed and located so as to minimize to the extent practicable the likelihood of their simultaneous failure under all operating and postulated accident and environmental conditions. In addition, off-site combustion turbines can supply power to the site within two hours of demand. Capodanno *et al.*, fol. Tr. 5642 at 13-14.

³⁷⁶ See General Design Criterion 17, 10 CFR Part 50, Appendix A.

2. Onsite (Emergency) Power System

Upon loss of the offsite sources, emergency power will be supplied from two automatic, fast start-up diesel generators. Each diesel generator supplies a set of engineered safeguard loads. Either set of loads can provide, *inter alia*, adequate cooling water to the core following reactor shutdown. The diesels start automatically upon an ESAS signal, high reactor building pressure or a loss of engineered safeguards bus voltage but are not automatically connected to their electrical buses unless bus voltage is lost. The engineered safeguards automatically are loaded sequentially in segments on each diesel generator.

H. Makeup and Purification System

The main functions of this system are (1) to provide makeup to the reactor coolant system, (2) to provide cooling water to the reactor coolant pump seals, (3) to remove corrosion and fission products from the reactor coolant, (4) to maintain the proper concentration of hydrogen so as to limit the amount of free oxygen, (5) to maintain the proper concentration of corrosion inhibiting chemicals, and (6) to control the boron concentration in the reactor coolant. See Fig. A-7. As discussed earlier, part of the makeup and purification system is used to provide high pressure injection during a loss of coolant accident.

A small amount of reactor coolant is removed continuously from the reactor coolant system by way of a letdown line connected to a cold leg. The reactor coolant's temperature is reduced by passing it through a letdown cooler (heat exchanger). Following reduction in pressure by a block orifice, the reactor coolant passes through a filter, a mixed-bed demineralizer and then another filter. The system includes a spare letdown cooler, mixed-bed demineralizer, and two spare filters in parallel with their redundant components. A three-way valve is used to direct the reactor coolant to either the makeup tank or, if the boron concentration in the coolant is to be reduced, to the boron recovery system. Demineralized or borated water can be added to the system as additional inventory at the desired boron concentration. Chemicals for addition to the reactor coolant can be injected into the makeup tank. A hydrogen overpressure is maintained in the makeup tank to ensure that a certain amount of hydrogen remains dissolved in the reactor coolant to limit the oxygen concentration and, thus, inhibit corrosion.

While the system includes three makeup pumps (also utilized as HPI pumps) that can draw coolant from the makeup tank, only one pump is normally used to provide continuous flow. This flow is split into two

paths: (1) makeup to the reactor coolant system and (2) cooling water to the reactor coolant pump seals. The rate of makeup flow to the reactor coolant system is varied by the makeup control valve, which is controlled automatically by pressurizer water level. Continuous seal cooling water flow is sent through a filter and then to each reactor coolant pump. A portion of the seal injection leaks into the reactor coolant system, while the remainder is returned to the makeup and purification system through seal return coolers and a filter.

I. Decay Heat Removal (DHR) System

For normal plant conditions, the Decay Heat Removal (DHR) system is used to provide core cooling during startup and shutdown when reactor coolant temperature and pressure are low. *See* Fig. A-9. In this mode, reactor coolant can be drawn directly from the reactor coolant system through a hot leg connection. The two decay heat removal pumps send the coolant through two heat exchangers (called coolers) prior to injection into the reactor coolant system. The Decay Heat Removal system is capable of providing cooling water at high flow rates and low discharge pressure. The Low Pressure Injection mode of this system was discussed earlier.

A closed cooling water system is used to remove decay heat from the reactor coolant that passes through the decay heat removal coolers. This cooling water is then sent through its own coolers that reject the decay heat to river water. This arrangement provides an additional barrier between the reactor coolant and the environment.

J. Control Systems

1. Integrated Control System (ICS)

The Integrated Control System (ICS) consists of four independent subsystems: (1) the unit load demand, (2) the integrated master control, (3) the steam generator control, and (4) the reactor control. Its basic function is to match generated power with electric load demand. This is accomplished by coordinating the steam flow to the turbine with the rate of steam generation. Steam flow is controlled by use of steam throttle valves. Steam generation is controlled by use of feedwater flow control valves and movement of the reactor control rods. The ICS maintains constant average reactor coolant temperature between 15 and 100 percent rated power and constant steam pressure at all loads.

In actual operation the plant operator provides the demand signal to the unit load demand subsystem which then transmits the information to the integrated master control system. The master control in turn transmits the appropriate signals to the other systems to control feedwater flow, turbine steam supply and reactor power level. The system also provides for power decrease if an unusual condition, such as loss of a reactor coolant pump, occurs.

When the plant is operating below 15 percent of its rated power, the steam generator control subsystem automatically acts to maintain a minimum water level in the steam generators. Upon loss of reactor coolant pumps or main feedwater pumps, emergency feedwater is provided and flow is controlled by operation of the flow control valves. The reactor control subsystem maintains a constant average reactor coolant temperature over a load range from 15 to 100 percent of rated power by adjusting the positions of the reactor control rods.

2. Automatic Reactor Coolant Pressure Control

The pressurizer heaters, pressurizer spray, and PORV are automatically controlled by this system to maintain a selected reactor coolant system pressure. A motor-operated spray valve will open when pressure exceeds a certain setpoint and shut when the pressure falls below a low setpoint. A small continuous spray flow is maintained to prevent thermal shock to the spray nozzle³⁷⁷ and to ensure that the boron concentration in the pressurizer remains consistent with the rest of the reactor coolant system. The pressurizer heaters are grouped in banks. Certain banks will operate at partial capacity to compensate for the small continuous spray flow. The remaining banks begin operating sequentially upon decreasing pressure. The PORV is opened automatically upon a high pressure signal. The open signal is removed when the pressure falls below a low setpoint and the valve is shut by spring action.

3. Automatic Pressurizer Level Control

This system automatically operates the makeup control valve of the Makeup and Purification System to maintain a selected pressurizer level. In addition, an interlock will turn off the pressurizer heaters if level falls below a certain setpoint.

³⁷⁷ Thermal shock occurs when a component or structure (e.g., a valve) is subjected to a large rapid change in temperature. Such events can weaken the components or structures if they occur repeatedly.

K. Heating, Ventilation and Air Conditioning (HVAC) Systems

The normal function of HVAC systems is to supply the necessary amount of air at the proper temperature to assure proper equipment operation and personnel comfort. The air is routed through charcoal adsorbers and High Efficiency Particulate Air (HEPA) filters and monitored prior to being released from the plant vent. While there are independent HVAC systems at certain buildings on the plant site, only the heating and ventilation systems associated with the Fuel Handling Building and the Auxiliary Building are directly involved in this hearing. Therefore, only these two heating and ventilation systems will be discussed. See Fig. A-10.

The Fuel Handling and Auxiliary Building Heating and Ventilation Systems are designed (1) to provide fresh air to various spaces of these buildings to limit area temperatures, (2) to provide for movement of air from areas where the potential for radiation contamination is low to areas where the potential for radiation contamination is high, (3) to filter the exhaust air so that radiation exposure limits of 10 CFR Part 20 are not exceeded, (4) to maintain moderate temperatures during the winter, and (5) to maintain a slight negative building pressure in order to minimize potential releases of radioactivity to the environment.

Supply air to these systems is provided by two fans and passes through a filter and electric heating coils. Exhaust flow is provided by two of four 50 percent capacity fans. The exhaust flow is filtered by eight parallel filter banks, each containing a prefilter, HEPA filter, and charcoal adsorber. The HEPA filters are designed to give essentially complete removal of fine solid and liquid aerosols. The charcoal adsorbers are designed to trap and remove gaseous radioiodine from the airstream. The final exhaust is monitored for radioactivity.

APPENDIX B — Accident Analysis

Each applicant for a nuclear power plant operating license must submit a Final Safety Analysis Report. See 10 CFR §50.34(b). A major portion of that report is devoted to a discussion of accidents likely to result in some loss-of-coolant. Prior to the TMI-2 accident, Loss-of-Coolant Accident (LOCA) analyses focused on large pipe breaks.³⁷⁸ For breaks about four inches in diameter (about 0.087 ft² in area), it was determined for TMI-1

³⁷⁸ The worst case LOCA was considered to be a double-ended rupture (guillotine break) of a 36-inch reactor coolant system pipe. See FSAR I, *supra*, note 56, at 14-29 through 14-30a.

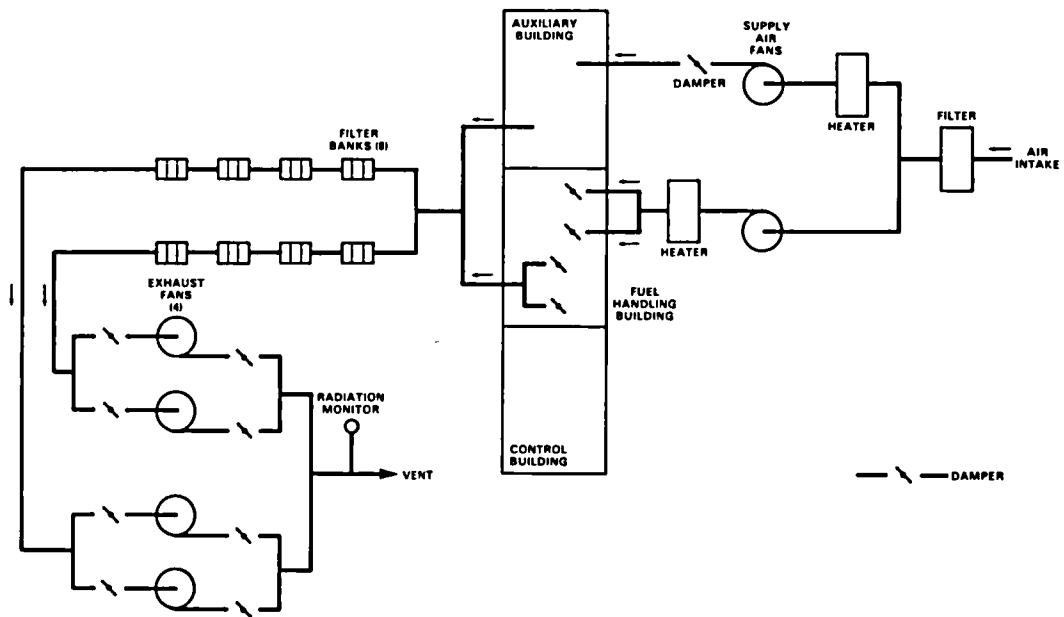


Figure A-10 Auxiliary Building and Fuel Handling Building HVAC Systems
 (See Licensee Exhibit 1, Volume 1, Section 7.3.3 at 7-12 to 13;
 Volume 3, Supplement 1, Part 2, Response to Question 52; and
 Volume 4, Drawings C-302-831 and 841)

that the pressure would drop rapidly enough to cause the core flood tanks to empty into the core. For smaller breaks it was generally considered that the HPI system would provide sufficient core cooling.³⁷⁹ The TMI-2 accident was a small break LOCA, the consequences of which had not been sufficiently studied.

In the event of an accident involving the reactor or its safety systems, reactor operation automatically ceases.³⁸⁰ Although the fission process is terminated, heat continues to be produced in the reactor core by the radioactive decay of fission products.³⁸¹ As a result, a reliable means of removing this decay heat is required for an extended period after reactor shutdown.³⁸²

The accident at TMI-2 began with a loss of all feedwater when the main feedwater system was inadvertently tripped coincidentally with an improper blockage of the emergency feedwater (EFW) system. This loss of all feedwater caused the temperature of its reactor coolant to rise and the primary system pressure to increase until it reached the power operated relief valve (PORV) setpoint. The PORV opened but stuck in that position, thus causing a pressure drop that actuated the High Pressure Injection (HPI) mode of the Emergency Core Cooling System (ECCS). The operators failed to recognize the stuck open PORV and reduced (throttled) HPI flow as the pressurizer level rose because of the leakage path out the PORV. Emergency feedwater was reinstated shortly thereafter but had no major impact because the reactor coolant inventory was continuing to be depleted

³⁷⁹ Licensee witness Keaten indicated that the FSAR did not rely upon use of the emergency feedwater system in the event of a small break LOCA. Tr. 7806.

³⁸⁰ See our discussion of the Reactor Protection System in Section D of Appendix A, *supra*.

³⁸¹ The heat rate drops immediately upon shutdown to less than 10 percent of full reactor power, followed by a more gradual decrease.

³⁸² For a LOCA, the evaluation contained in the Safety Analysis Report must demonstrate that the emergency core cooling system is capable of satisfying the criteria set forth in 10 CFR §50.46, and Appendix K to 10 CFR Part 50. These regulations require that a number of postulated LOCAs of different sizes and locations be investigated to provide assurance that the entire spectrum of postulated LOCAs is covered. One of the specifications that must be used in the evaluation is the "single failure criterion" which requires that the emergency core cooling system (ECCS) remain operable in the event of the most damaging active single failure of ECCS equipment. See 10 CFR Part 50, Appendix A, Criterion 35; 10 CFR Part 50, Appendix K, Section I.D.1. A single failure is defined as follows:

A single failure means an occurrence which results in the loss of capability of a component to perform its intended safety functions. Multiple failures resulting from a single occurrence are considered to be a single failure. Fluid and electric systems are considered to be designed against an assumed single failure if neither (1) a single failure of any active component (assuming passive components function properly) nor (2) a single failure of a passive component (assuming active components function properly), results in a loss of the capability of the system to perform its safety functions.

10 CFR Part 50, Appendix A, Definitions and Explanations. In addition, only equipment specifically designed to withstand severe adverse conditions (referred to in this decision as safety-grade equipment) may be relied upon to satisfy the requirements of 10 CFR §50.46 and 10 CFR Part 50, Appendix K. A complete discussion of the term "safety-grade" is included in our decision regarding UCS Contention 14. See pp. 873-77, *supra*. See also Tr. 7805-6 (Keaten).

through the open PORV. Eventually, enough inventory was lost to cause overheating of the fuel. Basically, the TMI-2 accident was a small break LOCA where HPI was manually stopped. One outcome of the investigations of the accident was the realization that insufficient attention had been paid to the small break LOCA.³⁸³

More detailed analyses of small break loss-of-coolant accidents at Babcock & Wilcox (B&W) designed plants have been performed since the TMI-2 accident. See Lic. Exs. 5-9, 13. These B&W analyses have considered the dependence of ECCS success on (1) the size and location of the break, (2) the number of HPI and EFW pumps available, and (3) the assumed fission product decay heat generation rate. The following subsections briefly describe these dependences.

1. Initiation of a Small Break

A small break in the reactor coolant system may occur as a result of an equipment malfunction (*e.g.*, PORV stuck open) or a physical rupture. Because the reactor coolant is maintained at a high pressure (approx. 2200 pounds per square inch gage (psig)), the coolant will be forced through the break. Since the coolant is maintained in a liquid state by high pressure, it will turn to steam if pressure drops below the saturation pressure for the coolant temperature.³⁸⁴

2. Size and Location Dependence

The size and location of the small break will affect the rate of depressurization of the reactor coolant system and the rate of inventory loss. The larger the break, the more quickly the fluid will escape. The location of the break is important because it will determine (1) the coolant conditions that exist in the vicinity of the break, (2) the amount of ECCS cooling water that could be lost out the break, and (3) the ability to isolate the break.

The first of these factors, the coolant conditions that exist in the vicinity of the break, is most easily understood by comparing the steam space of the pressurizer to the liquid regions of the reactor coolant system. Because

³⁸³ See, *e.g.*, NUREG-0578, "TMI-1 Lessons Learned Task Force Status Report and Short-Term Recommendations" (July 1979) at A-42 to A-45; NUREG-0560, "Staff Report on the Generic Assessment of Feedwater Transients in Pressurized Water Reactors Designed by the Babcock & Wilcox Company" (May 1979) at 8-13 to 8-14.

³⁸⁴ Saturation pressure is that pressure at which water can change to steam and vice versa for a given temperature, *i.e.*, the steam/water mixture is in equilibrium. Similarly, saturation temperature is that temperature at which this change will occur for a given pressure.

steam is less dense than water, the mass lost out of a break in the steam space of the pressurizer would be less rapid than that for a break at a location where the reactor coolant is in liquid form. There are more subtle differences in density of the liquid reactor coolant at various locations.

The second factor concerns the amount of ECCS water that may be lost out the break. As indicated in the discussion of ECCS in Appendix A of this decision, the HPI cooling water enters each of the four cold legs. A break in the primary system near an HPI inlet nozzle could cause a significant amount of HPI cooling water to be lost out the break instead of entering the reactor core. Cavitating venturis (passive flow limiting devices) have been installed at TMI-1 in the HPI lines to limit the amount of HPI flow that could be lost through a break.³⁸⁵

The ability of the operator to identify and isolate a break is a third factor which must be considered in postulating the location of a small break. In particular, if the LOCA was the result of the PORV stuck in the open position, then it should be possible to shut the PORV block valve, thereby isolating the break. In this manner, the accident could be mitigated quickly.

For breaks smaller than approximately 0.02 ft² at the reactor coolant pump discharge, the opening is not large enough to remove all of the energy produced by the decay of fission products immediately after shut-down and, therefore, the primary system will repressurize.³⁸⁶ The pressure of the reactor coolant will initially fall as coolant escapes out the break. However, if neither main nor emergency feedwater is available, the steam generator inventory will be exhausted (blown dry) very quickly.³⁸⁷ It is estimated this will occur in 280 seconds for a 0.01 ft² break. As a result, the reactor coolant temperature will begin to rise and the coolant will expand. This expansion will cause the reactor coolant system to repressurize. A 0.01 ft² break at the reactor coolant pump discharge is calculated to be the largest break for which the initial pressure drop is not sufficient to reach the automatic actuation pressure of HPI.³⁸⁸ Therefore, for breaks less than 0.01 ft², actuation of HPI would have to occur (1) manually or (2) automatically as a result of primary system pressure reduction upon initiation of main or emergency feedwater.

Babcock & Wilcox (B&W) analyses originally indicated that a small break at the reactor coolant pump (RCP) discharge was the worst location

³⁸⁵ See Licensee's Response to Appeal Board Order of July 14, 1982 (August 12, 1982) at 18.

³⁸⁶ The staff and licensee disagreed as to the exact break size but it is apparently between 0.01 and 0.02 ft². See Jensen, fol. Tr. 4913, at 5; Tr. 4930-32 (Jensen); Tr. 4852-54 (Keaten and Jones); Keaten and Jones, fol. Tr. 4588, at 7; Jones and Broughton, fol. Tr. 5038, at 6-7.

³⁸⁷ Lic. Ex. 5 at Section 6.2.1.3.5.

³⁸⁸ *Id.* at Sections 6.2.1.3.1, 6.2.1.3.5.

since a substantial amount of the HPI flow would be lost out the break.³⁸⁹ For breaks less than 0.01 ft² at the RCP discharge, the analyses indicated that, if the operator took action to actuate the HPI and EFW within 20 minutes, the reactor core would be adequately cooled.³⁹⁰ Recent investigation of a similar break at the reactor coolant pump suction by B&W has indicated that the operator may have less than 20 minutes available to actuate HPI and EFW in order to ensure adequate core cooling.³⁹¹ However, current procedures require the operator immediately verify that EFW has been initiated upon a loss of main feedwater to assure that feedwater is provided in sufficient time.³⁹²

The size and location of the break will also determine the ability to maintain liquid natural circulation. For Babcock & Wilcox type of reactor, analysis indicates that, if only one HPI pump is operating, any break larger than 0.005 ft² would lead to an interruption of liquid natural circulation due to steam void formation.³⁹³ Unless this voiding can be removed, means other than liquid natural circulation must be used to remove core decay heat for breaks larger than 0.005 ft². From these analyses, for breaks between 0.02 ft² and 0.005 ft², it will be necessary to rely on some means other than the break itself or liquid natural circulation to remove reactor core decay heat.

3. Availability of HPI

For a small break LOCA, the pressure in the reactor coolant system may remain above the injection pressure of the reactor core flood tanks and Low Pressure Injection mode. As a result, the HPI pumps may be the only means of providing makeup for coolant lost out the break. The flow rate provided by an HPI pump varies as a function of reactor coolant system pressure. At low reactor coolant system pressures (600 psig or less), an HPI pump can deliver approximately 500 gallons per minute (gpm); however, at high pressures (2500 psig), the flow rate drops to about 250 gpm.³⁹⁴ Even though feedwater does not add cooling water directly to the reactor coolant system, the emergency feedwater system (or main feedwater if available) removes heat from the reactor coolant which will result in a drop in reactor

³⁸⁹ *Id.* at Sections 6.2.1.3.1, 6.2.3.2.3.

³⁹⁰ *Id.* at Sections 6.2.1.1, 6.2.1.3.5.

³⁹¹ See letter from S. H. Duerson to D. G. Slear (March 25, 1981), attached to NRC Staff's Response to Appeal Board Order of July 14, 1982 (August 9, 1982).

³⁹² See Lic. Ex. 49.

³⁹³ Tr. 4683-84 (Jones); Jones, fol. R. Tr. 453 at 12-13. Where the location of the break is not indicated, it should be assumed to be at reactor coolant pump discharge.

³⁹⁴ Lic. Ex. 1, Volume 3, Supplement 1, Part 3, Question 1 at Table 3.4.

coolant system pressure. This would allow an increased HPI flow rate or, if the pressure is reduced below 600 psig, reactor core flood tank injection.

As indicated by the B&W analyses and evidence presented at the reopened hearing on the small break LOCA, if feedwater is available to the steam generators, one HPI pump provides sufficient cooling water for any postulated small break LOCA.³⁹⁵ However, if feedwater were not available for a small break LOCA between 0.005 and 0.02 ft², both HPI trains (two pumps) would be necessary in order to provide adequate core cooling.³⁹⁶ In performing accident analyses, the single failure criterion must be applied so it is assumed that one of the HPI trains is unavailable. As a result, if feedwater were not available, the reactor core may not be adequately cooled during the initial stages of a small break LOCA.³⁹⁷

4. Availability of Feedwater

The main feedwater system is not safety-grade and is not relied upon for postulated accidents. For example, it is not designed to withstand severe earthquakes, nor does it receive emergency power. However, it is designed to be a reliable source of cooling water to the steam generators for normal plant conditions.

The licensee and staff rely on the emergency feedwater system (rather than the "feed and bleed") to assure adequate core cooling for small break LOCAs.³⁹⁸ This dependence on the emergency feedwater system was not

³⁹⁵ See, e.g., Lic. Ex. 4; Jones and Broughton, fol. Tr. 5038; Tr. 5501, 5599; (Jensen). See also Section III(A), *supra*. It is important to note that these B&W analyses were performed on a generic basis with an assumed power level of 2772 megawatts thermal (MWt). TMI-1, by comparison, was licensed for 2535 MWt. See Lic. Ex. 1 at 1-1; Lic. Ex. 5 at Section 6.2.1.2. This makes the small break LOCA analysis conservative for TMI-1 since less cooling flow would be needed for the lower power level. Furthermore, licensee indicated that the TMI-1 HPI pumps provides 10 percent more cooling water flow than the HPI pumps used in the generic analysis. Tr. 5143 (Jones).

³⁹⁶ Tr. 4775-77 (Jones); Tr. 5501-02 (Jensen). The heat generation rate that is assumed for the decay of the radioactive fission products has a significant effect on the amount of cooling water flow (*i.e.*, the number of HPI or EFW pumps) that is necessary for a small break LOCA. Appendix K to 10 CFR Part 50 requires that the ECCS evaluation model assume a heat generation rate from radioactive decay of fission products to be equal to 1.2 times the values for infinite operating time in the appropriate American Nuclear Society (ANS) standard. This standard is identified as Proposed American Nuclear Society Standard — "Decay Energy Release Rates Following Shutdown of Uranium-Fueled Thermal Reactors." Approved by Subcommittee ANS-5, ANS Standards Committee, October 1971. This factor of 1.2 is used in all of the analyses discussed in this decision. However, B&W has performed additional analyses assuming the actual value for heat generation rate provided in the ANS standard. See Lic. Exs. 7, 9. These analyses indicate that only one HPI pump may be necessary to provide adequate core cooling for a small break LOCA that might otherwise require two HPI pumps (assuming no feedwater) when the 1.2 factor is used.

³⁹⁷ For a loss of all feedwater and no break in the primary system, licensee indicated that it would take about 2½ hours before flow from one HPI pump would be adequate to match the core decay heat rate. Tr. 4885-86 (Jones). See also Lic. Ex. 9. In a discussion of a 0.005 ft² break, staff witness Jensen stated that one HPI pump could match the decay heat rate after about one hour. Tr. 5553.

³⁹⁸ Tr. 4816 (Keaten); Tr. 5016, 5502-03 (Jensen); Sheron and Jensen, fol. R. Tr. 83 at 22. Jones and Lanese, fol. R. Tr. 111 at 1-2. See Section III(A) of this decision for a discussion of feed and bleed.

recognized when TMI-1 was designed and constructed. As a result, the system is undergoing extensive modifications to upgrade it to full safety-grade status. Board Question 6 concerns the question of whether TMI-1 should be allowed to restart before completion of these modifications. *See* Section III(A) of this decision.



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**John H Frye, III, Chairman
Glenn O. Bright
Dr. Emmeth A. Luebke**

In the Matter of

**Docket No. 50-142-OL
(Proposed Renewal of
Facility License)**

**THE REGENTS OF THE UNIVERSITY
OF CALIFORNIA
(UCLA Research Reactor)**

May 11, 1983

Licensing Board denies Staff's motion for summary disposition of intervenor's contention concerning physical security at the applicant's facility after finding that the materials submitted in support of and in opposition to the motion disclose inconsistencies between the amount of special nuclear material accounted for by applicant and that reported by Staff in two inspection reports. Staff is directed to physically inventory the material. Licensing Board also rules on certain disputes regarding interpretations of 10 CFR Part 73 and permits the parties to seek reconsideration of those rulings.

SECURITY PLAN: 10 CFR §73.60 DETERMINATION

Sealed plutonium-beryllium neutron sources are to be considered for purposes of determining whether a formula quantity of strategic special nuclear material exists for purposes of §73.60.

SECURITY PLAN: POSSESSION VS. AUTHORIZATION TO POSSESS SNM

The provisions of 10 CFR Part 73 applicable to non-power reactor licenses hinge the level of physical protection required on the amount of special nuclear material actually possessed, rather than the amount authorized to be possessed.

SECURITY PLAN: REQUIREMENT TO PROTECT AGAINST SABOTAGE

10 CFR §73.40(a) requires all non-power reactor licensees to take measures to protect against potential sabotage.

MEMORANDUM AND ORDER (Ruling on Staff's Motion for Summary Disposition of Contention XX)

Contention XX advanced by the Committee to Bridge the Gap (CBG) concerns the provisions governing the physical security of the Nuclear Energy Laboratory (NEL). It asserts in part that UCLA must comply with 10 CFR §73.60 and must take measures against potential sabotage.

On April 13, 1981, NRC Staff moved for summary disposition of this contention. Its motion was ruled to be premature and responses were deferred pending completion of discovery. In turn, discovery was contingent upon the agreement of the parties to a suitable protective order and nondisclosure agreement which would protect sensitive information. No such agreement was forthcoming and the parties have submitted that matter for a Board ruling.

Because it appeared that the NRC Staff's motion raised some issues which could be addressed without access to sensitive information, and because ruling on those issues could influence the scope of other issues raised by Contention XX, the Board directed that these issues be taken up initially. These issues concern the applicability of 10 CFR §73.60 and the need to protect against potential sabotage.

THE REGULATORY FRAMEWORK

Before discussing the conflicting positions of Staff and CBG, it is appropriate to lay out the regulatory framework of Part 73.

Part 73 “. . . prescribes requirements for the establishment and maintenance of a physical protection system which will have capabilities for the protection of special nuclear material at fixed sites . . . and of plants in which special nuclear material is used.” (10 CFR §73.1(a).) Section 11 (aa) of the Atomic Energy Act defines “special nuclear material” as plutonium and uranium enriched in the isotopes 233 or 235. Special nuclear material is categorized by Part 73 in terms of quantity, and the protection requirements vary accordingly. Part 73 defines “strategic special nuclear material” (SSNM) as “. . . Uranium 235 (contained in uranium enriched to 20 percent or more in the U-235 isotope), Uranium 233, or plutonium.” (10 CFR §73.2(aa).)

The greatest protection is required for a “formula quantity” of SSNM. A “formula quantity” is 5000 grams or more of SSNM computed as follows: grams = (grams contained U-235) + 2.5 (grams U-233 + grams plutonium). For purposes of this discussion, it is sufficient to note that non-power reactor licensees possessing a “formula quantity” of SSNM must comply with 10 CFR §73.67(a), (b), (c), and (d) as well as 10 CFR §73.60. The latter section imposes the most stringent requirements.

The next lower level of protection is required for less than a “formula quantity” of SSNM but more than 1000 grams of material. Material in this category is called “special nuclear material (SNM) of moderate strategic significance.” The kinds of material which are included in this category are set forth in the definition in 10 CFR §73.2(x). For purposes of our discussion, the relevant materials are U-235 and plutonium, and the protection requirements are those set forth in 10 CFR §73.67.

The lowest level of protection, required for SNM of low strategic significance, is also set out in 10 CFR §73.67. This material is defined in 10 CFR §73.2(y), and is not involved in this application.

Section 73.67(a) sets forth the general objectives to be attained by the physical protection of SNM of moderate and low strategic significance. These are (1) to minimize the possibility of unauthorized removal of the material, and (2) to facilitate the recovery of missing material. To achieve these objectives, the physical protection system is to ensure early detection and response to any unauthorized access to or removal of SNM, and proper handling of SNM. Section 73.67(b) exempts SNM which emits more than 100 rems per hour at a distance of three feet, sealed plutonium-beryllium neutron sources containing no more than 500 grams plutonium, and to plutonium with an isotopic concentration exceeding 80 percent plutonium-238. Subsection (d) sets forth specific requirements for the protection of SNM of moderate strategic significance, and subsection (f) sets forth requirements for SNM of low strategic significance.

Section 73.60 applies to formula quantities of SSNM possessed by non-power reactor licensees. It incorporates the provision of §73.67(d) and adds requirements concerning the storage, processing, and access to the SSNM.

Additionally, it should be noted that §73.40(a) requires, without express limitation, that all licensees are to provide physical protection against sabotage or theft of SNM at fixed sites. Subsection (b), (c), and (d) of this section lay down general requirements for physical protection plans and are expressly applicable to those licensees who must comply with §73.60.

THE FACTUAL SETTING

UCLA's application for license renewal seeks authority to possess:

- (1) 4700 grams U-235 (irradiated);
- (2) 4700 grams U-235 (fresh); and
- (3) Pu-239 as a 2 curie, Pu-Be neutron source.

(Application, p. 5.)^{1A}

At the time Staff filed its motion for summary disposition in April, 1981, UCLA apparently possessed a formula quantity of SSNM. (See Exhibit C to CGB's response, Memorandum from M. Ostrander to W. Cormier of August 25, 1982).

Following a site visit Staff wrote UCLA on January 12, 1981, indicating that it would be necessary for UCLA to either:

- (1) comply with the provisions of 10 CFR §§73.60 and 73.67(a), (b), (c), and (d); or
- (2) ship fuel in storage to another location; or
- (3) operate the reactor to maintain the fuel irradiation level at a rate of 100 rem/hr at a distance of three feet.

Although Staff's letter does not so state, it must be assumed that the necessity to adopt one of the above alternatives resulted from the presence on site of a formula quantity of SSNM. On January 29, 1981, UCLA responded that, while it explored its options for reducing its inventory of unirradiated fuel, it was scheduling reactor operations so as to comply with alternative (3), above. (See Exhibits B and C to Exhibit E attached to CBG's response.)

Finally, on August 6, 1982, UCLA wrote Staff indicating that it had transferred offsite sufficient U-235 to reduce its inventory to 3530 grams irradiated and 1390 grams fresh, a total of 4920 grams U-235. UCLA's letter

^{1A} On March 2, 1983, Staff issued an amendment to the operating license for this facility to permit possession of up to 5 kg of U-235, 32 grams of plutonium as a plutonium-beryllium neutron source, and one gram of plutonium in the form of foils or wires for flux distribution measurements. See letter of March 2, 1983, to Dr. W. F. Wegst of UCLA from D. Eisenhut, Director, Division of Licensing, NRC.

stated that the transfer removed an unnecessary constraint on reactor operations. UCLA asserted that while under normal operating conditions alternative (3) above is met, the transfer would permit the reactor to be shut down for an extended period. (See Exhibit A to Intervenor's response.)

THE POSITIONS OF THE PARTIES

In order to reflect the circumstances presented by UCLA's recent transfer of fuel, Staff sought on August 20, 1982, to amend its motion for summary disposition. This matter was discussed in a conference call of August 25, and Staff was requested to serve its amended motion with deletions and additions appropriately indicated so that the Board and the parties would be accurately advised of the Staff's new position. Staff Counsel accomplished this through deletions and interlineations to her April, 1981, motion and served the amended motion August 31, 1982.

Staff argues that only §73.67 is applicable to the NEL. Staff takes the position that the regulations only require compliance with the more stringent standards of §73.60 if a licensee actually *possesses* formula quantities of SSNM; that mere authority to possess formula quantities is insufficient. Staff notes that the 4920 grams of U-235 which UCLA asserts are at the NEL constitute less than a formula quantity of SSNM, and argues that the two-curie Pu-Be neutron source is both exempt under the provisions of §73.67(b)(1)(ii) and negligible. Staff no longer takes the position that some of the U-235 at the NEL is exempt because it emits 100 rem/hour at a distance of three feet, an exemption which UCLA invoked on being told by Staff that it must comply with §73.60. Thus it is Staff's position that UCLA possesses SNM of moderate strategic significance and must comply with §73.67 only. Finally, Staff asserts that there is no legal requirement for UCLA's physical protection plan to provide protection against sabotage. UCLA generally supports Staff's position (Tr. 773-74), but has not filed a formal response.

CBG takes the position that a formula quantity of SSNM is present at the NEL. CBG did not in its response to this Motion, disagree with Staff over the quantity of U-235 at the NEL. However, in its Motion for Summary Disposition on Contention XIII and in supplemental responses to this Motion, CBG does raise the possibility that there are in fact more than 5000 grams of U-235 present at the NEL.

CBG takes sharp issue with Staff over the treatment under the regulations of the two-curie Pu-Be neutron source. CBG asserts that the exemption for that material relied on by Staff applies only to §73.67, not to §73.60. CBG argues that under the latter section, the neutron source must be

included in the computation of the quantity of SNM on hand. Because a two-curie source requires 32 grams of Pu-239, and because under the formula this 32 grams must be multiplied by 2.5 before being added to the quantity of U-235 on hand, a formula quantity of SSNM is on hand at the NEL. According to CBG, the §73.60 computation goes as follows:

$$4920 \text{ grams U-235} + 2.5 (32 \text{ grams Pu-239}) = 5000$$

Thus it is CBG's position that §73.60 is applicable.

CBG also argues that the applicable regulatory standard must be judged by the amount of SNM for which authority is sought rather than the amount actually on hand, and argues that UCLA's calculations of the radiation emitted by irradiated fuel are in error. Thus in CBG's view, UCLA must comply with §73.60 regardless of the amount of SNM which may be on hand presently. Finally, the CBG argues that UCLA's plan must take account of potential sabotage.

DISCUSSION

A. Present SNM Inventory

As noted above, CBG asserts that there are in fact more than 5000 grams of U-235 present at the NEL. CBG bases this assertion on various inspection reports filed by Staff (Inspection and Enforcement). CBG summarizes the contents of these reports as follows in footnote 1 of its February 8, 1983, Supplemental Response to the Motion:

1/14/71 Inspection Report, No. 50-III-6: Fuel Core (3461), Fuel plates (39), Uranyl nitrate solution (250), U/AL plates (19); TOTAL U-235: 3769 plus Pu-239 (160); TOTAL SNM 3929. (Exhibit F).

12/12/74 Inventory attached to letter from Asbaugh to Goller: Fuel core (2971.88), material in pits (591.77), other (731.22), Fresh fuel (37451.27), Scrap can (421.31), Scrap plates (154.54), Uranyl nitrate solution (250); TOTAL U-235 8,865.99 plus Pu-239 (160); TOTAL SNM 9025.99. (Exhibit G).

5/20/75 Inspection Reports, No. 50-142/75-03 & 70-223/75-01: Fuel core (3540), Material in pits (738), Material in other storage (4571); TOTAL U-235 8849 plus Pu-239 (160); TOTAL SNM 9009. (Exhibit H).

10/21/78 Inspection Report No. 50-142/78-03 and 10/10/79 Inspection Report No. 50-142/79-03: Fuel core (3600), material in

pits (700), material in other storage (4700); TOTAL U-235 9000 plus Pu-239 (160); TOTAL SNM 9160. (Exhibit I).

CBG also referenced an October 10, 1979, inspection report (also attached to its Response) which concerns a September, 1979, inspection which examined UCLA's activities related to physical protection against industrial sabotage and theft of SNM. This report states that "[t]he NEL has in its possession approximately 8.3 kgs of SNM in the form of 93% enriched U-235." The report states that "the SNM" was stored at three specific locations. The total of the amounts stored at these locations equals 8.9 kg, 0.6 kg more than the total U-235 said to be on hand. No explanation of the inconsistency is given. CBG relies on this report and the October 1978, report (Exhibit I summarized above) for the proposition that UCLA had 9.0 kg U-235 in the Fall of 1978 and 1979. CBG then cites certain fuel inventory data prepared by UCLA in response to CBG's discovery requests to show that this inventory of U-235 has been reduced by 3.698 kg.

Because we were unable to resolve the problems presented by CBG on the basis of the pleadings, we asked UCLA and Staff to respond to CBG's allegations. In its Response of March 16, UCLA asserts that CBG's conclusion is unwarranted. It bases this assertion on the fact that fuel inventory data upon which CBG relies did not take into account transfer of Uranyl Nitrate which is not fuel but contains U-235. This discrepancy resulted, according to UCLA, because CBG had asked for changes in the inventory of fuel only in its discovery request.

UCLA then accounts for the inventory of U-235 as follows:

CBG's "Exhibit G" inventory of 12/12/74	8866 grams
Less burn-up not previously accounted for	<u>17</u>
CBG's "Exhibit H" inventory of 5/20/75	8849
Plus adjustment reflecting change in accounting for scrap fuel	<u>19</u>
	8868

1975 year-end inventory as follows:

fuel in core	3.53 kg
fresh fuel	3.75
spent fuel	0.74
scrap fuel	0.59
Uranyl Nitrate	0.25
	<u>8.86</u>

UCLA sets out the reductions in inventory since 12/31/1975 as follows:

Uranyl Nitrate (1981)	245 grams	
Uranyl Nitrate (1982)	<u>5</u>	
Total		250 grams
Spent fuel (1980)	738 grams	
Scrap fuel (1981)	595	
Fresh fuel (1982)	2355	
Fuel burn-up	<u>7</u>	
		<u>3695 grams</u>
Total reduction		3945 grams
Total U-235 on hand		4923 grams

Staff, in its response of March 23, 1983, as supplemented by its letter of March 29, 1983, substantiates the reductions in inventory reported by UCLA with the exception of the fuel burn-up. Staff reports this to be 4, rather than 7 grams.

Both UCLA and Staff attack CBG's reliance on the October, 1978, inspection report (CBG's Exhibit I). Both take the position that CBG has misinterpreted that report by claiming that it recites UCLA's inventory as consisting of 9000 grams U-235 plus two Pu-Be neutron sources. Staff and UCLA maintain that the report indicates that the 9000 grams includes the two neutron sources, so that the U-235 inventory reported is actually 8840 grams.

On April 13, CBG filed a second Supplemental Response to the UCLA and Staff explanations. In that Response CBG correctly points out that its Exhibit I recites the existence of 3.6, 4.7, and 0.7 kg U-235, a total of 9.0 kg. The neutron sources thus constitute an additional quantity of SNM in this inventory. CBG also questions the accuracy of the isotope weights given for the fuel shipped offsite, pointing out that according to the transaction report, furnished by Staff, the average quantity of U-235 per fuel plate was

14.27 grams. CBG contrasts this figure with that given in the Application of approximately 13.0 grams per plate.

While we realize that isotope weights for individual fuel plates will vary and that we cannot be assured from what is presently before us of the precise isotope weights of each individual fuel plate shipped offsite by UCLA, we are more concerned with the inconsistencies between the UCLA accounting for the fuel inventory and the Exhibit I inspection report. If the 9000 gram inventory reported in Exhibit I is correct, then the offsite shipments of U-235 identified by UCLA and Staff are insufficient to reduce the inventory below 5000 grams.¹ As noted above, UCLA's inventory must be below 5000 grams if it is to avoid compliance with the requirements of 10 CFR §73.60. Hence the total inventory is a critical concern.

Because of the inconsistency between the Exhibit I inventory and the UCLA inventory, we are unable to resolve this important factual matter on the papers before us. Moreover, we are of the opinion that it can be effectively resolved only by a physical inventory of the SNM presently at the NEL. Because we are here concerned with Staff's Motion for Summary Disposition, and because Staff's inspection report is the source of the difficulty, we believe Staff should conduct such an inventory and report to the Board and the parties on its results. Hopefully, this step will put the matter to rest; if it does not, we will entertain the views of the parties as to what additional steps are necessary.

While we recognize that, based on what is now before us, the possible amount of SNM in excess of 5000 grams is small, perhaps even *de minimis*, we also recognize that the regulation in question does not provide leeway to overlook this possible excess. 10 CFR §73.60 is plainly applicable to licensees who possess 5000 grams or more of SSNM. Had the Commission intended to overlook small amounts in excess of 5000 grams, it would have worded its regulation to effectuate this purpose. Addition of the word "approximately" before 5000 grams would have accomplished this.

Nor can the absence of such language be deemed unintentional in view of the sensitive nature of the subject matter of the regulation. When HEU is

¹ We have not considered the 1979 inspection report because of its internal inconsistency which we discussed above. We note that if the larger quantity of SNM identified there is correct, UCLA's shipments of SNM offsite would be sufficient to reduce its inventory below 5000 grams. However, this report presents additional difficulties. Unlike the Exhibit I report from the previous year, it makes no mention of Uranyl Nitrate. Nor would the 250 grams of this material explain the discrepancy between the "8.3 kgs of SNM in the form of 93% enriched U-235" and the specific amounts totaling 8.9 kg listed by storage location. Moreover, in the edited report furnished CBG, a total of 3.6 kg of SNM is identified at one location, an amount that compares to UCLA's 1975 year-end inventory identification of 3.53 kg in the core. Similarly the 1979 report identifies 0.7 kg irradiated SNM which compares to 0.74 kg spent fuel identified in the 1975 inventory. However, the third figure, 4.6 kg nonirradiated SNM in the report is almost a kilo more than the 3.75 kg fresh fuel identified in the 1975 inventory. Consequently this report only adds to the confusion.

concerned, one must assume that the Commission meant what it plainly said.

B. Applicable Regulations

Despite the dispute between CBG and Staff with regard to the present inventory of U-235 at the NEL, several legal issues are presented by the parties which are now ripe for resolution. The first of these involves the appropriate treatment under the regulations of the 2-curie Pu-239 neutron source present at the NEL — is 10 CFR §73.60 applicable because of the presence of the Pu-239?

CBG asserts that two curies of Pu-239 weighs 32 grams, but does not give the basis for that conclusion. Staff does not address this point. We have independently calculated the weight of the two-curie Pu-239 neutron source and have arrived at a weight of 32.2 grams. Our calculation is set forth in the margin.²

Thus, if CBG is correct that the two-curie Pu-Be source is not exempt under the formula set out in §73.60, and assuming that UCLA's accounting for the SSNM is correct, there are slightly in excess of 5000 grams of SSNM present at the NEL.³ This would require UCLA to comply with the provisions of that section.

Staff relies on §73.67(b)(1)(ii) for the proposition that sealed plutonium-beryllium neutron sources are not to be considered. This subsection does provide an exemption for these sources. However, as CBG points out, the exemption is by its terms limited to "this section," *i.e.*, §73.67. It does not, by its terms, apply to §73.60.

Staff does not elaborate on its position that, despite its terms, §73.67(b)(1) applies to §73.60. Section 73.60 states that possession of a formula quantity of SSNM subjects the licensee to the provisions of subsections (a), (b), (c), and (d) of §73.67 and to the requirements of §73.60, unless the material is self-protecting because it has an external radiation

$$^2 \Delta N/\Delta T = -0.693N/T_{1/2}$$

$$\text{or, } N = -(\Delta N/\Delta T)(T_{1/2}/0.693)$$

$$\text{Now, } 2 \text{ Ci} = 7.4 \times 10^{10} \text{ atoms/sec}$$

$$\text{So, } N = -(-7.4 \times 10^{10} \text{ atoms/sec}) [(2.411 \times 10^4 \text{ yr})/0.693] \times (3.1536 \times 10^7 \text{ sec/yr})$$

$$= + 81.19 \times 10^{21} \text{ atoms}$$

$$+ 6.02 \times 10^{23} \text{ atoms/gm atom}$$

$$= 0.1349 \text{ gm atom}$$

$$\times 239$$

$$= 32.2 \text{ g.}$$

$$^3 4920 \text{ grams U-235} + 2.5 (32.2 \text{ grams Pu-239}) = 5000.5 \text{ grams SSNM.}$$

dose rate in excess of 100 rems per hour at a distance of three feet. This exception is also stated in §73.67(b)(1)(i). The other exceptions stated in §73.67(b), particularly subsection (b)(1)(ii) exempting sealed Pu-Be neutron sources, are not repeated in §73.60. We must conclude that their omission was intentional. Thus sealed Pu-Be neutron sources are to be considered for purposes of determining whether a formula quantity of SSNM exists for purposes of §73.60. If a formula quantity exists for purposes of §73.60, then §73.67 (a), (b), (c), and (d) also came into play. However, the exemption of these sources from §73.67 permits them to be disregarded in determining whether SNM of moderate or low strategic significance exists. Had the Commission wished to disregard these sources in computations under §73.60, it could easily have made the subsection (b)(1)(ii) exemption applicable to §73.60. The fact that the Commission chose to adopt the substance of the subsection (b)(1)(i) exemption in §73.60 while ignoring the subsection (b)(1)(ii) exemption after having stated that those subject to §73.60 “. . . shall protect the [SNM] from theft or diversion pursuant to the requirements of §73.67(a), (b), (c), and (d) and as follows . . . ” indicates that the Commission did not so intend. This conclusion is reinforced by the fact that, in enacting the §73.67(b)(1)(ii) exemption, the Commission was concerned only with SNM of moderate and low strategic significance. (*See* 44 Fed. Reg. 43280 (July 24, 1979).) On the other hand, when enacting the regulations here in question some four months later, no mention of Pu-Be neutron sources is made. (*See* 44 Fed. Reg. 68184 (November 28, 1979).)

Before leaving this subject, we note that Staff's position is consistent with a proposed amendment to Part 73 which would eliminate §73.60 altogether and amend §73.67 to provide for licensees possessing formula quantities of SSNM in addition to SNM of moderate and low strategic significance. These amendments retain the subsection (b)(1)(ii) exemption for plutonium-beryllium neutron sources applicable to “this section,” thus making it clear that these sources would not be considered in computing inventories of SSNM if this proposal is enacted. (*See* 46 Fed. Reg. 46333 (September 18, 1981).)

C. Contention That the Quantity of SSNM Authorized Is Controlling for Purposes of Part 73

CBG's position that the applicable provisions of Part 73 should be determined on the basis of the amount of SNM authorized, as opposed to the amount on hand, is based on equitable arguments. CBG views it as improper to conclude that UCLA need not comply with the safeguards requirements for formula quantities of SSNM on the basis that less than a formula

quantity is on hand at a particular point in time while permitting UCLA to bring a formula quantity to the NEL at any time. CBG views the reporting requirements for receipt of SNM as providing no substitute for an airing of the matter in an adjudication. Finally, CBG chides the Staff for inconsistency; it points to SECY-79-187B in which the Executive Director for Operations represented to the Commission that the Staff would take action to limit UCLA's authorization to less than a formula quantity of SSNM and contrasts that with the Staff position here that no such limitation is necessary.

CBG's arguments are not without appeal. However, we are bound to follow the Commission's regulations which clearly and consistently hinge the applicability of their various safeguards provisions on the amount of SNM *possessed* by a licensee, not the amount authorized. Consequently, CBG's position must be rejected. In so holding, we note that CBG's position has been adopted in the proposed amendments to Part 73 discussed above. See proposed §73.67(h)(i). Should this amendment be adopted, UCLA would either have to comply with the higher standards for protection set forth in §73.67(h) or reduce its authorization level.

While we agree with CBG that the amendment of the application to authorize possession of less than a formula quantity of SSNM, as promised by the Staff in SECY-79-187B, is a good idea, we lack any basis in this record to require it.⁴

D. Self-Protection of Fuel

Because UCLA no longer relies on the self-protection criteria of 10 CFR §§73.60 and 73.67 (Ex. A, CBG Response of September 7, 1982), it is unnecessary to address CBG's arguments concerning the ability of UCLA to schedule reactor operations to maintain a dose rate of 100 rem/hour.

E. Requirement to Protect Against Potential Sabotage

CBG takes the position that §73.40 requires that UCLA's security plan must provide protection against potential sabotage. Section 73.40(a) states in part: "Each licensee shall provide physical protection against radiological sabotage and against theft of special nuclear material at the fixed sites where licensed activities are conducted." Staff takes the position in its

⁴ A dispute has arisen concerning our authority to require UCLA to amend its application in connection with Contention XIII. As pointed out in our Memorandum and Order denying CBG's motion to take up its Motion for Partial Summary Disposition of Contention XIII, this dispute is not ripe for resolution now. Consequently the sentence in the text implies no views on the merits of this dispute. In any event, as noted in footnote 1A, *supra*, UCLA's possession limit has now been reduced.

motion without elaboration, that the regulations do not require UCLA to provide such protection. Additionally, one of Staff's affiants supporting the motion points out that "[t]here are no *explicit* NRC regulations for the protection of non-power reactors against radiological sabotage . . ." (emphasis supplied). (Carlson affidavit, p. 4. n.1).

In its supplemental response, CBG points to prior statements of Mr. Carlson concerning 10 CFR §73.40 which it regards as inconsistent. These statements were made at a meeting between non-power reactor licensees and Staff in 1979.

CBG also relies on certain statements contained in the Commission's 1979 and 1980 *Annual Reports* for its position.

At the outset, we note that on its face the first sentence of §73.40 is clearly applicable to all licensees, and furnishes no basis for arguing that it is inapplicable to UCLA. Nonetheless, Mr. Carlson is correct in stating that there are no *explicit* regulations for the protection of non-power reactors possessing less than a formula quantity of SSNM against sabotage. Subsections 73.40(b), (c), and (d), which lay down such a regulatory scheme, do not apply to non-power reactor sites containing less than a formula quantity of SNM. Similarly, §73.55 pertains only to power reactors.

In order to determine the applicability of 10 CFR §73.40(a) to UCLA, it is helpful to trace the history of the requirements that licensees protect against sabotage. We begin with the AEC's Memorandum and Order in *Florida Power & Light Co.* (Turkey Point Nuclear Generating Station, Units 3 and 4), 3 AEC 173 (1967) where, in answer to a certified question, the Commission stated ". . . protection against possible sabotage is a matter to be dealt with at the operating license stage. At such later stage we would expect the staff, in accordance with its practice, to assure that appropriate industrial security measures are provided for by the applicant." 3 AEC at 174.

Subsequently, in *Trustees of Columbia University*, 4 AEC 349 (1970), the Appeal Board, relying on *Turkey Point*, held that University reactors must take measures to protect against sabotage. That Board stated

[t]hus, as respects the possibility of industrial sabotage or civil disturbance, it will properly be the role of the Board to determine, on the basis of the record, whether applicant's proposed industrial security measures for this particular facility are adequate. In evaluating the adequacy of those security measures, their effectiveness in preventing any credible hazards to the public should be examined, as should be the inherent and engineered safety characteristics of the facility which bear on the matter. (4 AEC at 353, footnote omitted.)

In its Decision in the *Columbia* case (4 AEC 849), the Appeal Board examined and approved with certain conditions the applicant's physical security plan (4 AEC at 855-56, 870). In so doing, that Board noted that there were no regulatory standards for evaluating the plan and found it necessary to establish conditions which would provide for protection of the public health and safety.

The requirement that licensees protect against potential sabotage appears to have been formalized in the regulation on November 4, 1973. On that date the AEC published final rules governing the physical protection of plants and materials. Among those rules was 10 CFR §73.40, a new provision, which read:

Each licensee shall provide physical protection against industrial sabotage and against theft of special nuclear material at fixed sites where licensed activities are conducted. Security plans submitted to the Commission for approval shall be followed by the licensee after March 6, 1974. 38 Fed. Reg. 30537 at 30540.

This provision had not been included in the proposed amendments to Part 73, but a similar provision was included in proposed amendments to Part 50. (See 38 Fed. Reg. 3073 and 3082 (February 1, 1973).) In the proposed amendments to Part 73, proposed §73.1(c), labeled "Purpose and Scope," limited the applicability of Part 73 to Part 70 licensees. The rule proposed under Part 50 read:

§50.55c Physical protection requirements for nuclear reactors.

Each licensee authorized to operate a nuclear reactor shall provide appropriate protection against industrial sabotage.

The statement of considerations accompanying this proposal indicates that ". . . nuclear reactor licensees would be required to protect their facilities against industrial sabotage." The statement goes on to note that, in view of the imminent publication of a standard on this subject relating to power reactors by the American Nuclear Society, no detailed requirements were being specified. (See 38 Fed. Reg. 3073.)

The statement of considerations accompanying the promulgation of §73.40 does not specifically refer to proposed §50.55c. It does, however, note that the amendments to Part 73 consolidate all fixed-site physical protection requirements in Part 73. Accordingly, it is evident that proposed §50.55c was dropped in favor of §73.40.

While the statement of considerations accompanying proposed §50.55c indicates that the Commission was primarily concerned with power reactor licenses, it is obvious that both proposed §50.55c and §73.40 apply to all

licensees without limitations. The Appeal Board's hold in *Columbia, supra*, was in no way modified. We therefore conclude that when promulgated §73.40 was intended to apply to University reactors licensed pursuant to §104(c) of the Atomic Energy Act.

The question remains whether, in the course of adopting substantial amendments to Part 73, the Commission has modified the scope of §73.40. We begin our discussion by noting the fact that, although §73.40 itself has been amended, the first sentence of that section has been modified only once. That modification changed the term "industrial sabotage" to "radiological sabotage." The applicability of that sentence to all licensees has not been changed.

Promulgated with §73.40 were §§73.50 and 73.60. These contained specific requirements applicable to licensees who possessed a formula quantity of SSNM. In 1977, §73.55 was added, setting down specific requirements for the protection of power reactors against sabotage. (*See* 42 Fed. Reg. 10828 (February 24, 1977), as amended 42 Fed. Reg. 51607 (Sept. 29, 1977).)

Also in 1977, the Commission announced that it was considering amendments to Part 73 to strengthen the physical protection provided SSNM. In the statement of consideration accompanying the proposal, the Commission noted that the rules would apply to non-power reactor licensees possessing formula quantities of SSNM. The Commission also noted that the strengthened requirements, while designed to prevent theft, would also provide additional protection against sabotage. (*See* 42 Fed. Reg. 34310, (July 5, 1977).)

In response to comments received on this proposal, the Commission revised the proposal and published the revision for comment. (*See* 43 Fed. Reg. 35321 (August 9, 1978).) Some of the comments received indicated confusion with regard to the proposed regulations' applicability to research reactors. Generally, commenters believed that research reactors should not have to meet such stringent requirements, noting that in many cases the cost of such requirements might be prohibitive. In response to these comments, the Commission clarified its intent regarding coverage. In so doing the Commission noted that "[c]overage for research reactors having less than the formula quantity of strategic special nuclear material would continue . . . under §73.40." (43 Fed. Reg. at 35235.) At the time this statement was made, no specific provision of Part 73 governed research reactor licensees with less than a formula quantity of SSNM other than §73.40.

Also at the time the statement was made, there was pending another proposed amendment to Part 73 governing these particular licensees. This proposal, designed to provide protection against theft (*See* 43 Fed. Reg.

22216 (May 24, 1978)), ultimately led to the adoption of §73.67 of Part 73. (Adopted as §73.47, 44 Fed. Reg. 43280 (July 24, 1979); redesignated §73.67, 44 Fed. Reg. 68198 (Nov. 28, 1979).)

On adoption of this provision, the Commission noted that although the provision was designed to be equivalent to the international Atomic Energy Agency's recommendations contained in INFCIRC/225 Rev. 1, it did not provide for protection against sabotage. INFCIRC/225 Rev. 1, on the other hand, covered both theft and sabotage. (*See* 44 FR 43280 (July 24, 1979).) No explanation for this difference was offered. Nor was the coverage of §73.40 in any way limited.

After considering the comments received on its August 9, 1978, proposal (which dealt with physical protection for non-power reactor facilities possessing a formula quantity of SSNM), the Commission promulgated rules. These rules differed from the proposed rules in that non-power reactor licensees were not required to comply with the stringent requirements on which they had adversely commented as noted in the August 9 revised proposal. Rather, they were required to comply with §73.67(a), (b), (c), and (d), and, where applicable, §73.60. The latter section also required compliance with §73.40(b), (c), and (d). The Commission noted that this was an interim solution only, and that it intended to bring non-power reactor licensees under an improved regulatory system. (*See* 44 Fed. Reg. 68184 (November 28, 1979).)

No further substantive changes have been made in the regulations with which we are concerned. However, as noted above, the Commission has published a proposed rule to improve the safeguards system for non-power reactor licensees possessing a formula quantity of SSNM. (*See* 46 Fed. Reg. 46333 (September 18, 1981).) This proposal eliminates §73.60 and amends §73.67 to state specific requirements for these licensees. These requirements provide additional protection against theft of SNM. They omit any requirement that such licensees comply with §73.40(b), (c), and (d). And they make no change in the applicability of §73.40(a).

From the above we conclude that the provisions of §73.40(a), which have remained unchanged over a period of almost ten years despite substantial rulemaking on the subject of physical security, are applicable to Class 104(c) licensees. Where the Commission has set down detailed requirements, we conclude that these are intended to satisfy the general requirements of §73.40. Where no detailed requirements have been set out, we conclude that some measures nonetheless must be taken to satisfy the §73.40(a) general requirements.

In the instant case, assuming that there is (or will be) less than a formula quantity of SSNM on hand at the NEL, this means that UCLA must institute some means of providing physical protection against sabotage.

Because, under this assumption, §73.40(b), (c), and (d) and §73.60 are not applicable, these means necessarily must be less stringent than the requirements of those regulations. What these means should be is properly a subject for the parties to address.

F.

The foregoing discussion of Part 73 has ranged far beyond the arguments put forward by the parties and has addressed a complex portion of the regulations which may be charitably described as murky. Consequently the Board will entertain motions to reconsider its holdings set out in Sections B, C, and E above. Such motions must be filed by August 15, 1983. Responses in support of motions must be filed by August 25, 1983, and responses in opposition by September 12, 1983. No further responses will be considered without leave of the Board.

In consideration of all the foregoing, it is this 11th day of May, 1983, 1983,

ORDERED

1. Staff's Motion for Summary Disposition is denied.
2. Staff is to physically inventory the SNM on hand at the Nuclear Energy Laboratory at UCLA and report its findings to the Board and Parties as soon as reasonably possible.
3. The parties may comment on Staff's report under ¶2, indicating their views as to what if any further proceedings are necessary in light of the report within 15 days of the service of the report. Responses to the comments of any party may be filed by another party within five days of the service of the comments. No further response will be entertained absent a showing of good cause.
4. By August 15, 1983, any party may seek reconsideration of Sections B, C, and E of this Memorandum and Order. Responses in support of motions to reconsider must be filed by August 25, 1983, and responses in

opposition by September 12, 1983. Absent good cause shown, no further filings will be entertained.

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**Glenn O. Bright
ADMINISTRATIVE JUDGE**

**Emmeth A. Luebke
ADMINISTRATIVE JUDGE**

**John H Frye, III, Chairman
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland
May 11, 1983**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Charles Bechhoefer, Chairman
Dr. James C. Lamb
Mr. Ernest E. Hill**

In the Matter of

**Docket Nos. STN 50-498-OL
STN 50-499-OL
(ASLBP No. 79-421-07-OL)**

**HOUSTON LIGHTING AND
POWER COMPANY, *et al.*
(South Texas Project,
Units 1 and 2)**

May 18, 1983

The Licensing Board grants an interested State an extension of time for discovery on certain issues.

**RULES OF PRACTICE: PARTICIPATION BY AN
INTERESTED STATE OR LOCAL GOVERNMENT**

An interested State, once admitted to a proceeding, must observe the procedural requirements applicable to other participants. But the facts and circumstances giving rise to "good cause" for granting an extension of time to an interested State may not be co-extensive with those warranting that action for another party.

RULES OF PRACTICE: EXTENSIONS OF TIME

A change in administration in a State may be taken into account in determining whether that State has shown "good cause" for an extension of time for discovery.

MEMORANDUM AND ORDER (Granting Attorney General of Texas' Motion for Extension of Discovery Deadline)

By motion dated April 21, 1983, the Attorney General of Texas requests a 90-day extension for the State of Texas of the discovery period for Phase II of this operating license proceeding. In their response dated May 3, 1983, the Applicants offer no objection to such an extension. The NRC Staff, by response dated May 6, 1983, opposes Texas' request. For the reasons which follow, we believe that Texas should be afforded additional discovery time for Phase II issues and that its motion should be granted.

Texas was admitted to this proceeding as an interested State pursuant to 10 CFR §2.715(c) by our Prehearing Conference Order dated April 3, 1979 (LBP-79-10, 9 NRC 439). It did not actively participate in Phase I of this proceeding. At the close of Phase I, we determined that discovery for Phase II would extend for 90 days, commencing with the receipt by parties of the NRC Staff's review of the Quadrex Report. See Memorandum dated June 24, 1982 (unpublished). That review was served on the parties on January 17, 1983; taking into account service time, the ninety-day discovery period expired on April 25, 1983.

Texas indicates that it wishes to participate "effectively and comprehensively" in Phase II but that, as a result of a change in administration in Texas in January, 1983, and the transition activities related thereto, it has been unable thus far to review the voluminous material bearing upon the Quadrex Report (one of the subjects to be considered in Phase II). It recognizes that a delay in the commencement of the Phase II hearings could possibly result from our granting its request. But it asks us to recognize the "unique circumstances created by the electoral process in the State of Texas and the heavy burden placed on a new office holder in a statewide position," and to grant its motion "as a matter of comity and in the interest of developing a complete record." It adds that the delay would have no impact either on the extended operating date for this facility or on the Commission's mandate for an early decision on Phase I issues.

The Applicants acknowledge the "unique circumstances" referred to by Texas, but they note (correctly in our view) that those particular circumstances only apply to the State. They would have the 90-day extension run from the expiration date of the original Phase II discovery period.

On the other hand, the NRC Staff, in opposing Texas' request, refuses to give any weight to the "unique circumstances" referenced by the State of Texas. Indeed, it barely refers to the change of administrations on which Texas is relying. Nor does it discuss the relationship of the request to the timeliness of various licensing activities. Instead, it bases its opposition on the fact that the only Quadrex-related document which has not been available to Texas for substantially more than three months is the Staff review of the Quadrex Report (I&E Report 82-12, NUREG-0948); and on the circumstance that, in June 1982, when we established the Phase II schedule, Texas sought no additional time for discovery.

We recognize, as the Staff observes, that an interested State, once admitted to a proceeding, "must observe the procedural requirements applicable to other participants." *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760, 768 (1977). Every party, however, may seek modification for "good cause" of time limits previously set by a Board. 10 CFR §2.711 (a). Moreover, "good cause," by its very nature, must be an *ad hoc* determination based on the facts and circumstances applicable to the particular determination.

Although an interested State must observe applicable procedural requirements, including time limits, the facts and circumstances which would constitute "good cause" for extending the time available to a State may not be co-extensive with those warranting that action for another party. States need not, although they may, take a position with respect to an issue in order to participate in the resolution of that issue. See 10 CFR §2.715(c). Reflecting political changes which uniquely bear upon bodies such as States, a State's position on an issue (and the degree of its participation with respect to that issue) might understandably change during the course of a Board's consideration of the issue. The Commission itself has recognized such factors, and it has permitted States to participate even where contrary to a procedural requirement which might bar another party's participation. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-77-25, 6 NRC 535 (1977). In doing so, it observed that "the participation of an interested sovereign state in our licensing process, as a full party or otherwise, is always desirable * * *" (*id.* at 537).

These considerations compel us to reject the Staff's view and grant Texas an extension of time for Phase II discovery. Such action will not, in our view, unduly delay this proceeding or adversely affect any party. (The Staff

has not claimed to the contrary.) Moreover, effective participation by Texas in the resolution of the Quadrex Report issues — as well as the hurricane issue which is also to be heard in Phase II — warrants granting Texas additional time for discovery.

Because Texas likely could not justify assigning personnel to Phase II discovery in the absence of a favorable ruling on its request, we will grant Texas 90 days from the service of this Memorandum and Order to complete its discovery on Phase II issues. *See* 10 CFR §2.710. This time limit governs Texas' discovery on both the Quadrex Report issues and on Contention 4 (hurricanes).

Therefore, it is, this 18th day of May, 1983,

ORDERED

That the State of Texas' Motion for Extension of Discovery Deadline is *granted*, under the terms set forth above.

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**Charles Bechhoefer, Chairman
ADMINISTRATIVE JUDGE**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Sheldon J. Wolfe, Chairman
Dr. Walter H. Jordan
Dr. Harry Foreman**

In the Matter of

**Docket No. 50-382-OL
(ASLBP No. 79-417-06-OL)**

**LOUISIANA POWER AND LIGHT
COMPANY**

**(Waterford Steam Electric
Station, Unit 3)**

May 26, 1983

The Licensing Board issues its second of two partial initial decisions in this operating license proceeding for the Waterford Steam Electric Station, Unit 3. The Licensing Board orders that the Director of Nuclear Reactor Regulation is authorized to issue to the Applicant, upon making requisite findings with respect to matters not embraced in this second Partial Initial Decision, and subject to the conditions set forth in the first Partial Initial Decision of November 3, 1982, LBP-82-100, 16 NRC 1550 (as modified by the Board's Memorandum and Order of December 14, 1982, LBP-82-112, 16 NRC 1901), a license authorizing operation of the Waterford Steam Electric Station, Unit 3.

**EMERGENCY PLANS: PUBLIC INFORMATION
(EDUCATION)**

A pre-emergency public information brochure must meet the requirements of 10 CFR §50.47 and 10 CFR Part 50, Appendix E, as well as the criteria of NUREG-0654.

EMERGENCY PLANS: PUBLIC INFORMATION (EDUCATION)

The purpose of a pre-emergency public information brochure is informational/educational, and is not intended to motivate individuals either to evacuate or to follow certain procedures. Its most important function is to prepare people to turn on their radio and television stations upon the activation of the sirens in order to find out what actions they might be asked to take at that time.

EMERGENCY PLANS: EVACUATION

10 CFR §50.47(a) precludes the Licensing Board from requiring a practice evacuation.

TECHNICAL ISSUE DISCUSSED

Emergency Plans.

APPEARANCES

Bruce W. Churchill, Esq., Ernest L. Blake, Jr., Esq., James B. Hamlin, Esq., and Delissa A. Ridgway, Esq., for the Applicant

Sherwin E. Turk, Esq., and Geary S. Mizuno, Esq., for the United States Nuclear Regulatory Commission

Brian P. Cassidy, Esq., for the Federal Emergency Management Agency

Luke B. Fontana, Esq., and Gary L. Groesch for the Joint Intervenors, Save Our Wetlands, Inc. and Oystershell Alliance

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PARTIAL INITIAL DECISION

OPINION

I. INTRODUCTION

A. Background

This is the second of two partial initial decisions on the application for an operating license for the Waterford Steam Electric Station, Unit 3. This facility is located on the west bank of the Mississippi, about 24 miles west of New Orleans, Louisiana.

The first partial initial decision dealt with the following issues: synergism (Joint Intervenors' Contention 8/9); emergency planning (Joint Intervenors' Contention 17/26(1)); and potassium iodide (Joint Intervenors' Contention 17/26(2)).¹ The Board did not, however, decide a subpart of the emergency planning contention (Joint Intervenors' Contention 17/26(1)(a)), because, after the close of the record on May 12, 1982 and after reviewing the parties' submissions, we found the record inadequate. The pre-emergency public information brochure had not been drafted at the time of hearing and had not been submitted into evidence. Contention 17/26(1)(a) asserts that:

Applicant has failed to adequately make provision, according to the Emergency Plan contained in Chapter 13.3 of the FSAR, for evacuation of individuals located within the 10-mile plume exposure pathway emergency planning zone for the Waterford 3 site in the event of a serious reactor incident, as required by applicable NRC regulations, in that:

- (a) the provisions for notifying residents of evacuation procedures are inadequate.

On July 19, 1982, for informational purposes, Applicant furnished printer's proofs of the brochure. In a Memorandum and Order of August 17, 1982 (LBP-82-66, 16 NRC 730), the Board (a) reopened the record, (b) directed that Applicant assign an exhibit number to the brochure, and (c) ordered that the NRC Staff, the Federal Emergency Management Agency (FEMA), Joint Intervenors, and the Applicant should submit comments upon the adequacy of the brochure, and should recommend to the Board for its determination whether the record had been reopened only to admit

¹ LBP-82-100, 16 NRC 1550 (1982), as modified by the Memorandum and Order, LBP-82-112, 16 NRC 1901 (1982).

as exhibits the brochure and the comments, or, in addition whether cross-examination would be necessary.

On August 19 and 20, 1982, Applicant formally submitted copies of the printer's proof of the brochure and of a color sketch, and marked these documents respectively as Applicant's Exhibits 11 and 12. After the Staff and FEMA on September 1, 1982, and after the Joint Intervenors on September 15, 1982, had submitted their comments, on September 23, 1982, the Applicant (a) advised that it was currently editing the brochure to reflect these comments, (b) requested leave to withdraw its proposed exhibits 11 and 12 and requested permission to submit a revised brochure in response to these comments, and (c) requested that an evidentiary hearing be scheduled to resolve the limited issue of the adequacy of the revised brochure.

The Board's Memorandum and Order of October 18, 1982, (unpublished) ruled that (a) Applicant's initially proposed public information brochure and cover overlay exhibits were permitted to be withdrawn, (b) the record, as reopened pursuant to the Memorandum and Order of August 17, 1982, was reopened solely to receive evidence upon the adequacy of Applicant's revised brochure, and that (c) Applicant's revised brochure should be served by November 12, 1982.

On November 12, 1982, Applicant submitted copies of the revised brochure and of the color sketch, and during the evidentiary hearings held between February 8 and February 11, 1983, these documents were admitted into evidence respectively as Applicant's Exhibits 13 and 14. A FEMA attorney appeared and participated during the hearing. On March 14, 1983, Applicant filed its proposed findings of fact, conclusions of law, and brief in the form of a proposed partial initial decision. The Joint Intervenors filed proposed findings of fact and conclusions of law, and brief in the form of a proposed partial initial decision on April 1, 1983. Staff's proposed findings of fact, conclusions of law, and brief in the form of a proposed partial initial decision were submitted on April 12, 1983. Applicant filed its reply on April 22, 1983.

B. Scope of Opinion and Findings

The Board's Findings of Fact and Conclusions of Law are appended and are incorporated by reference. An Order is also appended.

Part II of this Opinion sets forth the pertinent regulations.

Part III presents certain uncontested facts in order that (a) the form of the revised brochure can be visualized, (b) some of the contents of the revised brochure and the methods of distribution can be described, (c) the Staff's and FEMA's reviews and evaluations can be reflected, and (d)

the Board's recommended changes and/or modifications to the revised brochure can be set forth.

It should be noted that upon the closing of the record, pursuant to 10 CFR §2.754, the Board directed the parties to file proposed findings of fact, conclusions of law and briefs (Tr. 4886-87). Since the Joint Intervenors' proposed findings and brief addressed only certain of the facts which they had contested either in their case-in-chief or in cross-examination, we deem that the balance of the controverted facts have been abandoned. For example, Joint Intervenors no longer either contend that the panels of the brochure should be numbered or criticize the use of repetition.

Part IV of this Opinion discusses and resolves the facts remaining in controversy. Part V reflects our conclusions.

Our underlying findings upon contested facts are set forth in the appended Findings of Fact.

Finally, it should be noted that all of the proposed findings of fact and conclusions of law submitted by the parties that are not incorporated directly or inferentially in this Partial Initial Decision are rejected as unsupported in law or fact or as unnecessary to the rendering of this Partial Initial Decision.

II. PERTINENT REGULATIONS

10 CFR §50.47(b)(7) requires that:

Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

10 CFR Part 50, App. E, §IV.D.2 states:

Provisions shall be described for yearly dissemination to the public within the plume exposure pathway EPZ of basic emergency planning information, such as the methods and times required for public notification and the protective actions planned if an accident occurs, general information as to the nature and effects of radiation, and a listing of local broadcast stations that will be used for dissemination of information during an emergency. Signs or other measures shall also be used to disseminate to any transient population within the plume exposure pathway EPZ appropriate information that would be helpful if an accident occurs.

Criteria II G. of NUREG-0654/FEMA-REP-1 (Rev. 1) states that:

1. Each organization shall provide a coordinated periodic (at least annually) dissemination of information to the public regarding how they will be notified and what their actions should be in an emergency. This information shall include, but not necessarily be limited to:
 - a. educational information on radiation;
 - b. contact for additional information;
 - c. protective measures, *e.g.*, evacuation routes and relocation centers, sheltering, respiratory protection, radioprotective drugs; and
 - d. special needs of the handicapped.

Means for accomplishing this dissemination may include, but are not necessarily limited to: information in the telephone book; periodic information in utility bills; posting in public areas; and publications distributed on an annual basis.

III. UNCONTESTED FACTS

1. The revised pre-emergency public information brochure for Waterford 3 is entitled "Safety Information — Plans To Help You During Emergencies." It unfolds and is about the size of a standard road map; this folding type brochure is typical of many of the brochures prepared for other nuclear power plants. Upon being unfolded, the brochure has an initial panel headed "What To Do If You Hear The Outdoor Sirens." Upon hearing the sirens, readers are told to turn on the radio or television and to take certain actions if they are told to protect their breathing, or if they are told to shelter in place or if they are told to evacuate (Tr. 4326; Appl's. Ex. 13).

2. Upon being unfolded the revised brochure contains appropriately captioned individual panels or sections of panels which further explicate in detail that which is summarized in the initial panel. There is some repetition throughout the brochure in that, for example, readers repeatedly are told to turn on their radios or television sets at specified settings after hearing the outdoor sirens. When opened entirely, the brochure contains an evacuation map, divided into four approximately 90° sectors, each differently colored within the circled 10 mile emergency planning zone (EPZ), and each sector is divided into four radial protective action sections.² Also on that page of the fully opened brochure is a "Chart for the

² Applicant's Exhibit 14 is a color sketch which will be enlarged and superimposed over the map in the final version of the brochure (Appl's. testimony, fol. Tr. 4066 at 3).

16 Sections Around Waterford 3," which identifies evacuation routes, reception centers and pickup points, and which will be color-keyed to the map. The map and the chart show readers in St. Charles Parish and St. John the Baptist Parish how to move out of their areas within the 10 mile EPZ if they are told by the broadcasting media to evacuate (Appl's. Exs. 13 and 14; Appl's. testimony, fol. Tr. 4066 at 3-4).

3. The NRC Staff's comments upon earlier drafts and upon the initially proposed brochure were adequately responded to in the revised brochure (Staff's testimony, fol. Tr. 4599 at 3).³ However, since the brochure primarily relates to offsite emergency preparedness, it is basically FEMA's function to review and evaluate the adequacy of the brochure. The Staff will review FEMA's comments on the adequacy of the brochure and will confirm that Applicant has incorporated these comments into the brochure before issuing a full power operating license (Staff's testimony, fol. Tr. 4599 at 3-4).

4. FEMA evaluated the revised brochure, and concluded that it meets the criteria set forth in NUREG-0654, Criteria II G.1.a.-d⁴ and that it was clear, concise and well organized (FEMA testimony, fol. Tr. 4570 at 2-4).

5. The brochures will be mailed annually to residents located within the 10 mile EPZ, although this method of distribution has not yet been identified in the State of Louisiana's Peacetime Response Plan (Appl's. Ex. 3; Appl's. testimony, fol. Tr. 2218 at 7 and fol. Tr. 2258 at 4; FEMA testimony, fol. Tr. 2864 at 4; Tr. 3926). In addition, brochures will be distributed in bulk, or posters containing such information will be provided to area industries, hotels, motels, post offices, libraries and other public areas. Information will also be provided in local telephone directories (Appl's. testimony, fol. Tr. 2218 at 7 and fol. Tr. 2258 at 4). The NRC Staff will verify that this distribution has taken place prior to issuance of the operating license (Tr. 3853; Staff's testimony fol. Tr. 4599 at 4).

6. Various suggestions with respect to the revised brochure were advanced in the Staff's, Joint Intervenors' and FEMA's prefiled testimonies and were elicited also upon cross-examination and upon Board

³ Prior to the reopened hearing, FEMA and the Staff did have one additional concern about the initial paragraph in section 5 of the revised brochure under the main heading "What To Do If You Are Told To Evacuate." Both concluded that this paragraph would be confusing to parents because, in the event of an emergency arising while schools were in session, parents would be uncertain whether to await the arrival at home of their children or to evacuate themselves and assume the schools would take the children to the designated reception center (FEMA testimony, fol. Tr. 4570 at 5; Tr. 4605). However, at the beginning of the reopened hearing, Applicant made certain modifications and deletions, and, except for the subheading of section 5, this paragraph was deleted (Tr. 4075). FEMA's and Staff's concern was thus obviated (Tr. 4572; Tr. 4605).

⁴ It should be noted that the revised brochure does not contain information upon radioprotective drugs. The State of Louisiana has decided that these radioprotective drugs will not be made available to the general public (Tr. 4345; see Partial Initial Decision, LBP-82-100, 16 NRC 1586-87, finding 87).

questioning. Moreover, as indicated in footnote 3, *supra*, at the beginning of the reopened hearing, Applicant made certain modifications and deletions. The Board recommends that the following changes and/or modifications be made to the revised brochure:⁵

- a. Under the main heading "What To Do If You Are Told To Evacuate," the first paragraph should be deleted in section 5 following the subheading "Locate Your Children's Reception Center" (*see* footnote 3, *supra*).
- b. The "Chart for the 16 Sections Around Waterford 3" has five columns, the last one headed "Schools & Pickup Points." The words "Schools &" should be deleted. This deletion should be effected lest parents be confused by other parts of the revised brochure which state that in the event of an evacuation, they should not pick up their children at school but rather should meet their children at reception centers identified in the chart (Tr. 4874-76).
- c. To make it easier to find pickup points, all pickup points should be numbered on the chart, with each number being placed inside a triangle. Corresponding numbers, also inside triangles, should be placed in the proper location on the map in lieu of black dots. The next to the last sentence in section 4 under the main heading "What To Do If You Are Told To Evacuate" should be replaced by sentences reading that "Each pickup point in the chart has a number. To locate a pickup point on the map, look for the triangle with that number on it. Choose the pickup point closest to your home" (Jt. Inters.' testimony, fol. Tr. 4419 at 5; Tr. 4072-73).
- d. In order to provide a natural sequence, the section headed "What Radiation Is," and the following section headed "Radiation Emergencies," should be moved to the far left of the folded page on which they appear, so that said sections precede the main heading for four sections captioned "Emergency Action Plans" (Jt. Inters.' testimony, fol. Tr. 4419 at 3; Tr. 4824; Tr. 4841).
- e. In order to emphasize that it is the main heading for the four successive sections, the size of the type for the main heading "Emergency Action Plans" should be increased in size (Tr. 4871-72).
- f. In order to enhance its eye-catching ability, type of the panel's heading "What To Do If You Hear The Outdoor Sirens" should

⁵ Since the following changes and/or modifications were not opposed by any party and since the Applicant has agreed to effect them, there is no need to set them forth as conditions in our Order, *infra*. The Staff is requested to ascertain that these recommended changes and modifications have been implemented.

- be enlarged to the increased size of the heading "Emergency Action Plans" (Tr. 4848-52; 4873).
- g. Since it is the main heading of a section referencing three successive headings of sections which identify the three actions the reader might be asked to take, the size of the type should be enlarged for this main heading "What Are The Actions You Might Need To Take," or, alternatively, the word "Actions" should be highlighted by the use of bolder face type (Tr. 4877-79).
 - h. Since certain evacuation procedures to be followed in an actual emergency (such as, for example, use of certain evacuation routes and reception centers) may not necessarily be the same as those specified in the brochure, a notation in bold lettering should be incorporated into the brochure notifying the public that, if evacuation procedures are broadcast during an emergency which differ from those set forth in the brochure, the procedures announced at the time of the emergency should be followed (Tr. 4778, 4796, 4815-17).

IV. ADEQUACY OF THE REVISED PUBLIC INFORMATION BROCHURE

A. Development of the Revised Brochure⁶ (Fdgs. 1-3)

Joint Intervenors argue that the first sentence of the second panel of the brochure captioned "A Message to Our Neighbors and Friends" will seriously diminish the credibility of the brochure. The sentence states that "Your State and Parish governments have prepared this booklet to tell you what to do if there is an emergency at Waterford 3." They assert that, because this sentence fails to reflect that Applicant was the prime preparer of the brochure, readers will find out that Applicant prepared it and will possibly not trust it (Jt. Inters.' proposed finding 2 and fifth conclusion of law). However, there is no evidentiary basis for this argument. While Applicant initiated preparation of the brochure, the record reflects and we conclude that the early drafts, the initially proposed brochure, as well as the revised

⁶ In regard to the development of the revised brochure, Joint Intervenors' proposed finding of fact 1, and most of their proposed opinion upon this subject improperly presented arguments excepting to rulings made by the Board, ranged beyond the scope of the limited issue, and criticized the initially proposed brochure which had been withdrawn as an exhibit.

brochure were products of the joint effort of Applicant and of the State and Parish emergency planning officials.⁷

B. Purpose of the Revised Brochure (Fdgs. 4-6)

The Joint Intervenors presented testimony to the effect that the purpose of the brochure is to persuade individuals to follow certain procedures in evacuating the area around Waterford 3 in the event of an emergency. They argue that the brochure, as a motivational tool, will be ineffective because (1) the communicators may be disliked or be deemed untrustworthy, and, in the absence of a definitive study assessing the trustworthiness and credibility of the communicators, the public may discard the brochure or act contrary to its message,⁸ (2) behavior modification theories support their conclusion that an inadequate level of fear is aroused by the brochure, and that, since the level of fear in persons more distant from the plant is lower, separate brochures with higher fear appeals should be prepared for them,⁹ and because (3) there is no provision for a practice evacuation — such a provision would cause people to read the brochure more carefully and the actual holding of a practice evacuation would increase their confidence to take action.¹⁰

Because of her lack of expertise in the subject matter, we have given no weight to the testimony of Joint Intervenors' witness, Dr. Sandra Hunter. She is a social psychologist who specializes in researching to understand why children adopt certain health habits rather than other ones and in motivating them to adopt healthier lifestyles, such as giving up smoking, developing less aggressive behavioral characteristics, and slowing down their eating habits. Dr. Hunter had never participated in preparing emergency information brochures or in developing disaster plans. She was unfamiliar with the Commission's requirements for the development of radiological emergency response plans; she had not read any federal regulations such as 10 CFR §50.47, Appendix E to 10 CFR Part 50, and

⁷ The Staff submitted comments to Applicant upon these earlier drafts. Further, pursuant to our Memorandum and Order of August 17, 1982, the Staff and FEMA, and the Joint Intervenors also participated in submitting comments upon the initially proposed brochure respectively on September 1 and September 15, 1982. Concentrating on the readability of the document, Applicant incorporated these comments into the revised brochure (See Part 1A, *supra*, and findings, *infra*).

⁸ In passing, we note that, in support of this portion of the argument, Joint Intervenors' witness merely testified that "Many people are skeptical of the communications of public agents, salesmen, politicians, and purveyors of products advertised in radio and television commercials."

⁹ Again, in passing, we note that Joint Intervenors' witness was unaware of any studies and had conducted none of her own to determine that fear levels differed in areas surrounding nuclear plants.

¹⁰ Finally, in passing, it should be noted that 10 CFR §50.47(a) precludes us from requiring such a practice evacuation.

NUREG-0654/FEMA REP-1 (Rev.1). She had never reviewed the emergency public information brochures prepared by other nuclear generating plants. She was unable to cite any civil defense or NRC or FEMA documents which supported her position as to the purpose of the pre-emergency public information brochure. Finally, she did not know of any general emergencies in which ineffective evacuations were attributable to the non-persuasive nature of the pre-emergency public information materials.

Our review of the pertinent regulations has led us to conclude that the purpose of a pre-emergency public information brochure is informational/educational (*see* Part II, *supra*). Moreover, we have been convinced by Applicant's expert witnesses that the brochure is not intended to motivate individuals to either evacuate or to follow certain procedures. Because a situation-specific emergency might necessitate a response other than evacuation or require that procedures be followed which differ from those set forth in the brochure, it would be dangerous, in advance of an emergency, to motivate the public to evacuate or to follow specific procedures when an actual emergency occurs. The most important informational function of the brochure is to prepare people to turn on their radio and television stations upon the activation of the sirens in order to find out what actions they might be asked to take at that time.

C. Content of the Revised Brochure

The Section Captioned "Radiation Emergencies" (Fdgs. 7-9)

A section of a panel captioned "Radiation Emergencies" lists four kinds of emergencies — unusual event, alert, site emergency and general emergency. Singling out a sentence in each of the two lowest classifications of emergencies (*i.e.*, unusual event, and alert), which instructs the reader that no action will have to be taken or that it is unlikely that any action will have to be taken, the Joint Intervenors argue that the public will be confused, thinking that, despite these instructions, some immediate action should be taken because all four classifications are listed as "emergencies." There is no evidence in the record supporting this argument.

The four classifications, being basic emergency planning information, are required by 10 CFR Part 50, Appendix E, §IV.D.2 to be set forth in public information brochures. The Joint Intervenors do not challenge this requirement; they urge merely that the wording, in some unspecified manner, be changed to something less confusing. Applicant's witness testified that there would be no confusion, because, having been so instructed in numerous places throughout the brochure, the public would know to

turn on radios and television sets upon the activation of outdoor sirens and would be advised that no action need be taken or that it was unlikely that any action would have to be taken. We have disregarded the witness's opinion. Sirens will not be activated in the event either of the two lowest classifications has been initiated inasmuch as only a minor problem will have arisen. Clearly, as written, it was intended that only the two highest classifications (*i.e.*, site emergency, in the event of a more severe problem at the plant, and a general emergency, in the event of the most severe kind of emergency) would contain the language instructing members of the public to listen to the broadcasting media upon the activation of sirens. Moreover, this intentment is obvious because the language of this section tracks that utilized in NUREG-0654, Appendix 1.

After reviewing all of the language in the two lowest classifications, rather than singling out a sentence from each, we conclude that the message is clear and that the public will not be confused. Readers should understand that, if either of the two lowest classifications is initiated, only Federal, State and Parish officials will be notified because no more than a minor problem has arisen at the plant, and thus that they will not have to do anything or it is unlikely that they will have to take any action.

The Section Captioned "What Radiation Is" (Fdgs. 10-11)

The section captioned "What Radiation Is" generally and in a non-technical manner discusses this subject. The Joint Intervenor, in substance, allege that this section contains inaccurate technical information about radioactivity and nuclear power plants in general, and that it does not apprise the reader that radiation can harm humans.

We have carefully reviewed the record on this matter. We conclude that this section adequately informs the reader what radiation is. While some of the information on radiation and upon nuclear power plants in general is not absolutely correct from a technical standpoint, any revisions made to secure absolute technical accuracy would render this information incomprehensible to the general public. We note that the Joint Intervenor selectively quote the first two sentences of a paragraph from an initial decision, *Consumers Power Co. (Big Rock Point Plant)*, LBP-82-60, 16 NRC 540 (1982). The entire paragraph reads as follows:

One attribute of an effective pamphlet is accuracy. Important inaccuracies may become known and may detract from the credibility and the necessary acceptance of the pamphlet. On the other hand, a pamphlet cannot exhaustively treat the subject of the effects of radiation and it all-too-easily can become too elaborate and extensive to

communicate effectively. If that were to occur, the pamphlet likely would go unread and its role as an action document would be defeated.

There is no evidence in this case that any technical inaccuracies have been important ones and to inflate this section to achieve textbook precision would defeat effective communication and would not enhance the public health and safety.

Finally, we do not agree that the section underplays the radiation hazards. Unlike in the *Big Rock Point* case, *supra*, where the brochure merely reassured the public "that plausible accidents could lead only to minimal doses," here the section warns the reader that, if the amount of radiation in the air is large, he must protect himself from it, and that, if there is a severe accident at Waterford 3, an emergency will be declared and he will be asked to take certain protective actions.¹¹

In sum, we conclude that the educational information on radiation set forth in the brochure adequately informs the public about the nature of radiation and complies with criterion II G.1.a. of NUREG-0654.

Primacy of Revised Brochure's Most Important Function (Fdg. 12)

As discussed above in Part IV.B, the most important function of the revised brochure is to prime the public to listen to the broadcasting media upon the activation of the sirens. The Joint Intervenor's argue that this primary function has been relegated to a secondary role and obscured because so much space has been devoted to the map and chart setting forth evacuation procedures; they cite the testimony of one of Applicant's witnesses in support of this argument.

In the first place, Applicant's witness, Dr. Klare, while agreeing that the map and chart provided very important information, testified that the most crucial information is the instruction that the public should listen to the broadcasting media after hearing the sirens. Further, repeatedly and in bold lettering, the revised brochure instructs the readers to turn on their radio or television sets at specified settings after hearing the outdoor sirens. Thus, we conclude the primary function of the revised brochure, as written, has been sufficiently highlighted and has not been obscured or downgraded by the map and chart. However, in order to remove any doubt about the prima-

¹¹ Relying on the decision in *Big Rock Point*, for the first time in this litigation, the Joint Intervenor's urge in their post-hearing submissions that a special section be added to the brochure outlining the special sensitivity of women and unborn children to radiation. The raising of this issue is rejected as untimely.

cy of the brochure's function and at the Staff's suggestion, we have recommended that a notation in bold lettering should be incorporated into the brochure notifying the public that, if evacuation procedures are broadcast during an emergency which differ from those set forth in the brochure, the procedures announced at the time of the emergency should be followed (*see* Part III, uncontested fact 6.h., *supra*).

D. Readability of the Revised Brochure (Fdgs. 13-18)

Of the 19,126 adults over the age of 25 years residing in St. Charles Parish, approximately 7.2% or 1,376 persons, and of the 15,973 adults over the age of 25 years residing in St. John the Baptist Parish, approximately 9.6% or 1,533 adults, had less than five years of schooling — *i.e.*, about 10% or less of these two populations would be unable to understand the most important parts of the brochure. Of individuals 18 years of age or over residing in St. Charles Parish, 0.7% or 166 persons, and of individuals 18 years of age or older in St. John the Baptist Parish, 0.5% or 100 persons, could not speak English well or at all. The Joint Intervenors argue that the revised brochure should be rewritten to some unspecified lower reading level and that separate brochures should be prepared for non-English speaking individuals.

We do not agree either that the revised brochure should be rewritten to some lower reading level or that separate brochures other than in the English language should be prepared. We were impressed by the testimony of Applicant's expert witness, Dr. Klare, who testified that he had rewritten the brochure to the lowest reading level that he could, consistent with accuracy and appropriateness. Further, the summary panel captioned "What To Do If You Hear The Outdoor Sirens" was written at the fourth grade level, in fact, close to the third grade level. Thus, it is reasonable to conclude that some adults who have had less than five years of schooling would be able to comprehend the initial panel which, like wording repeated throughout the brochure, has the most important informational function — *viz.* to prime the public to turn on radios and television sets upon hearing the outdoor sirens. Moreover, studies have shown that literate adults or children in the household, or friends and neighbors, would transmit the necessary information in the brochure to those unable either to understand or read the brochure, and, in fact, a panel in the brochure encourages family members to discuss the contents of the brochure between themselves and with friends and neighbors, and requests that the brochure be read to someone who is blind or does not read well. Finally, the sounding of the sirens naturally will cause many individuals, even those who have not read the revised brochure, to seek information from the broadcasting media and from other sources.

V. CONCLUSION

The Board concludes, on the basis of the testimony and exhibits in the record, that Applicant's revised pre-emergency public information brochure is adequate and meets the requirements of 10 CFR §50.47(b)(7) and 10 CFR Part 50, Appendix E, as well as the criteria of NUREG-0654. We also conclude, pursuant to 10 CFR §2.760a and 10 CFR §50.57, that the Director of Nuclear Reactor Regulation should be authorized to issue to the Applicant, upon making requisite findings with respect to matters not embraced in this Partial Initial Decision, and subject to the satisfaction of the conditions set forth in the Licensing Board's first Partial Initial Decision, LBP-82-100 (as modified by the Board's Memorandum and Order of December 14, 1982), a license authorizing operation of the Waterford Steam Electric Station, Unit 3.

FINDINGS OF FACT

A. Development of the Brochure

1. Applicant prepared some draft material for the brochure in the spring of 1982. In that period, the initial and subsequent drafts of the brochure were developed through the joint effort of the Applicant and the various state and local bodies involved in the Waterford 3 emergency planning programs, and were reviewed and commented upon by the NRC Staff.¹² In that process, public information brochures from other nuclear power plants were reviewed for background information (Tr. 4065, Appl's. testimony, fol. Tr. 4066 at 2, Tr. 4057, Tr. 4120-21, Tr. 4128, Tr. 4340-41; Staff's testimony, fol. Tr. 4599 at 3).

2. In mid-September, 1982, Applicant requested that Dr. George Klare (a professor of psychology specializing in reading, readability of written material and psychological measurement) review the initially proposed brochure and recommend changes to improve its readability. Before beginning his assignment, he reviewed, for readability, all brochures currently in use at nuclear power plants. After Dr. Klare completed his first edit, he consulted almost daily over a period of a month with Applicant's representatives. Concentrating upon improving the readability level of the document, he incorporated the comments of the State and local

¹² These State and local authorities included the Louisiana Nuclear Energy Division (LNED), the Louisiana Office of Emergency Preparedness (LOEP), St. John the Baptist Parish Office of Civil Defense, and St. Charles Parish Office of Emergency Preparedness (Appl's. testimony, fol. Tr. 4066 at 2, Tr. 4131).

authorities, of Staff and FEMA, and of the Joint Intervenors¹³ (Appl.'s testimony, fol. Tr. 4100 at 2-4, Tr. 4840-41, Tr. 4083; Staff's testimony, fol. Tr. 4599 at 2-3). In addition, at Applicant's request, Dr. Dennis Mileti reviewed and recommended changes in the brochure (Tr. 4701). Within the field of sociology, Dr. Mileti specializes in organizational and public responses to disasters and the development of emergency public information systems (Tr. 4655-58). He evaluated the text of the brochure as to whether it adequately provided information about the risk that persons might encounter in a radiological emergency, about the emergency information they might receive, and about the range of options for response that they might be asked to take (Tr. 4701; 4720). His recommended changes were incorporated into the revised brochure by Dr. Klare (Tr. 4721).

3. Based on the foregoing findings, the Board finds that the brochure has been developed iteratively through the cooperative efforts of the Applicant and of State and Parish emergency hearing officials. Further, the Staff's, FEMA's and Joint Intervenors' comments have been incorporated into the revised brochure.

B. Purpose of the Revised Brochure

4. The brochure is intended to inform members of the public what could happen in an emergency, how they would be notified as to the existence of an emergency, who will be affected, and what actions they might be asked to take¹⁴ (Tr. 4118). The most important function of this priming document is to instruct people to turn on identified radio and television stations upon the activation of the sirens (Appl.'s testimony, fol. Tr. 4066 at 1-2; Tr. 4119, 4166; Tr. 4338).

5. The purpose of the brochure is not motivational — *i.e.*, the brochure is not intended to persuade individuals either to evacuate or to follow certain procedures. Because a particular emergency might necessitate a response other than evacuation or require that procedures be followed which differ from those set forth in the brochure, it would be dangerous to attempt, in advance of an emergency, to motivate the public to evacuate or

¹³ As indicated in Part IA of the Opinion, *supra*, the Joint Intervenors furnished comments on the initially proposed brochure on September 15, 1982. Thereafter, on two or three occasions, Applicant's attorney invited Joint Intervenors' representative to discuss and work out any differences over the brochure. Joint Intervenors' representative took no action. After the issuance of the partial initial decision on November 3, 1982, Joint Intervenors decided to take a hard line and thus would not discuss further the brochure with the Applicant (Tr. 4395-4406).

¹⁴ As stated in Part III, uncontested fact 1. of the Opinion, *supra*, people might be told to protect their breathing, or to shelter in place, or to evacuate.

to follow specific procedures when an actual emergency occurs (Tr. 4172-73; Tr. 4695-96, 4700, 4778, 4796, 4815-7).

6. We find that the purpose of the revised brochure, is informational and, in being informational, complies with the regulations cited in Part II of the Opinion, *supra*.

C. Content of the Revised Brochure

The Section Captioned "Radiation Emergencies"

7. A section of one of the panels captioned "Radiation Emergencies" states that there are four kinds of emergencies at nuclear power plants and lists them as follows:

1. *Unusual Event*. A minor problem has taken place. No release of radioactive matter is expected. Federal, State and Parish officials will be told of this. You will not have to do anything.
2. *Alert*. This is also a minor problem. Small amounts of radioactive matter could be released at the plant. Federal, State and Parish officials will be told of this and will be asked to stand by. It is not likely that you will have to do anything.
3. *Site Emergency*. This is a more severe problem. Small amounts of radioactive matter could be released into the area outside of the plant. Federal, State and Parish officials will prepare to help you if you need to take special action. If such action is needed, the sirens will be turned on. You should then listen to local radio or TV stations for advice.
4. *General Emergency*. This is the most severe kind of emergency. Radioactive matter could be released outside the plant. Federal, State and Parish officials will work closely with experts at the plant. You may have to protect yourself. If action is needed, the sirens will be turned on. You should then listen to local radio or TV stations for advice.

8. 10 CFR Part 50, Appendix E, §IV.D.2 requires that basic emergency planning information should be set forth in the public information brochure.

9. As reflected in finding 7, above, a sentence in each of the two lowest classifications states either that the public will not have to take any action or that it is unlikely that any action will have to be taken. There is no evidence and none of Joint Intervenors' witnesses testified that the public will be confused because it will think it will have to take some emergency action since all four classifications are listed as "emergencies." Applicant's witness testified that the public would not be confused (Tr. 4193-4202).

The Section Captioned "What Radiation Is"

10. A section captioned "What Radiation Is" generally and in a non-technical manner discusses this subject. It states in part:

* * * * *

. . . atoms in some matter are "radioactive" and can split to form new matter. When this happens, it gives off energy called "radiation". . .

* * * * *

You live with radiation all the time, and take some into your body every day. But sometimes you must be careful how much of this radiation enters your body. If the amount of radiation in the air is large, you must protect yourself from it. Your house or some other building can often be a good shelter if there is too much radiation in the air.

* * * * *

Here is how Waterford 3 works. Uranium atoms in the "reactor core" split to produce heat. This heat makes water hot enough to produce steam. This steam is then used to make electricity in the same way electricity is made in a plant that burns coal or oil.

When the atoms in the core split, radioactive matter is formed. The plant blocks its release in several ways.

* * * * *

If there is an accident, Waterford 3 can block the release of all or most of the radiation. But in a severe accident, some radioactive matter may be released. If it is, this matter will be carried in the air. If that happens, an emergency will be declared. You may then be asked to do certain things to protect yourself until the wind carries the radioactive matter away.

11. The NRC Staff concluded that this section adequately tells the reader about radiation. While some information in the section on radiation and upon nuclear power plants in general is not absolutely technically correct, the Staff believes that any revisions made to achieve absolute technical accuracy would render this information incomprehensible to the general public. Both the Staff and FEMA conclude that II Criterion G.1.a. in NUREG-0654 has been met, with FEMA relying in part on the expertise of the Staff (Tr. 4610-12, 4615-17, 4620-21, 4625-28; FEMA testimony, fol. Tr. 4570 at 2, Tr. 4583).

Primacy of Revised Brochure's Most Important Function

12. As stated in finding 4, *supra*, the most important function of the brochure, as a priming document, is to instruct the public to turn on identified radio and television stations upon the activation of the sirens. The folding type brochure was selected rather than a leaf-turning booklet in order to accommodate the large map and chart which also provide very important information. However, the most crucial information is the instruction that the public should listen to the broadcasting media upon hearing the sirens (Tr. 4326, 4361).

D. Readability of the Revised Brochure

13. According to the 1980 census data there were 19,126 adults over the age of 25 years in St. Charles Parish and 15,973 adults over the age of 25 in St. John the Baptist Parish. It is estimated that 7.2% or 1,376 adults in St. Charles Parish and that 9.6% or 1,533 adults in St. John the Baptist Parish had less than five years of schooling — *i.e.*, about 10% or less of these two populations would be unable to understand the most important parts of the brochure (Tr. 4160, 4256-57, 4313, 4356).

14. According to the 1980 census data, 0.7% of the people 18 years of age and over, *i.e.*, 166 people, in St. Charles Parish, and 0.5% of the people 18 years and over, *i.e.*, 100 people in St. John the Baptist Parish, could not speak English well or at all (Tr. 4277-81). There is some overlapping between the 2909 persons discussed in finding 13, *supra*, and the 266 persons referred to in this finding (Tr. 4283).

15. In revising the brochure, Dr. Klare did not aim at the average reading level for the two parishes, which is much higher than the level of the brochure. Instead, he rewrote the brochure to the lowest level that he could, consistent with accuracy and appropriateness (Tr. 4111-12, 4175, 4320-21). The overall revised brochure is written at the sixth grade level, close to the fifth grade level. The summary panel captioned "What To Do If You Hear The Outdoor Sirens" is written at the fourth grade level, close to the third grade level (Tr. 4117, 4162).

16. While some adults in the plume exposure EPZ may not be able either to understand or to read the brochure written in the English language, studies have shown that literate adults or children in the household, or friends or neighbors would convey the necessary information set forth in the revised brochure (Tr. 4163-66, 4254-55, 4356-57).

17. A panel in the revised brochure captioned "A Message to Our Neighbors and Friends" reads as follows:

* * * * *

Please take the time to read this booklet now. Make sure that all members of your family understand what it says. Talk it over with your neighbors and friends. Some of them may need your help, or you may need theirs. If you know someone who is blind or does not read well, please read the booklet to them. The best way to be safe in an emergency is to know what to do and to help each other.

* * * * *

(Appl's. Ex. 13)

18. At the time of an emergency, the sounding of the outdoor sirens naturally will cause many individuals, even those who have not read the revised brochure, to seek out information from the media and from other sources, e.g., friends and neighbors (Tr. 4702-03, 4751-54, 4756, 4808).

CONCLUSIONS OF LAW

The Board has considered all of the evidence submitted by the parties. Based upon a review of the entire record in this proceeding and the foregoing Findings of Fact, the Board concludes as follows:

1. With respect and limited to Joint Intervenors' Contention 17/26(1)(a), the Board concludes, pursuant to 10 CFR §2.760a and 10 CFR §50.47, that:
 - (a) the Applicant's emergency information brochure is adequate and meets the requirements of 10 CFR § 50.47(b)(7) and 10 CFR Part 50, Appendix E, as well as the criteria of NUREG-0654, and provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, and
 - (b) the issuance of an operating license to the Applicant will not be inimical to the common defense and security or to the health and safety of the public.
2. Pursuant to 10 CFR §2.760a and 10 CFR §50.57, the Director of Nuclear Reactor Regulation should be authorized to issue to the Applicant, upon making requisite findings with respect to matters not embraced in this Partial Initial Decision, and subject to the satisfaction of the conditions set forth in the Licensing Board's first Partial Initial Decision of November 3, 1982, LBP-82-100, 16 NRC 1550 (as modified by the Board's Memorandum and Order of December 14, 1982, LBP-82-112, 16 NRC 1901), a license authorizing operation of the Waterford Steam Electric Station, Unit 3.

ORDER

WHEREFORE, IT IS ORDERED, in accordance with 10 CFR §2.760a and 10 CFR §50.57, that the Director of Nuclear Reactor Regulation is authorized to issue to the Applicant, upon making requisite findings with respect to matters not embraced in this Partial Initial Decision, and subject to the satisfaction of the conditions set forth in the Licensing Board's first Partial Initial Decision of November 3, 1982, LBP-82-100, 16 NRC 1550 (as modified by the Board's Memorandum and Order of December 14, 1982, LBP-82-112, 16 NRC 1901) a license authorizing operation of the Waterford Steam Electric Station, Unit 3.

In accordance with 10 CFR §§ 2.760, 2.762, 2.764, 2.785, and 2.786, this Partial Initial Decision shall become effective and shall constitute, with respect to matters resolved herein, the final decision of the Commission forty-five (45) days after issuance hereof, subject to any review pursuant to the above cited Rules of Practice. Exceptions to this decision may be filed within ten (10) days after service hereof. A brief in support of such exceptions may be filed within thirty (30) days thereafter, or forty (40) days in the case of the Staff. Within thirty (30) days after service of the brief of the appellant, or forty (40) days in the case of the Staff, any other party may file a brief in support of, or in opposition to such exceptions.

THE ATOMIC SAFETY AND LICENSING BOARD

Walter H. Jordan
ADMINISTRATIVE JUDGE

Harry Foreman
ADMINISTRATIVE JUDGE

Sheldon J. Wolfe, Chairman
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 26th day of May, 1983.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**James L. Kelley, Chairman
Dr. James H. Carpenter
Glenn O. Bright**

In the Matter of

**Docket Nos. 50-400
50-401
(ASLBP No. 82-468-01-OL)**

**CAROLINA POWER & LIGHT COMPANY
AND NORTH CAROLINA EASTERN
MUNICIPAL POWER AGENCY**

**(Shearon Harris Nuclear Power
Plant, Units 1 and 2)**

May 27, 1983

The Licensing Board rules that certain contentions challenging cost savings associated with generation of electricity by nuclear power compared with fossil-fired generation are barred by 10 CFR 51.53(c). The Board also rules that such alleged cost savings may not be claimed as benefits in the NEPA cost/benefit analysis for the Shearon Harris facility.

MEMORANDUM AND ORDER

**(Ruling on Cost Savings Contentions, Discovery Disputes, and
Scheduling Matters)**

**A. Contentions Concerning Cost Savings Resulting from
Operating the Harris Facility**

The NRC considers need for power and alternative energy sources (*e.g.*, a coal plant) as part of its NEPA cost/benefit analysis at the construction

permit stage for a nuclear power reactor. See *Niagara Mohawk Power Corp.* (Nine Mile Point Nuclear Station, Unit 2), 1 NRC 347, 352-72 (1975); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-77-8, 5 NRC 503, 522 (1977). If need for power is not demonstrated, or if, for example, a different type of generating plant is preferable from cost and environmental standpoints, then not building any plant, or building that different type of plant, may be a realistic alternative. Such an analysis is practical before a nuclear power plant has been built. Until about a year ago, however, need for power and alternate energy sources were also being litigated in some operating license cases, after construction of the nuclear reactor had been substantially completed.

The Commission became concerned that litigation of these issues at the operating license stage was a waste of time and resources, at least in the absence of exceptional circumstances. As the Commission had determined years earlier, once a plant is built, there is little reason to consider the environmental and economic costs associated with construction. At that point, those construction costs are so much water over the dam; in NEPA terms, they are "sunk." See *Public Service Co. of New Hampshire, supra*, at 530-36. The Commission accordingly initiated a rulemaking to determine whether such issues should be barred at the operating license stage. 46 Fed. Reg. 39940.

The rulemaking record, as subsequently developed, showed that a constructed nuclear plant is virtually certain to be used as a base load plant, replacing other less efficient generating capacity, if not to meet increased demand. It is also very likely to be preferable to any realistic alternative, given the nuclear plant's typically lower cost of operation compared to coal and oil. In April 1982, in recognition of these realities and to promote efficiency in the licensing process, the Commission adopted amendments to its rules governing litigation of environmental issues to provide in relevant part that —

Presiding officers shall not admit contentions proffered by any party concerning need for power or alternative energy sources for the proposed plant in operating license hearings. 10 CFR 51.53(c).

See generally 47 Fed. Reg. 12940 (1982).

In our initial rulings on contentions in this case, we admitted portions of three contentions which challenged the Applicants' estimates for portions of the facility's operating costs.¹ These contentions did not, on their face, raise need for power or alternative energy source issues, and no party

¹ These contentions were Eddleman 15, relating in part to economic costs of waste disposal, Eddleman 22(a) and (b), relating to fuel and payroll costs, and CHANGE 79(c), concerning regulatory costs. See Memorandum and Order dated September 22, 1982, at 29, 41, 43.

argued that they were barred by the quoted rule. Several months later, the Applicants filed certain amendments to their environmental report, including an analysis of the system production cost savings to result from operation of the Harris facility. The study covered the 10-year period from 1986 to 1996, assumed that coal plants would be the primary alternate generating sources, and projected resulting savings in excess of two billion dollars.² In response, Intervenor Eddleman filed twenty additional contentions challenging the Applicants' cost study in numerous respects.³

It appeared to the Board that litigation of these contentions would necessarily enmesh this case in need for power projections for the Applicants' service area, and for costs associated, not only with the nuclear plants, but also with coal plants. However, none of the parties addressed whether these contentions are barred by 10 CFR 50.53(c). Our tentative view was that the rule is applicable. Our Memorandum and Order of March 25, 1983 (unpublished) called for the views of the parties on that and certain related questions. A summary of those views follows.

The NRC Staff filing contains the fullest discussion of the question. The Staff concludes that the contentions in question here are barred by 10 CFR 51.53(c). The Staff demonstrates how "cost savings" contentions are necessarily and directly concerned with need for power and alternate energy sources. They reason that —

A party, in order to calculate the savings in system generating costs, must determine the need for the electrical power produced by the nuclear power plant in order to determine whether cost should be based on purchase power costs or substitution of other generating capacity. Second, to calculate savings a comparison must be made between costs of the nuclear plant and alternative generating capacity or sources of energy.⁴

Following on our first question, we asked whether cost savings resulting from lower operating costs of a nuclear plant, compared to an alternate energy source such as coal, can be included by the Staff as a benefit in their cost/benefit analysis for the Harris plant. This question was prompted by the fact that the Staff has been including such savings as benefits in some recent impact statements.⁵ The Staff answers this question in the negative. They call our attention to the Commission's explanation accompanying the

² See Amendment No. 5 to the Applicants' Environmental Report, new Chapters 8 and 11.

³ See Wells Eddleman's Revised, Amended and Additional Contentions Based on Eddleman 15 and ER Amdt. 5, dated February 11, 1983.

⁴ The Applicants agree on these points, stating that —

A calculation of cost savings necessarily entails consideration of capacity factors, load projections, and fuel and O&M costs, and economic comparisons with fossil units. Applicants Response at 3.

⁵ See, e.g., FES related to Catawba Nuclear Station, NUREG-0921, January 1983, at 6-3 and 6-4.

rule at 47 Fed. Reg. 12941 wherein the Commission states that need for power and alternative energy sources need not be reexamined in every EIS prepared at the OL stage. They also point to the contemporaneous conforming change in 10 CFR §51.23 directing that treatment of these issues be excluded from the EIS. Therefore, the Staff concludes that inclusion in the EIS of comparative cost savings that are necessarily based on need for power and alternative source data is also contrary to Commission intent. The Staff stated that no cost savings benefit would be claimed as a NEPA "benefit" in its forthcoming impact statement covering the Harris facility.⁶

The Applicants chose not to take any position on the basic question whether 10 CFR 51.53(c) bars the contentions in question. They suggest two possible interpretations of the rule, one barring the contentions, the other allowing their litigation. Without giving us the benefit of their own judgment on the question, they have nevertheless asked us to refer the question to the Appeal Board, whatever we decide. The Applicants have not favored us with any discussion of our second question — whether cost savings can be counted in the cost/benefit balance.⁷

We appreciated receiving Mr. Eddleman's position on each of our questions, even though some of his positions were stated in somewhat conclusory form. Mr. Eddleman questions whether coal should be deemed an "alternate energy source" within the meaning of 10 CFR 51.53(c). If it is so viewed, however, then he believes that contentions concerning cost advantages of operating the Harris facility compared to burning coal at other plants are barred by the rule. An exceptional situation may be shown by a petition for waiver under 10 CFR 2.758, a course Mr. Eddleman proposes to follow. Mr. Eddleman agrees with the Staff that if the cost savings contentions are barred by the rule, then such savings may not be counted as a benefit in the cost/benefit analysis.

Our review of the parties submissions and further consideration have ripened our tentative views to the following conclusions: comparative cost savings contentions of the stripe now before us — *i.e.*, contentions which directly implicate need for power projections and comparisons to coal — are barred by 10 CFR 51.53(c); correlatively, such comparative cost savings may not be counted as a benefit in the Staff's NEPA cost/benefit analysis. We largely agree with the Staff's reasoning on these issues. We

⁶ The impact statement was issued subsequently and does not appear to claim any benefit for comparative cost savings in the cost/benefit analysis. See DES related to operation of Shearon Harris Nuclear Power Plant; NUREG-0972, Ch. 6.

⁷ The Applicants did venture some thoughts on the expected contents of the Staff's impact statement, which had not yet been issued. Applicants' Response at 4. We can consider these points as and when they arise in connection with a particular intervenor contention.

are particularly influenced to our conclusions by the following considerations:

First, it is impossible to consider comparative cost savings in the present context without immediately and directly considering need for power and alternative energy source costs, the very issues proscribed by the Commission's recent rule. Allowance of these contentions would emasculate the rule.

Second, under both NEPA and NRC regulations, costs and benefits claimed in an environmental impact statement may be contested. *See Calvert Cliffs Coordinating Committee v. AEC*, 449 F.2d 1109 (C.D.D.C. 1971); 10 CFR 51.52(b) and 51.26(d). Therefore, disallowance of cost saving contentions requires a correlative exclusion of operating cost savings from the Staff's cost/benefit analysis for the Shearon Harris facility.

Third, litigation of these contentions about a constructed facility would be an egregious waste of time and resources, absent a showing of exceptional circumstances.

Fourth, no party has advanced a single persuasive reason why these cost savings contentions should not be barred by 10 CFR 51.53(c). The Applicants suggest that the Commission's failure to repeal certain requirements in 10 CFR 51.23(c) and 51.26(a) — that environmental statements continue to contain a cost/benefit analysis at the operating license stage — indicate that comparative cost issues are still viable. The Applicants state that cost comparisons are the "logical" way to quantify benefits and imply that their exclusion would undercut the cost/benefit process. But there remain substantial reasons for performing a cost/benefit analysis at the operating license stage, after excluding comparative cost questions. Thus, it remains for the Staff to balance the basic benefit — the power to be produced⁸ (without regard to its cost) — against the environmental costs of operation. Furthermore, a cost/benefit analysis must be performed in order to consider mitigation measures and any new information about very

⁸ Accordingly, it may be necessary to consider capacity factors, which directly affect the size of the basic benefit. A portion of original Eddleman Contention 15 included a challenge to a claimed capacity factor for the Harris facility of 70%. The Applicants' subsequent amendment 5 to the ER also assumed a capacity factor of 70% for cost comparison purposes, but included in addition assumed capacity factors of 60% and 50%. The Staff's draft environmental statement assumes a capacity factor of 55% (*see* DES at 6-3) without reference to comparative costs of operation.

In these circumstances, the Staff's 55% capacity factor should be taken as the benchmark, for it is the Staff's impact statement that will serve as the basis for the NEPA cost/benefit balance for this facility. The Applicants should advise the Board by July 1, 1983, that they accept the Staff's 55% capacity factor or file by that date a contention that the factor should be higher, and the basis therefor. By the same date, Mr. Eddleman should file any contention he wishes to advance that the 55% capacity factor is too high, and the basis therefor. Pending receipt of any such filings, we will defer rulings on the earlier Eddleman capacity factor contentions.

large environmental impacts — e.g., something on the order of a previously undiscovered snail darter.

In view of our conclusions on the issues discussed, we reject Mr. Eddleman's Additional Contentions 15 B-S, X, Y and the Eddleman and CHANGE Contentions listed in footnote 1, above.

The Applicants view the cost savings contention issue as novel, important and likely to arise in other operating license proceedings. They ask us to refer it to the Appeal Board for the "proper interpretation" of the rule, suggesting that this is the kind of question the Commission had in mind for referral in its *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 456 (1981). This request is without merit. The Commission's *Policy Statement* spoke of referring questions on which "guidance is needed." But we feel no need for further guidance here; in our view, this is not a close question. Moreover, as a practical matter this issue is likely to arise in other cases only if the Staff, contrary to its position in this case, were to claim cost savings as a NEPA benefit in other cases. We have no reason to think that this will happen. In any event, we see no risk of substantial delay flowing from our rulings. The environmental issues in this case are to be tried and decided first; this means that a Partial Initial Decision including these rulings can be before the Appeal Board long before the Harris plant will be ready to load fuel. If there should be a remand for further hearings on cost savings, that could be done in a timely fashion.

No other party joins this request for referral. The Applicants' request for referral is denied.

B. Applicants/Eddleman Discovery Dispute

On April 18, 1983, Applicants filed "Applicants' Motion to Compel Discovery on Applicants' Interrogatories and Request for Production of Documents to Intervenor Wells Eddleman (First Set)" (hereinafter Applicants' Motion). Applicants requested that the Board compel Mr. Eddleman to respond to Applicants' General Interrogatory No. 2. Mr. Eddleman had objected to answering General Interrogatory No. 2 in his response to the Applicants' interrogatories and explained his objections more fully in his answer to the Applicants' Motion dated April 25, 1983.

The text of General Interrogatory No. 2 is as follows:

- 2(a) State the name, present or last known address, and present or last employer of each person, other than affiant, who provided information upon which you relied in answering each interrogatory herein.

- (b) Identify all such information which was provided by each such person and the specific interrogatory response in which such specific information is contained.

Mr. Eddleman objects to disclosing the identity of persons who assisted in the preparation of answers to the interrogatories, and whom he does not intend to call as witnesses.⁹ He argues that the information he seeks to withhold is protected under Rule 26(b)(4)(B) of the Federal Rules of Civil Procedure and judicial interpretations of that rule. Rule 26(b)(4)(B) states:

A party may discover facts known or opinions held by an expert who has been retained or specially employed by another party in anticipation of litigation or preparation for trial and who is not expected to be called as a witness at trial, only as provided in Rule 35(b) or upon a showing of exceptional circumstances under which it is impracticable for the party seeking discovery to obtain facts or opinions on the same subject by other means.

Mr. Eddleman argues that in accordance with this rule, Applicants must show "exceptional circumstances" in order to obtain the identity of his non-witness experts. He cites *Ager v. Jane C. Stormont Hospital and Training School for Nurses*, 622 F.2d 496 (10th Cir. 1980) in support of his position that Rule 26(b)(4)(B) protects not only facts and opinions but also the identity of experts. Mr. Eddleman cites a recent licensing board decision, *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), LBP-83-17, 17 NRC 490 (1983), for his argument that Rule 26(b)(4)(B) and *Ager* should be followed in NRC proceedings, even though there is no NRC rule of practice analogous to Rule 26(b)(4)(B). In the *Seabrook* case, the licensing board granted the Intervenor's request for a protective order with respect to interrogatories concerning the identity of its non-witness experts consulted in preparation for litigation as well as the content of their advice.

Mr. Eddleman contends that disclosure of the identity of his consultants will have a chilling effect on his ability to retain assistance from experts and, therefore, impede his contribution to the development of a sound record in this proceeding. He asserts that Intervenor's "have access to a very limited pool of experts, who are reluctant to expose themselves to the time-consuming and expensive processes of being deposed or called as witnesses." Eddleman's Answer at 4. In addition, he asserts that others are

⁹ Mr. Eddleman does not object to disclosing the identity of persons who provided information upon which he relied for formulating his contentions. He is willing to provide the information he actually received from others in answering interrogatories, and to list which answers to interrogatories contain such information. Eddleman Answer at 1. Mr. Eddleman objects to disclosing information from others which he did not rely on in answering the interrogatories (e.g., strategy advice) but we do not read Interrogatory No. 2 as calling for such information. Accordingly, the only issue presented here is identity. Eddleman Answer at 3.

concerned that their employment security or prospects may be jeopardized if they are publicly associated with Intervenor.¹⁰

Applicants argue that Rule 26(b)(4)(B) does not apply to NRC proceedings. They rely on *General Electric Co.* (Vallecitos Nuclear Center, General Electric Test Reactor), LBP-78-33, 8 NRC 462 (1978), (hereinafter *Vallecitos*), where a licensing board decided this question directly contrary to the *Seabrook* decision cited by Mr. Eddleman. That licensing board held that Rule 26(b)(4)(B) was not applicable to NRC proceedings and that, therefore, 10 CFR 2.740(b)(1) of NRC's rules of practice was controlling. 10 CFR 2.740(b)(1) provides in relevant part:

In general. Parties may obtain discovery regarding any matter, not privileged, which is relevant to the subject matter involved in the proceeding . . . including . . . the identity and location of persons having knowledge of any discoverable matter.

This is a close question. However, we agree with the result and much of the reasoning of the *Seabrook* Board. To begin with, the application of a federal rule of civil procedure in a licensing proceeding is not precluded by the mere absence of an analogous NRC rule of practice. To the contrary, the Appeal Board has followed federal rules and practices where no analogous NRC rule exists. See *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-374, 5 NRC 417, 421 (1977) (additional views of Mr. Farrar, joined in by the entire Board.) In considering whether to follow the federal guidance, a Board should determine whether the situation before it is analogous to the situation the federal rule governs and whether the policy rationale underlying the federal rule is persuasive. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-379, 5 NRC 565, 568 n.13 (1977). Applicants' assertion that Rule 26(b)(4)(B) has been "*expressly* excluded from the Commission's discovery scheme" is unsupported. (Emphasis added.) Applicants' Motion at 4. We have no evidence that the Commission deliberately chose to exclude the principle of Rule 26(b)(4)(B) from its Rules of Practice.

As the *Seabrook* Board noted, the reasoning behind Rule 26(b)(4)(B) is applicable to NRC proceedings. Rule 26(b)(4)(B) differentiates between experts who will testify as witnesses for a party and those who are only assisting the party in preparation for hearing. Discovery of experts who will testify as witnesses — particularly by taking their depositions — can narrow and clarify the issues and prevent surprise at the hearing. Moreover, since the identity of expert witnesses must be disclosed before

¹⁰ Mr. Eddleman also suggests that some individuals whom he has consulted fear physical retaliation if they were to cooperate openly with intervenors. Whatever basis may exist for this suggestion, there is no basis for it in this record and it played no part in our disposition of this issue.

the hearing, it should not significantly disadvantage an intervenor to disclose the identities of its witnesses in the discovery process.

The factors favoring early disclosure of the identities of expert witnesses are less applicable, or simply inapplicable, to experts who will not testify at the hearing. For example, discovery of an intervenor's non-witness experts in an NRC licensing proceeding could help the Applicants and Staff find out at an early stage whether they should move for summary disposition or how strong a rebuttal case they need to prepare. But it seems unlikely that identification of non-witness experts would do very much to narrow or clarify issues or prevent surprise at hearing. What such a non-witness expert might say, for example, in a deposition many months before a hearing could be quite different from what another expert might say on the same subject at the hearing. Moreover, unlike the expert witness, eventual disclosure of the non-witness experts' identity is not inevitable because he is not appearing at the hearing.

In deciding whether to adopt the rationale of Rule 26(b)(4)(B), we have attempted to weigh applicants' and the Staff's need to uncover information to prepare for their cases against intervenors' need to protect the identity of their non-witness experts in order to assure access to necessary information. On the basis of our own experience and judgment (we have no evidence on these points) we believe that as a general proposition the intervenor's need for confidentiality outweighs the applicant and Staff needs for this information. Given the resources of applicants and the Staff, it should be a rare case where it will be "impracticable" for them to "obtain facts or opinions on the same subject by other means."¹¹ On the other hand, we can readily believe that some experts would be deterred from assisting intervenors if they knew that their identities would be disclosed.

In view of the foregoing, we rule in favor of Mr. Eddleman's position that discovery of the identity of non-witness experts who assist him in preparation for hearing is not subject to discovery, except upon a showing of exceptional circumstances. However, we deny Mr. Eddleman's request, based on the *Ager* case, that experts who are informally consulted (as distinguished from "retained or specially employed") be unconditionally protected from discovery. The "exceptional circumstances" showing required for retained experts provides sufficient protection to those who are informally consulted. Since "exceptional circumstances" are determined on a case by case basis, the fact that an expert may have been only informally consulted

¹¹ That is the standard for "exceptional circumstances" in Rule 26(b)(4)(B). We would not necessarily limit such circumstances to that narrow standard. Exceptions should turn largely on their own facts.

would be considered in weighing the need of the party requesting his identity against the need of the party seeking to withhold it.

We agree with Applicants' position that Mr. Eddleman's objections to the interrogatories at issue are overly broad. The protection afforded by Rule 26(b)(4)(B) extends only to "experts" not to all "persons," and we see no reason to make that extension in this situation. Therefore, Mr. Eddleman must either disclose the identity of any person he consulted who is not an expert, or demonstrate the applicability of another privilege.

C. NRC Staff/CCNC Discovery Disputes

On April 20, 1983 the NRC Staff filed "NRC Staff Motion to Compel CCNC to Respond to Discovery" (hereinafter Staff's Motion). The Staff requests that the Board issue an order compelling CCNC:

1. to respond fully to Staff interrogatory number 13 (concerning CCNC Contentions 4, 12, and 14);
2. to respond fully to Staff interrogatories 23, 24, 26, 28, 29, 30, 33, 36, and 37 (concerning CCNC Contention 12);
3. to respond fully to Staff's interrogatories 40-43 (concerning CCNC Contention 14);
4. to respond to the Staff's request for admission; and
5. to make its responses under oath or affirmation.

CCNC responded to Staff's Motion on May 2, 1983 in "CCNC Answer to NRC Motion to Compel Response to Discovery," (hereinafter CCNC's Answer). We address each of the disputes below.

1. Interrogatory 13 (concerning CCNC Contentions 4, 12 and 14)

Interrogatory 13 states:

Provide the name, telephone number and address of each and every person who answered these interrogatories. Where more than one person contributed to an answer, identify all persons who contributed to the answer and indicate her or his contribution.

The dispute over this contention is *moot* because CCNC responded fully to this interrogatory in CCNC's Answer to the Staff's Motion. However, certain remarks are in order. Staff interrogatory number 13 is similar to Applicants' interrogatories 2(a) and (b) to Mr. Eddleman discussed *supra*. The Staff in its Motion indicates that other intervenors have declined to respond to interrogatories of this nature and requests that we clarify this issue. The principles we adopted in the previous section regarding the Ap-

plicants' interrogatories to Mr. Eddleman also apply of course to this interrogatory and to all similar interrogatories in this proceeding.¹²

2. Interrogatories 23, 24, 26, 28, 29, 30, 33, 36, 37 (concerning CCNC Contention 12)

CCNC Contention 12 concerns the effects on the Shearon Harris Nuclear Power Plant site if the Jordan Lake Dam were to break. Staff interrogatories 23-39 seek specific factual scenarios which will result in the failure of the dam. CCNC's position is that it cannot respond more fully to the Staff's interrogatories until it receives certain responses from the Applicants. CCNC also argues that Applicants must show that their plant can withstand a flood, regardless of what scenario would actually lead to the occurrence of a break in the dam.

The Staff's motion to compel a fuller response to these interrogatories is *denied*. CCNC has responded with the information it has at this time and has agreed to supplement its responses after consideration of Applicants' responses to its interrogatories. No more is required of CCNC at this stage.

3. Interrogatories 40-43 (concerning Contention 14)

With respect to CCNC Contention 14, Staff interrogatories 40-43 seek the identity of those specific valves CCNC alleges to be subject to clogging by *hydrilla*. CCNC answered interrogatory 40 in their answer to the Staff's motion. Therefore, the motion to compel a response to this interrogatory is *moot*. CCNC argues that responses to the other interrogatories are contingent upon responses it is awaiting from Applicants. CCNC suggests that the Staff submit the interrogatories to Applicants and look for the specifications of the valves in the FSAR.

CCNC may await expected responses from interrogatories it submitted to the Applicants before supplementing its responses to these interrogatories, if that information is not otherwise available. However, it is not adequate for CCNC to suggest to the Staff that they look elsewhere for

¹² We were disturbed to discover that the Staff's argument concerning CCNC's mistaken claim of "attorney work product" privilege at pages 3 through 6 of the Staff's Motion seems to have been taken almost *verbatim* and without attribution from pages 4 through 6 of the Licensing Board's *Seabrook* ruling, discussed above. In assessing the submissions of the parties, the Board must be able to distinguish readily between arguments of the author and quotations of other adjudicatory bodies. Quotation marks and citations facilitate those distinctions. We were also disturbed that the Staff chose to quote at length from that part of the *Seabrook* ruling which supported its argument on attorney work product privilege, but failed even to mention the *Seabrook* Board's related ruling which was directly contrary to Staff's position. If the Staff wishes to be looked upon in this case as the representative of the public interest, it should cut square corners with the Board.

responses to their interrogatories if documents containing the responses are publicly available to CCNC. If CCNC believes that the specifications of the valves are in the FSAR, then CCNC must attempt to locate the appropriate sections of the FSAR and identify those sections in response to the interrogatories.

4. Oath

The Staff states that CCNC's interrogatories were not responded to under oath, as required by 10 CFR 2.740b(b), and requests that the Board order CCNC to comply with the regulation. CCNC answers that an oath dated March 10, 1983 was included in its response to the Staff's interrogatories. In the event that Staff did not receive the page containing the oath, CCNC indicates that it has sent them a copy of that page.

We *deny* CCNC's request that the oath of March 10, 1983 cover the responses to interrogatories included in CCNC's Answer, dated May 2, 1983 because CCNC's Answer was prepared after the date of the oath. Therefore, CCNC must submit a separate oath covering its responses to interrogatories set forth in CCNC's Answer.

5. Request for Admission

The NRC Staff served the following request for admission upon CCNC:

The two nuclear reactors designated Shearon Harris Nuclear Power Plant, Units 1 and 2, can be brought to a cold shutdown mode even if the heat removal capability of the main condenser is unavailable.

CCNC argues that it cannot admit or deny this fact until it receives certain responses from the Applicants. CCNC further states that it should not be required to respond to an admission concerning one of the issues it intends to litigate so far in advance of the first hearing. The first hearing is scheduled to begin on January 4, 1984. Staff argues that CCNC should check the FSAR to determine the validity of the requested admission.

Staff's Motion regarding this request for admission is *denied*. We see no compelling reason to require CCNC to respond this far in advance of the hearing to the request if CCNC presently lacks the information it needs for a reasoned determination. CCNC is entitled to review Applicants' responses to CCNC's interrogatories prior to responding to the request for admission.

D. Scheduling Matters

On March 10, 1983, we issued a Memorandum and Order (unpublished) setting forth the schedule for the remainder of the proceeding. In that Order we invited parties to file objections and proposed corrections to our schedule if they discovered any date that was contrary to an agreement of the parties or objectionable for some other reason. Only the Applicants and Mr. Eddleman accepted our invitation.

Both Mr. Eddleman and Applicants request clarification of footnote 3 on page 4 of the March 10, 1983 Order. Footnote 3 states that Eddleman Contention 41 shall be treated as a management capability contention. In item 5 on page 4, we ruled that the date for responding to discovery on all management capability contentions, including Eddleman 41, is deferred until after completion of the environmental hearings.

Applicants argue that Eddleman 41, which concerns hanger weld safety in the Applicants' construction QA/QC program, should not be classified as a management capability issue. They state that this issue bears no closer relationship to the management capability of the Applicants than do many other safety and environmental contentions concerning inspection and monitoring by company personnel. Applicants indicate that Mr. Eddleman served numerous interrogatories concerning Eddleman 41 on Applicants on March 22, 1983 and also responded on March 21, 1983 to Applicants' interrogatories on Eddleman 41, served prior to the March 10 order.

In item 5 on page 4 of our order, we stated "that the date for responding to discovery requests on all safety contentions *other than those on which Applicants might seek summary disposition* will be deferred until after completion of the environmental hearing." (Emphasis added.) Applicants argue that the facts surrounding Eddleman 41 are ascertainable now and that the contention is ripe for summary disposition.

Mr. Eddleman prefers that discovery on Eddleman 41 be deferred because of the time needed for work on the environmental contentions. Although we appreciate Mr. Eddleman's preference for a smaller diversion of his resources at this time, we see no indication that he will be less busy after the environmental hearing. Moreover, our rejection of the cost savings contentions will free up time that would otherwise have been spent on those contentions. Applicants' arguments have convinced us that Eddleman 41 should not be classified as a management capability issue. Therefore, the date for responding to discovery on Eddleman 41 is not deferred until after completion of the environmental hearing.

Mr. Eddleman requests that we "clarify [his] understanding that where Applicants pursue summary disposition by discovery, intervenors have discovery of Applicants on the same contentions." Intervenors may conduct

discovery of Applicants on all their contentions regardless of whether Applicants conduct discovery or pursue summary disposition of them. In any event, we will not entertain a motion for summary disposition until after the intervenor has had a reasonable opportunity for discovery on it.

Mr. Eddleman also requests clarification of our intent to list Eddleman 116, not Eddleman 16, in item 5 on page 4 of our March 10 order. That is correct. The last line of item 5 should read Eddleman Contentions 9, 11, and 116.

With respect to the physical security plan schedule, Mr. Eddleman requests that 90 days, instead of 65 days, be provided for discovery on admitted contentions. He offers no specific reason for requesting 25 more days; he only states that it would be "better." Although we have allocated 90 days for discovery on contentions in other subject areas (e.g., in new deferred contentions based on the NRC Staff's DES and emergency planning contentions), we do not believe at this time that a 90-day discovery period is necessary in this more limited area. Therefore, we decline to extend the discovery period at this time. If more time for discovery appears necessary after any physical security contentions have been admitted, we can reconsider this matter upon request at that time.

Finally, Mr. Eddleman points out that the schedule establishes March 15, 1984 as the last day for filing discovery requests on safety/management issues. However, in item 4, page 4 of our March 10 order, we incorporated into the schedule the parties' agreement "that the last date for filing discovery requests for safety contentions will be 65 days following completion of the environmental hearing." Mr. Eddleman has calculated that the March 15 date assumes the environmental hearing, which begins January 4, 1984, will end January 10, 1984. Mr. Eddleman requests that if the hearing takes longer, that discovery date should be adjusted so that it will in any event be 65 days after completion of the environmental hearing.

In our March 10 order, we stated that "[b]y incorporating these agreements [*i.e.*, the parties' agreements] into the schedule, we note that the schedule will be subject to any changes that these agreements might mandate . . ." Order at 5. Therefore, the date Mr. Eddleman is concerned about will be adjusted in accordance with the parties' agreement, if need be.

The Board discovered an apparent discrepancy in our March 10 order regarding the filing of emergency planning contentions. We incorporated into the schedule the parties' agreement "that emergency planning contentions will be served 30 days after the emergency plan has been made available." Order at 5, Item 8. However, on page 8 of the order we set March 1, 1984 as the date for filing of proposed emergency planning contentions. We did not intend to undermine the agreement of the parties. Therefore, parties shall file emergency planning contentions on any

emergency plan at issue 30 days after the plan becomes available. March 1, 1984 should be considered a non-binding target date for the last day that any proposed emergency planning contentions are filed. In the event that any party may have been confused by this discrepancy, we shall allow parties until June 24, 1983 to file on-site emergency planning contentions based on the Shearon Harris Nuclear Power Plant Unit Nos. 1 and 2 Emergency Plan, served on all parties on March 29, 1983. Any Applicant and Staff responses to such contentions shall be served by July 11, 1983. Our setting of the latter date renders the Applicants' extension request of May 17, 1983 moot.

At the prehearing conference on February 24, 1983, the Board deferred consideration of contentions concerning Detailed Control Room Design Review (DCRDR) filed by Intervenors Wells Eddleman and Dr. Richard Wilson until after the issuance of Applicants' supplement to the report, expected to be issued on April 15, 1983. We ruled that Intervenors would have 30 days from receipt of that report in which to revise, amend or renew their contentions on the DCRDR.

In a letter to the Board dated April 19, 1983, Applicants indicate that they intend to file a complete supplement to the Summary DCRDR Report on or before June 1, 1983. They propose, with the concurrence of Mr. Eddleman and Dr. Wilson, that the date for submitting revised, amended or renewed contentions on the DCRDR be deferred until 30 days from receipt of this supplement. Staff and Applicants would then be afforded fifteen days to respond to any pleadings filed by the Intervenors. The Board adopts this proposed revision to the schedule.

On May 11, 1983, more than a month later than previously anticipated, the NRC Staff served on all parties a copy of the Shearon Harris Draft Environmental Statement (DES). Pursuant to our prior rulings, proposed contentions based on new information contained in the DES and revisions of or positions on deferred environmental contentions are due June 16, 1983. Responses to such filings are due July 1, 1983. The Intervenors should reread our March 10, 1983 Order, pp. 15-16, concerning their obligations with respect to (1) contentions on which rulings were previously deferred, and (2) explaining why a new contention based on the Staff's DES could not have been advanced earlier.

In our March 10 order we tentatively scheduled a prehearing conference to consider new contentions and other matters, and for a site visit for sometime in June, 1983. In light of the delay in the Staff's DES, the prehearing conference and site visit are now tentatively scheduled for July 20-21, 1983. Our experience in this case indicates that it may be very useful for the Intervenors, Applicants and Staff to get together and discuss the proposed contentions informally before the prehearing conference. Hopefully, this

will lead to stipulations, clarifications of contentions and objections thereto, and narrowing of areas of dispute. The Board directs all parties to participate in such discussions. We ask the Applicants to take the lead in setting them up. If there are only a few contentions involved, these discussions may be handled by telephone. We think it would be preferable, however, to have face-to-face discussions.

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**Glenn O. Bright
ADMINISTRATIVE JUDGE**

**Dr. James H. Carpenter
ADMINISTRATIVE JUDGE**

**James L. Kelley, Chairman
ADMINISTRATIVE JUDGE**

**Dated at Bethesda, Maryland,
this 27th day of May, 1983.**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Charles Bechhoefer, Chairman
Dr. Frederick P. Cowan
Dr. Jerry Harbour**

In the Matter of

**Docket Nos. 50-329-OM&OL
50-329-OM&OL
(ASLBP Nos. 78-389-03-OL
80-429-02-SP)**

**CONSUMERS POWER COMPANY
(Midland Plant, Units 1 and 2)**

May 31, 1983

The Licensing Board grants in part the Applicant's motion to require submission of cross-examination plans, designation of lead intervenors, and establishment of time limits on cross-examination. It ruled that all parties must provide, to the Board alone, cross-examination plans and time estimates but that, because of the differing interests of the intervenors, a lead intervenor need not be designated. The Board declines to refer its ruling to the Appeal Board for interlocutory review.

**LICENSING BOARD: DISCRETION IN MANAGING
PROCEEDINGS**

The Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981), mentions a number of measures which Boards might adopt to control or limit the participation of parties, but it emphatically stresses the discretion of Boards in adopting some or all of the measures in question.

RULES OF PRACTICE: CONSOLIDATION

The NRC Rules of Practice permit the consolidation of intervenors which have "substantially the same interest." 10 CFR §2.715a. The Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 455 (1981), makes it clear that designation of lead intervenors is to be consonant with the foregoing provision.

RULES OF PRACTICE: REPRESENTATION

The Rules of Practice cannot legitimately be read as requiring that, once an intervenor is represented by counsel, such counsel must be the party's sole representative in the proceeding.

RULES OF PRACTICE: REFERRAL OF RULING TO APPEAL BOARD

Added litigation expenses which might conceivably result from a Licensing Board's failure to adopt certain procedural controls over a licensing proceeding would not constitute the type of "unusual . . . expense" comprehended by the referral criteria of 10 CFR §2.730(f).

MEMORANDUM AND ORDER

(Granting in Part Applicant's Motion to Require Submission of Cross-Examination Plans, etc.)

During the course of the hearing on May 4, 1983 (Tr. 15921), the Applicant submitted a Motion to Require Submission of Cross-Examination Plans, Designation of Lead Intervenors, and Establishment of Time Limits on Cross-Examination. With leave of the Board (Tr. 16321-16326), the Applicant submitted a revised motion on May 9, 1983. Responses to the revised motion were submitted by Ms. Mary Sinclair, Ms. Barbara Stamiris and the NRC Staff. For the reasons which follow, we grant in part and deny in part the Applicant's motion. We decline to "certify" this ruling (insofar as it denies portions of the Applicant's motion) to the Appeal Board, as requested by the Applicant. We also take no action on Ms. Stamiris' request for us to initiate interlocutory Appeal Board review, inasmuch as the conditions giving rise to that request have not been satisfied.

1. The Applicant requests that we put the following measures into effect, for the evidentiary hearings beginning June 1, 1983 and subsequent hearings:

1. Require all parties to file cross-examination plans with the Board in accordance with the Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (May 20, 1981).
2. Require intervenors to designate a Lead Intervenor to conduct cross-examination, on an issue by issue or witness by witness basis. See May 20, 1981 Policy Statement, 13 NRC 452, 455.
3. Require Ms. Stamiris' legal counsel to conduct all cross-examination. Failing that, preclude Ms. Stamiris from cross-examining with respect to issues which her counsel has already cross-examined on.
4. Require all parties, prior to cross-examination, to submit estimates of the time needed for such cross-examination. This should be done on an issue by issue or witness by witness basis. The Board should review such estimates for reasonableness and allow parties to exceed time limits so established only for good cause shown. See 10 CFR §§2.711(b); 2.718(e) 2.757(c).
5. Rigorously enforce all of the above.

As justification, the Applicant cites the length of the hearing record together with instances of "discursive and repetitive" cross-examination, in particular by various intervenors. It claims that the measures it seeks are "necessary to expedite the proceeding, improve the quality of the record, and improve the fairness of the proceeding." It relies in particular upon the Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981) (hereinafter referred to as the "May 20, 1981 Policy Statement"). The Applicant also requests that we "certify" (*sic*) to the Appeal Board pursuant to 10 CFR §2.730(f) any portions of its motion that we might deny.¹

The NRC Staff supports the substance of the Applicant's motion.² But it regards the request to refer to the Appeal Board any denied portions of the motion as premature and opposes it on that basis.

In her response to the motion, Ms. Sinclair strongly takes issue with what she terms the "basic premise" of the Applicant's motion, that the intervenors (through cross-examination) are contributing most to the extensive

¹ Licensing Boards are authorized to "certify questions" or "refer rulings" to the Appeal Board. Cf. 10 CFR §2.718(i) (certification) with 10 CFR §2.730(f) (referral). Taking into account both the section cited by the Applicant and the nature of the relief which it apparently seeks, we believe that the Applicant intended to seek referral of certain rulings to the Appeal Board, and we will use that nomenclature in our ruling on its request.

² Although agreeing with the Applicant that certain controls on cross-examination should be imposed, the Staff had objected to the inclusion of certain examples of the Staff's cross-examination as a basis for the Applicant's motion (Tr. 15926-15929). The Applicant's revised motion modified the original motion by deleting the references to the Staff's cross-examination.

and prolonged record of this proceeding. She attributes the lengthy record to the construction QA/QC performance of the Applicant and the numerous issues engendered by that performance. Nonetheless, she offers to attempt to file cross-examination plans and to estimate the time needed for cross-examination. She indicates, however, that her time estimates might not be accurate should there be frequent and lengthy objections to her cross-examination by the Applicant or Staff. She opposes the remainder of the relief sought by the Applicant's motion (except that she takes no position on the referral request).

In her written response, Ms. Stamiris opposes the Applicant's motion. She stresses the same point as made by Ms. Sinclair: that the length of the record is primarily the result of the Applicant's "failures in the soils area."³ She adds that we reopened the record of the OM proceeding at the behest of the NRC Staff, based upon the "very poor" performance by the Applicant and its "failure to solve the serious quality assurance and soil problems at the site." She also attributes much of the length of the record to the "frequent and oftentimes frivolous objections" of the Applicant. She concludes that the Applicant's motion is merely a legal maneuver intended to obstruct a full and sound development of the record, and that the restrictions requested by the Applicant would "allow nothing more than a one-sided presentation of evidence." Ms. Stamiris requests referral to the Appeal Board if we were to grant the Applicant's motion in its entirety.

2. No serious question has been raised concerning our authority to impose each of the controls sought by the Applicant. Clearly we have sufficient authority to grant the Applicant's motion in full, were we to agree that the particular measures sought were warranted.

In determining whether, and if so to what extent, we should impose controls or limits on the participation by parties (as requested by the Applicant), we must place several of the claims made with respect to the motion in proper perspective.

(1) We fully agree with Ms. Sinclair's and Ms. Stamiris' claim that, in large part, the length of the record can be attributed to the history of construction QA/QC problems which have plagued this facility. We also wholeheartedly acknowledge that the intervenors' cross-examination has resulted in the revelation of facts which either were inadequately recognized or the significance of which was inadequately appreciated.

But we can also agree with the Applicant and Staff that some of the cross-examination has been duplicative, or at least poorly focused. To some extent, this situation may reflect the realities of participation by intervenors

³ See also Tr. 15937.

who are underfunded. In deciding to adopt certain controls, we are balancing the difficulties faced by intervenors in that situation with the desirability of achieving greater efficiency in the hearing process. We strongly believe that the controls we are adopting will not significantly hinder the intervenors in the presentation of their cases but, at the same time, may enhance to some degree the efficiency of the hearing process. In addition, we note that we are imposing controls only on a trial basis; their effectiveness in practice will dictate whether we will permit them (or some alternative) to remain in effect throughout the proceeding.

(2) The May 20, 1981 Policy Statement mentions a number of measures which Boards might adopt, but it does not direct that any particular measure be utilized. Rather, the Commission emphatically stresses the discretion of Boards in adopting some or all of the measures in question. Furthermore, although not explicitly limited to any type of proceeding, the Policy Statement clearly is focused on those operating license proceedings where construction might be completed prior to the conclusion of the adjudicatory hearings. Where — as here — that situation does not exist, the Policy Statement must be applied with a sensitive regard for the necessities of the particular proceeding.

The Applicant's motion appears to treat each of the control devices it seeks to impose as mandatory. For in no other context could its request that we refer to the Appeal Board any portions of its motion we might deny be considered a serious request.

Suffice it to say that we regard none of the particular measures mentioned in the Commission's Policy Statement as mandatory. Boards are "encouraged" to use these measures where appropriate. Furthermore, the Policy Statement emphasizes that Boards should "ensure that the hearings are fair, and produce a record which leads to high quality decisions that adequately protect the public health and safety and the environment." CLI-81-8, *supra*, 13 NRC at 453. In ruling on the Applicant's motion, we are taking all these considerations into account.

(3) In emphasizing the length of this proceeding, the Applicant has compared the number of transcript pages in this proceeding (approximately 16,000 pages thus far) to the number of pages in the Three-Mile-Island Unit 1 restart proceeding (27,999 pages) and the current Indian Point proceeding ("only * * * 12,483 pages"). The Applicant neglects to mention, however, that each of these other proceedings is solely an enforcement proceeding, whereas this proceeding represents a consolidation (at the Applicant's request) of both an enforcement proceeding and an operating license proceeding. *See* Prehearing Conference Order dated October 24, 1980 (unpublished). While we cannot deny that this proceeding is both ex-

tensive and complex, the numerical comparisons advanced by the Applicant are not entirely appropos.

(4) We agree with Ms. Stamiris that, in considering whether to impose controls on cross-examination, questions (as raised by the Applicant) concerning the adequacy of the staffs of the Appeal Board or Commission to review a lengthy record (either on appeal or *sua sponte*) should not be taken into account. To the extent that cross-examination may contribute to a meaningful record, it should not be limited — and will not be limited by us — to accommodate asserted staffing deficiencies within NRC.

(5) We cannot agree with the implications of Ms. Stamiris' response to the effect that the Applicant's objections to cross-examination have largely been frivolous. That some or even most of them were rejected by us does not import frivolity. Some of our rulings on objections were "close calls" concerning which, in the interest of achieving a complete record, we tended to permit certain questions as to which objections might reasonably have been lodged.

(6) Finally, we find no evidence that, as asserted by Ms. Stamiris, the Applicant and Staff made a deal with respect to which the Applicant would withdraw assertions concerning the Staff's cross-examination in return for the Staff's support of the motion. The Staff favored the motion in its original form, although it took issue with the portion of the support for that motion which cited Staff cross-examination (Tr. 15925-15929).

3. Given these general considerations as background, we now turn to the specific control measures sought by the Applicant.

(1) The first measure sought by the Applicant is to require all parties to file cross-examination plans with the Board. Ms. Sinclair offered no objection to this measure; and Ms. Stamiris, although opposing Applicant's motion in its entirety, did not point to any reasons why such a measure might derogate from her ability to present her case properly.⁴

We recognize that the burden imposed by any paperwork requirement necessarily will fall most heavily upon those parties with the least resources available to represent them. In this case, the burden of preparing cross-examination plans will fall most heavily upon the intervenors.⁵ Nonetheless, we believe that the plans will represent a useful tool for us to carry out our hearing management obligations, and that such plans could help each party in organizing its cross-examination. Moreover, the Com-

⁴ Ms. Stamiris commented on the record that she plans her cross-examination in advance (Tr. 15937). Our inference is that she would not find the submission of written plans a great burden.

⁵ The Applicant routinely has been represented by three to six attorneys; and the Staff by two or three attorneys. Ms. Stamiris currently has a single representative (in addition to herself acting *pro se*), and Ms. Sinclair and Mr. Marshall are appearing *pro se*.

mission has particularly emphasized that such plans "would be of benefit in most proceedings."

For these reasons, we believe that it would be useful if, on a trial basis, we were to require such plans. Such plans will be required for all cross-examination which is estimated to exceed 15 minutes per witness or panel (where testimony is presented by a panel rather than by a single witness), and will be submitted to the Board alone. See May 20, 1981 Policy Statement, CLI-81-8, *supra*, 13 NRC at 457.⁶ To afford adequate time to prepare such plans, this requirement will apply to witnesses or panels whose direct testimony is offered on or after Monday, June 6, 1983.

(2) The Applicant next seeks to have the intervenors designate a Lead Intervenor to conduct cross-examination, on an issue by issue or witness by witness basis. In support, the Applicant references the May 20, 1981 Policy Statement.

As we understand it, designation of a Lead Intervenor for particular issues or witnesses would result in a single intervenor conducting cross-examination on behalf of all intervenors with respect to the particular issue or witness, and possibly filing proposed findings and conclusions on behalf of all intervenors. In effect, this measure would consolidate the intervenors and would preclude them from conducting cross-examination (and possibly filing proposed findings) on issues as to which they were not designated the Lead Intervenor.

The NRC Rules of Practice permit the consolidation of intervenors, but only where those parties "have substantially the same interest that may be affected by the proceeding" and where consolidation would not "prejudice the rights of any party." 10 CFR §2.715a. In its May 20, 1981, Policy Statement, the Commission made it clear that designation of lead intervenors was to be consonant with the foregoing provision. CLI-81-8, *supra*, 13 NRC at 455.

Here, the various intervenors do not appear to have similar interests. For example, Ms. Sinclair has steadfastly opposed the grant of an operating license, whereas Ms. Stamiris' stated goal has been to assure that the facility will be properly constructed and operated. Cf. Sinclair Petition for Leave to Intervene (submitted initially on behalf of Saginaw Valley Nuclear Study Group), dated June 3, 1978, ¶7, with Stamiris Statement of Good Cause for Late Intervention, dated July 9, 1982, p. 1. Some of the claims and contentions of these intervenors are comparable, but the results sought to be

⁶ To avoid potential questions concerning improper *ex parte* contacts with the Board, we will retain these statements and make them available to all parties (at their request) following the conclusion of the portion of the proceeding to which they relate.

achieved are different. For that reason, we decline to designate a Lead Intervenor for particular issues or witnesses.

Strictly from the standpoint of hearing management, we will require that the intervenors coordinate their cross-examination and, in their cross-examination plans, designate particular areas for which each is primarily responsible. Ms. Stamiris will conduct cross-examination first on various soils-related issues.⁷ We will not permit duplicative cross-examination; but any intervenor may ask questions in an area for which another is primarily designated if those questions are engendered by the differing interest or position of the other intervenor.

(3) With respect to the third control sought by the Applicant, we decline to require Ms. Stamiris' legal counsel to conduct all cross-examination. With the Applicant always being represented by multiple counsel (often as many as 6 at one session), it is simply unfair to require that all the cross-examination for Ms. Stamiris be conducted by counsel. Moreover, the rules cannot legitimately be read as requiring that, once an intervenor is represented by counsel, that counsel be the party's sole representative in the proceeding.

To avoid duplication of questioning, however, we will preclude Ms. Stamiris from conducting cross-examination of particular witnesses or panels on an issue as to which her counsel has already conducted cross-examination of that witness or panel, except where she can demonstrate in her cross-examination plan that the issues covered by that witness or panel are so diverse or extensive that division of cross-examination would be reasonable. (Even though the Applicant may seek to present several of its witnesses together, where the testimony is presented not as a panel but separately, the witnesses will be considered as separate witnesses for enforcing this condition.)

(4) The Applicant next seeks to have all parties, prior to cross-examination, submit estimates of the time needed for cross-examination. The intervenors object to this provision largely on the basis that the objections advanced by the Applicant occupy considerable time and in effect would preclude adequate cross examination on many issues. We will require all parties to include time estimates as part of their cross-examination plans. In enforcing these estimates, however, we will make proper allowance for the time occupied in hearing and ruling upon objections. We will also permit parties to apply time previously estimated for a given issue but not used to other issues.

⁷ As an exception, and absent objection from other intervenors, we will permit Mr. Marshall for health reasons to initiate cross-examination, as long as his examination can reasonably be expected not to exceed 15 minutes per witness or panel.

(5) As requested by the Applicant, we will vigorously enforce the measures which we are adopting — consistent, of course, with fairness to all parties.

(6) We agree with the Staff that referral of the portions of our ruling which deny various aspects of the Applicant's motion would at least be premature. More important, we do not believe that the added litigation expenses which could conceivably result from our ruling would constitute the type of "unusual * * * expense" comprehended by the referral criteria of 10 CFR §2.730(f). Cf. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-438, 6 NRC 638 (1977). For that reason, we decline to refer any rulings to the Appeal Board, as requested by the Applicant. Since we have not granted the Applicant's motion in full, the conditions as to which Ms. Stamiris sought referral have not been fulfilled, and we therefore are also not granting her referral request.⁸

For the reasons stated, it is, this 31st day of May, 1983,

ORDERED

That the Applicant's Revised Motion to Require Submission of Cross-Examination Plans, Designation of Lead Intervenors, and Establishment of Time Limits on Cross Examination, is *granted in part* and *denied in part*.

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**Charles Bechhoefer, Chairman
ADMINISTRATIVE JUDGE**

⁸ We express no opinion as to whether, if we had granted all of the control measures sought by the Applicant, the criteria for referral in 10 CFR §2.730(f) would have been satisfied.



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of

Docket No. 50-155
(10 CFR 2.206)

CONSUMERS POWER COMPANY
(Big Rock Point Plant)

May 3, 1983

The Director of Nuclear Reactor Regulation denies a request from Ms. JoAnn Bier and Ms. Christa-Maria requesting that no additional fuel be allowed in the Big Rock spent fuel pool until the issue of pool thermal/structural adequacy is resolved.

DIRECTOR'S DECISION UNDER 10 CFR 2.206

By petitions sent in the form of Mailgrams on April 11 and 12, 1983 to the Commissioners of the Nuclear Regulatory Commission (the Commission) (NRC), Ms. JoAnn Bier and Ms. Christa-Maria requested that no additional fuel be allowed in the Big Rock Point spent fuel pool (beyond the 132 assemblies currently stored in the pool) until the issue of pool thermal/structural adequacy is resolved. The petitions have been treated under 10 CFR §2.206 of the Commission's regulations. They were referred to the NRC staff for disposition on April 14, 1983.

I.

In 1979, Consumers Power Company (the licensee) requested NRC approval to expand the storage capacity of the spent fuel pool at the Big Rock Point Plant by adding fuel storage racks to the pool. That request is presently the subject of hearings before the Atomic Safety and Licensing Board

(ASLB); Ms. JoAnn Bier and Ms. Christa-Maria are intervenors in those hearings.

During preparation of NRC staff testimony on the effects of boiling in the spent fuel pool for the ASLB hearing session which was to be held in June 1982, the NRC staff discovered several unresolved concerns regarding the structural integrity of the pool at boiling temperatures.¹ Because these concerns were unresolved for the existing pool storage² as well as for the proposed expanded pool capacity, the NRC staff took action outside of the hearing process. By letter dated May 21, 1982, the NRC staff requested that the licensee respond to these concerns under the provisions of 10 CFR 50.54(f).³ The nine items enumerated by the petitioners were the concerns raised in the May 21, 1983 letter.

In a letter dated June 4, 1982, the licensee responded to the May 21, 1982 letter. After reviewing the licensee's submittal, the NRC staff prepared an evaluation of the structural adequacy of the Big Rock Point spent fuel pool assuming normal pool cooling is unavailable. This evaluation was sent to the licensee by letter dated July 7, 1982. The staff concluded, based on its evaluation, that continued utilization of the Big Rock Point spent fuel pool in its current configuration was justified.⁴ The July 7, 1982 letter also informed the licensee that the thermal/structural adequacy of the pool would have to be reanalyzed and approved by the NRC staff before additional fuel could be stored in the pool.⁵ A copy of the July 7, 1982 letter and safety evaluation are attached (Attachment 1).

By letters dated January 10, 1983 and April 14, 1983, the licensee has submitted reanalyses of the thermal/structural integrity of the pool with additional fuel up to the amount which could be stored if its proposed expansion of storage capacity is granted by the ASLB. These analyses are under review by the NRC staff to determine if proper cooling of the pool can be maintained when additional fuel is added (beyond the 132 assemblies) and that the structural integrity of the pool is adequate when properly cooled. If and when the NRC staff review concludes that the licensee's analyses resolve the staff's concerns regarding the thermal/structural adequacy of the Big Rock Point spent fuel pool, the licensee will be notified that it may store additional fuel in the pool up to the current licensed limit of 193 assemblies.

¹ The contention which dealt with these concerns was not heard by the ASLB during the June session.

² The current configuration of the pool is the storage of 132 spent fuel assemblies.

³ This letter was referred to by petitioners as the Lainas letter because it was signed by G. C. Lainas, Assistant Director for Safety Assessment, NRC.

⁴ There has been no change in the amount of fuel in actual storage since that time.

⁵ The licensee has agreed informally not to store any additional fuel in the pool without NRC staff approval.

If the staff concludes that the licensee's analyses do not demonstrate the thermal/structural adequacy of the Big Rock Point spent fuel pool, then additional actions will be taken to either require further analyses or permanently restrict additional storage in the pool.

The petitioners and all other parties in the pending ASLB hearing on expansion of the pool capacity will be notified of the staff's determination.

II.

The petitioners' Mailgrams also raised two concerns which do not directly bear on the thermal/structural adequacy of the spent fuel pool. First, the petitioners stated that Big Rock Point does not meet the NRC Safety Goals regarding the risk to the public from a reactor accident. To date, operating plants such as Big Rock Point are not required to meet the risk assessment based Safety Goals published by the NRC (48 Fed. Reg. 10772). However, using the Probabilistic Risk Assessment referred to by petitioners, Consumers Power Company has identified several modifications which will significantly improve the core melt risk for Big Rock Point. The licensee plans to complete these modifications by the end of the 1984 refueling outage at Big Rock Point.

Second, the petitioners stated that the licensee is requesting relief from some "costly" NRC requirements. The Commission's regulations at 10 CFR §50.12 provide a mechanism for licensees to request relief from NRC requirements if a sound safety basis can be shown for the licensee's proposed alternative to the requirements. By letter dated March 18, 1983, Consumers Power Company informed the NRC staff of the company's intent to request relief from a number of NRC requirements such as some of the requirements in NUREG-0737, commonly referred to as the "TMI" requirements. The NRC staff has recently received a request dated April 19, 1983 from the licensee to grant an exemption to TMI Requirements. A copy of that request is attached (Attachment 2). The staff has not acted on that request. It should be noted that on February 22, 1980, the licensee requested deferral of certain NRC staff requirements until its risk assessment was completed. By letters dated October 14, 1980 (Attachment 3) and August 12, 1981 (Attachment 4), the staff acted on that request by granting certain of those issues and denying others.

III.

Based on the foregoing discussion, I have concluded that the NRC staff is already taking the action requested by the petitioners. The NRC staff began

this course of action in its letter to the licensee dated July 2, 1982. Therefore, I have determined that no further action beyond that being pursued by the NRC staff is required at this time.

IV.

A copy of this Decision will be filed with the Secretary for the Commission's review in accordance with 10 CFR 2.206(c). As provided in this regulation, the Decision will become the final action of the Commission twenty-five (25) days after issuance, unless the Commission, on its own motion, institutes review of the Decision within that time.

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland,
this 3rd day of May, 1983.

Attachments:

1. Ltr. w/Safety Evaluation from
NRC to CPC dtd. July 2, 1982
2. Ltr. from CPC to NRC dtd.
April 19, 1983
3. Ltr. from NRC to CPC dtd.
October 14, 1980
4. Ltr. from NRC to CPC dtd.
August 12, 1981

[The attachments have been deleted from this publication but may be found at the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555.]

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket No. 70-25

ROCKWELL INTERNATIONAL
(Energy Systems Group Special
Nuclear Materials License
No. SNM-21)

June 2, 1983

The Commission decides that a formal hearing need not be convened on the applicant's request for renewal of its special nuclear materials license; rather, that any hearing on the application should be an informal one. The Commission further (1) prescribes rules to govern the filing of hearing and intervention requests and the conduct of any informal hearing which may follow; and (2) directs the Chairman of the Atomic Safety and Licensing Board Panel to designate one of its members to serve as the presiding officer to rule on any petitions which may be filed and conduct the informal hearing should one be warranted.

ORDER

By letter dated August 20, 1982, the Energy Systems Group of Rockwell International (ESGRI) applied for renewal of its special nuclear materials license No. SNM-21. Under its existing license, ESGRI is authorized to engage in nuclear fuel element manufacturing and fuel element decladding. In its original renewal application, ESGRI stated that it was not

requesting any increase in the scope of the licensed activities or changes in its present special nuclear material possession limits. However, in a subsequent letter dated December 17, 1982, ESGRI indicated that it had decided to curtail the level of its activities. In the December 1982 submission, ESGRI asked that its license, as renewed, be modified to reduce the present possession limitation for U-235 from 1500 kilograms to 10 kilograms and to delete its authorization to manufacture nuclear fuel elements and to possess U-233.

The Commission has received in excess of seven hundred postcards and letters from individuals allegedly living by the facility, each of whom has requested a public hearing on the ESGRI renewal application. In making an initial disposition of these hearing requests, we note that in our decision in *Kerr-McGee Corp.* (West Chicago Rare Earths Facility), CLI-82-2, 15 NRC 232 (1982), *aff'd*, *City of West Chicago v. NRC*, 701 F.2d 632 (7th Cir. 1983), the Commission indicated that there was no entitlement to a formal, trial-type hearing under either the Atomic Energy Act or NRC regulations with regard to materials licensing actions. Further, none of the letters or postcards give us cause to exercise our discretion and grant a formal hearing under the "public interest" standard of 10 CFR §§2.104(a) and 2.105(a)(6) or to find due process concerns require that a formal hearing need be convened. Therefore, only an informal hearing need be instituted at this time.

Because of the change in circumstances surrounding the renewal application, as well as the terse nature of the hearing petitions pending before the Commission, we believe it is necessary to request further filings to clarify the intentions of those who have lodged these submissions and to determine whether they can fulfill the requirements for intervention by "interested persons" so as to mandate that a hearing be convened. Accordingly, within forty-five days of the date of this order, any person wishing to intervene as a party to any informal adjudicatory proceeding that may be conducted with regard to the ESGRI renewal application shall file a statement with the Docketing and Service Branch of the Office of the Secretary. That statement shall set forth with particularity (1) the interest of that person in the proceeding; (2) how that interest may be affected by the results of the proceeding, including a delineation of the reasons why that person should be permitted to intervene that makes particular reference to (a) the nature of the person's right under the Atomic Energy Act to be made a party, (b) the nature and extent of the person's property, financial, or other interest in the proceeding, and (c) the possible effect of any order that may be entered in the proceeding on the petitioner's interest; and (3) the specific aspect or aspects of the subject matter of the proceeding that the petitioner seeks to have litigated. Alternatively, those

persons who do not desire to become parties or cannot fulfill the requirements for party status may file a statement indicating they wish to make a limited appearance. In making such a limited appearance, that person shall be entitled to make a written or, if appropriate, an oral statement on any issues in any proceeding that may be convened. The presiding officer shall have the authority to fix such limitations and conditions as appropriate on the participation of those making limited appearances and they are not otherwise to participate in the proceeding. Statements by those seeking to intervene as parties or to enter a limited appearance shall be deemed filed when personally delivered to the Office of the Secretary or when deposited in the United States mail, properly addressed and first-class postage prepaid.

With regard to the conduct of the informal hearing, we direct that the Chairman of the Atomic Safety and Licensing Board Panel shall designate a single member of that Panel to act as the presiding officer. The parties to the informal adjudication shall be ESGRI and any person found to have filed a proper intervention statement. The NRC staff also may appear as a party and provide such filings as it deems appropriate.

Determinations by the presiding officer on the standing of persons seeking to intervene as parties to the proceeding shall be governed by existing agency precedents regarding 10 CFR §2.714(d). If the presiding officer denies intervention on the basis of lack of standing, such denial, which shall be in writing, shall become final agency action within thirty days unless the Commission, on its own, undertakes a review of that decision. No petitions for review shall be entertained by the Commission regarding the presiding officer's decision on such matters.

In carrying out his responsibility under this delegation, the presiding official also shall have the authority to request and receive whatever written submissions and documents he deems necessary from ESGRI or any other party, except the NRC staff, on any schedule he deems proper. Such requests may include requirements that intervening parties further particularize the aspects of the subject matter of the proceeding they wish to litigate or that the parties answer specific questions, with supporting materials, that the adjudicator poses to them. In addition, he may in his discretion, entertain oral presentations from the parties or those making a limited appearance. Any oral communications between the presiding officer and any party or any person making a limited appearance concerning any matter at issue in the proceeding shall be conducted in the presence of the parties or memorialized in a written memorandum that is served on all parties and made a part of the docket file on the proceeding.

If, on the basis of the parties' presentations and other information that the adjudicator is entitled to rely upon as discussed below, the presiding

officer believes that additional procedures are necessary to ensure the full development of the agency record or to resolve any material factual issues that could not be resolved through the procedures set forth in this order, he should seek authority from the Commission to implement any additional procedures.

The presiding officer's decision, which is to be in writing, shall be made on the basis of the written submissions of the parties and those making limited appearances, any oral presentations, any other technical or factual information that is publicly available in the docket file, and any other matters of which he may take official notice (giving the parties an opportunity to show to the contrary). The presiding officer's decision shall become final agency action thirty days after the date of issuance unless the Commission, on its own motion, undertakes a review of the decision. No petitions for review will be entertained by the Commission regarding the presiding officer's decision. No action shall be taken by the agency on the ESGRI license renewal application pending the completion of Commission review.

Commissioner Roberts dissents from this Order. The additional views of Commissioner Ahearne follow.

It is so ORDERED.

For the Commission*

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 2d day of June, 1983.

ADDITIONAL VIEWS OF COMMISSIONER AHEARNE

I would have preferred that the Commission provide additional guidance. This order simply states "standing of persons seeking to intervene as parties to the proceeding shall be governed by existing agency precedents regarding 10 CFR §2.714(d)." However, existing precedents provide very little guidance on how standing principles are to be applied in the context of a materials license. In particular, there is some difficulty in

*Chairman Palladino and Commissioner Gilinsky were not present when this Order was approved, but had previously indicated their approval.

using the concept of "geographic proximity." For power reactors, geographic proximity (living within about 50 or 60 miles) is sufficient to establish standing because we infer a health and safety interest from that proximity. See, e.g., *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-146, 6 AEC 631, 634 (1973). Clearly a reactor poses a threat for a broader geographic area than most activities licensed under a materials license. Whereas living within 50 miles may be sufficient to establish standing for a reactor, I would not expect it to be sufficient for most materials licenses. The Commission has not yet addressed how to approach this matter.

Currently the Commission is considering a variety of issues relating to standing and notice. I believe we should have given these matters a higher priority, reached some decision, and been prepared to provide additional guidance for cases such as this one. As I suggested in October 1982, "The area of materials license hearings is in the formative stages. This is an opportunity for the Commission to set things up the way it wants them to be rather than being constrained by 20 years of historical practice."

I also would have preferred to use the procedures set up for the West Chicago case. Specifically, I would have appointed a person from NMSS to preside. Generally people in this agency (outside of NMSS) are most familiar with power reactors. I believe it would be useful to have decisions made by someone who is specifically familiar with materials licensing, particularly since the standing issues require some knowledge about the nature of the activity. It also would have been useful to have more experience as a basis for evaluating the benefit of using technical people as presiding officers.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket Nos. 50-247
50-286

CONSOLIDATED EDISON COMPANY
OF NEW YORK
(Indian Point, Unit No. 2)

POWER AUTHORITY OF THE STATE
OF NEW YORK
(Indian Point, Unit No. 3)

June 10, 1983

The Commission determines, in light of adequate compensatory actions taken or planned to be taken promptly to correct certain deficiencies in emergency planning at Indian Point, that shutdown of Units 2 and 3 in accordance with the Commission's May 5, 1983 order (CLI-83-11, 17 NRC 731) is not warranted.

EMERGENCY PLAN: ENFORCEMENT ACTION
(COMMISSION RESPONSIBILITIES)

The regulatory structure established by the emergency planning rule, 10 CFR 50.54(s), is intended to be flexible: the Commission is to look at the totality of the circumstances; to allow grace periods, where appropriate, for the correction of deficiencies; to balance a variety of factors even where grace periods have expired without the completion of every desirable corrective action; and to recognize that emergency planning is a fluid process,

requiring regular updating, testing, and adjustment. It is the Commission's duty to determine when the gravity of outstanding deficiencies, their persistence, the limitations of interim compensatory measures, and other factors, taken together, counsel the end of grace periods, and the imposition instead of a shutdown.

EMERGENCY PLAN: ENFORCEMENT ACTION (CORRECTION OF DEFICIENCIES)

Neither the law nor the Commission's regulations dictate how many opportunities a licensee has to bring itself into compliance with the Commission's regulatory rules. See *Rockland County v. NRC*, 709 F.2d, 760 n.13 (2d Cir., May 27, 1983).

ORDER

I. INTRODUCTION

In its Order of May 5, 1983 (CLI-83-11, 17 NRC 731), the Commission described the circumstances which compelled it to consider whether to order shutdown of the two Indian Point nuclear power plants: a finding by the Federal Emergency Management Agency (FEMA) that emergency planning and preparedness at the two plants were inadequate, owing principally to the persistence of two major deficiencies. Those deficiencies related to the questionable availability of buses and drivers for evacuations in Westchester County and the non-participation of Rockland County in the four-county planning process.

The Commission has now heard, in writing, orally, or both, from the Indian Point licensees, the Governor of New York, and from a variety of public officials and private individuals and groups with respect to emergency planning at Indian Point. We have found those presentations of views extremely helpful, and wish to express our appreciation to those who contributed their particularized knowledge to help the Commission in making a decision which affects so many of their fellow citizens.

We have given careful consideration to all these submissions, as well as to the most recent information which we have received from the Federal Emergency Management Agency. Based on all the information before us, we conclude that adequate interim compensatory actions have been taken or will be taken promptly, and therefore the Indian Point plants should not

be shut down at this time. The reasons for this determination are set forth below.

II. REGULATORY FRAMEWORK

In the aftermath of the Three Mile Island accident, it was apparent that substantial upgrading was necessary in the Commission's regulations in the area of emergency planning. On August 19, 1980, the Commission issued in final form new emergency planning regulations for nuclear power plants. 45 Fed. Reg. 55402. Under those regulations, no new facility may be issued an operating license unless the NRC finds that the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. 10 CFR §50.47(a).

For plants already licensed to operate, such as the Indian Point Units 2 and 3 reactors at issue today, a different regulatory structure was provided. The regulations require implementation of licensees' and State and local emergency plans by April 1, 1981, for these existing plants. 10 CFR §50.54(s) (2). If, after that date, the NRC finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, including requirements set out in 10 CFR 50, Appendix E, and if the deficiencies are not corrected within four months of that finding,

[T]he Commission will determine whether the reactor shall be shut down until such deficiencies are remedied or whether other enforcement action is appropriate. In determining whether a shutdown or other enforcement action is appropriate, the Commission shall take into account, among other factors, whether the licensee can demonstrate to the Commission's satisfaction that the deficiencies in the plan are not significant for the plant in question, or that adequate interim compensating actions have been or will be taken promptly, or that there are other compelling reasons for continued operation.

10 CFR §50.54(s) (2) (ii). This regulatory approach recognized that it was reasonable to allow existing plants adequate time to achieve emergency preparedness before being subjected to enforcement action, and that public health and safety would be reasonably assured in the interim by continued licensee compliance with Commission regulations aimed at keeping the probability of serious accidents extremely low.

In making the determination whether to take enforcement action, "[t]he NRC will base its finding on a review of the FEMA findings and determina-

tions as to whether State and local emergency plans are adequate and capable of being implemented, and on the NRC assessment as to whether the licensee's emergency plans are adequate and capable of being implemented." 10 CFR 50.54(s)(3).

The Commission's rules further provide that licensees must provide for annual reviews of their emergency preparedness programs, to be conducted by persons with no direct responsibility for implementing those programs. The reviews "shall include an evaluation for adequacy of interfaces with State and local governments and of licensee drills, exercises, capabilities, and procedures." 10 CFR §50.54(t).

In promulgating its emergency planning rule in 1980, the Commission published Supplementary Information which spelled out in some detail the means by which it would be applied. With regard to operating plants for which deficiencies remained uncorrected after the four-month period for corrective action, the Commission stated that it would "determine expeditiously whether the reactor should be shut down or whether some other enforcement action is appropriate, pursuant to procedures provided for in 10 CFR 2.200-2.206." 45 Fed. Reg. 55402, 55403. The cited regulations include those governing the issuance of orders to show cause. Under 10 CFR §2.202, the NRC staff is empowered to issue an order to show cause why enforcement action should not be taken when it believes that modification or suspension of a license, or other such enforcement action, is warranted. Under 10 CFR §2.206, members of the public may request the NRC staff to issue such an order to show cause. The rule thus provides that operating licenses will remain effective at the conclusion of the four-month period for corrective action unless the NRC staff, either on its own initiative or in response to a request from a member of the public, initiates enforcement action.

The supplementary information accompanying the rule noted that continued operation could be permitted notwithstanding the persistence of deficiencies:

In deciding whether to permit reactor operation in the face of some deficiencies, the Commission will examine among other factors whether the deficiencies are significant for the reactor in question, whether adequate interim compensatory actions have been or will be taken promptly, or whether the other compelling reasons exist for reactor operation.

45 Fed. Reg. at 55403, col. 1.

The supplementary information stated that in accordance with the provisions of the NRC Appropriations Authorization Act for fiscal year 1980, Pub. L. 96-295,¹ this determination was to be made with flexibility:

In determining the sufficiency of "adequate interim compensatory actions" under this rule, the Commission will examine State plans, local plans, and licensee plans to determine whether features of one plan can compensate for deficiencies in another plan so that the level of protection for the public health and safety is adequate.

45 Fed. Reg. at 55403, col. 1.

The transcripts of the Commission's discussions preceding adoption of the rule address the meaning of the term "adequate interim compensatory action."² They indicate that though interim compensatory actions must be "adequate," this did not mean that they would necessarily provide the same level of protection that complete correction of the deficiencies would offer. A suggestion was made that they should offer equivalent protection, and rejected. See Transcript of Commission Meeting of July 23, 1980, at 96.

The Commission noted, in adopting the rule, that inaction by a State or locality could effect a potential restriction on plant operations. This problem was addressed in the preamble to the rule:

The Commission recognizes that there is a possibility that the operation of some reactors may be affected by this rule through inaction of State and local governments or an inability to comply with these rules. The Commission believes that the potential restriction of plant operation by State and local officials is not significantly different in kind or effect from the means already available under exist-

¹ §108, P.L. 96-295, provides in relevant part:

Sec. 109. (a) Funds authorized to be appropriated pursuant to this Act may be used by the Nuclear Regulatory Commission to conduct proceedings, and take other actions, with respect to the issuance of an operating license for a utilization facility only if the Commission determines that —

- (1) there exists a State or local emergency preparedness plan which —
 - (A) provides for responding to accidents at the facility concerned, and
 - (B) as it applies to the facility concerned only, complies with the Commission's guidelines for such plans, or
- (2) in the absence of a plan which satisfies the requirements of paragraph (1), there exists a State, local, or utility plan which provides reasonable assurance that the public health and safety is not endangered by operation of the facility concerned.

The Conference Report explained the purpose of this provision:

The conferees sought to avoid penalizing an applicant for an operating license if a State or locality does not submit an emergency response plan to the NRC for review or if the submitted plan does not satisfy all the guidelines or rules.

Report No. 96-1070, 96th Cong., 2d Sess., at 27, reprinted at [1980] U.S. Code and Cong. News 2242-43.

Section 5 of the Appropriations Authorization for Fiscal Year 1982 and 1983, P.L. 97-415, reiterates this provision.

² These transcripts were explicitly made a part of the rulemaking record. See Supplementary Information, 45 Fed. Reg. at 55402. Under 10 CFR 9.103, transcripts of Commission meetings and statements made in Commission meetings do not constitute part of the administrative record except at the express direction of the Commission.

ing law to prohibit reactor operation, such as zoning and land-use laws, certification of public convenience and necessity, State financial and rate considerations [10 CFR 50.33(f)], and Federal environmental laws. The Commission notes, however, that such considerations generally relate to a one-time decision on siting, whereas this rule requires a periodic renewal of State and local commitments to emergency preparedness. Relative to applying this rule in actual practice, however, the Commission need not shut down a facility until all factors have been thoroughly examined.

45 Fed. Reg. at 55404.

The lack of an approved plan was not, therefore, the only factor to be considered. Rather, the Commission intended that the lack of a particular plan was to be balanced against other factors, and that interim operation should be allowed where protection of the public, while not optimum, was adequate for a limited period of time. It is noteworthy that the Commission expressly rejected an option, set forth in the proposed rule, under which "shutdown of the reactor would be required automatically if the appropriate State and local emergency response plans had not received NRC concurrence within the prescribed time periods unless an exemption is granted." 45 Fed. Reg. at 55406.

In sum, the regulatory structure established by the emergency planning rule is intended to be flexible: the Commission is to look at the totality of the circumstances; to allow grace periods, where appropriate, for the correction of deficiencies; to balance a variety of factors even where grace periods have expired without the completion of every desirable corrective action; and to recognize that emergency planning is a fluid process, requiring regular updating, testing, and adjustment. It is the Commission's duty to determine when the gravity of outstanding deficiencies, their persistence, the limitations of interim compensatory measures, and other factors, taken together, counsel an end to grace periods, and the imposition instead of a shutdown.

To understand how the Commission in this case reached the conclusion that the balance in this case narrowly favors continued operation of the two plants, a review of the procedural history of the treatment of emergency planning concerns at Indian Point may be helpful. It appears as Appendix A to this Order.

III. THE SITUATION TODAY

On May 27, 1983 New York State submitted to FEMA an emergency plan to substitute for Rockland County's rejection of the four-county

emergency plan. On June 7, the licensees submitted letters of intent, signed by the licensees and bus companies in Westchester County, which will serve as the basis of contracts to provide buses in the event that an evacuation is ordered.

In a June 8 letter from Executive Deputy Director Jeffrey Bragg, FEMA provided the Commission its views on the revised State plan and the current Westchester County bus situation:

[S]ubstantial progress has been made in meeting FEMA's earlier concerns regarding emergency planning at the Indian Point plants.

Over the last year, FEMA has formally reported to the NRC on off-site matters at Indian Point on three occasions and, in addition, the agency has provided numerous informal status reports. The overall trend of these reports has been one of marked improvement in quality of planning and response capability. The State and the local governments involved are to be commended for their serious concern.

Our evaluation indicates that work on the two emergency planning deficiencies of most concern which prevented certification of reasonable assurance at Indian Point in FEMA's report of April 14, 1983, is progressing favorably. Current planning calls for proposals to be tested in an early, full-scale exercise of the State of New York's compensatory measures for Rockland County, and a drill for the bus arrangements in Westchester County. I concur in the views of Mr. Petrone, FEMA's Region II Director, that the plans as reviewed by the Regional Assistance Committee offer a sound approach to resolution of remaining difficulties. Subject to further evaluation from upcoming tests and exercises, it now appears that continuation of this commitment and momentum should bring about responsive corrections to the deficiencies noted in our earlier report. . . .

The letter from FEMA Regional Director Petrone which Mr. Bragg's letter cited described in greater detail the commitments made by the State and the licensees to correct areas of deficiency. Mr. Petrone's letter gave several examples: the commitment and training of staff to perform various emergency response functions; agreements with bus owners to provide equipment to the licensees to carry out evacuation; and the development of an interim public information program for Rockland County. Mr. Petrone's letter noted that many of the recommendations of the Regional Assistance Committee for FEMA Region II had been implemented, and that others were in process, with a commitment by the State to have them in place within 30 days. Moreover, FEMA had a commitment from the State and

the licensees to participate in a full-scale exercise of the State's compensatory plan for Rockland County in approximately 60 days. Mr. Petrone's letter described the actions of the state and licensees as "an adequate, positive, and important commitment."

IV. ANALYSIS AND CONCLUSIONS

At the time that the Commission issued its Order of May 5, 1983, the state of emergency planning and preparedness for Indian Point appeared, in light of FEMA's finding of significant deficiencies, to warrant a shutdown of the reactors, unless the situation changed markedly. In that Order, we announced that we intended to shut down the two plants unless FEMA determined that the significant deficiencies which it had identified no longer existed, or unless it could be shown that adequate compensating actions had been or would be taken promptly, that the deficiencies were not significant, or that other compelling reasons existed to permit operation.

We are gratified to learn from FEMA's letter of June 8 that our May 5 Order seems to have galvanized some of the participants in the emergency planning and preparedness process into accelerating rapidly the pace of corrective action. In the five weeks since the May 5 Order, the factual situation we confront has altered dramatically. The new commitments on the part of the State and the licensees give us confidence that adequate compensatory measures either have been, or shortly will be, taken for those areas in which shortcomings still remain in the state of emergency planning and preparedness. In Westchester County, for example, letters of intent have been signed that will assure the availability of buses in the event they are needed for evacuation, and programs have begun which should assure the availability of trained bus drivers. The revised emergency response plan submitted by the State of New York — a document which reflects substantial effort, and a demonstration of the State's commitment to the timely resolution of remaining problems — now is explicit in providing that the State, with the assistance of utility personnel, will take over Rockland County's emergency response functions in the upcoming exercise, and in the event of an actual emergency, will supplement, or if necessary take over, the county's efforts. In those areas where the Radiological Advisory Committee found weaknesses in the revised State plan, moreover, the State has committed itself to resolving those problems within 30 days. Lastly, FEMA's letters indicate that the level of the licensees' involvement in the correction of deficiencies, and in working effectively with State and county authorities, has improved significantly since FEMA last reported to us eight weeks ago.

Based on this progress, and the commitments which have been received from the State and licensees to assure that momentum is maintained, we conclude that an order shutting down the two plants is no longer justified. In so finding, we emphasize that we are in no sense abandoning the position we took in our order of May 5, nor are we weakening in our commitment to assure the adequacy of emergency planning and preparedness at Indian Point and all other operating nuclear power plants. Rather, this conclusion reflects the fact that our strong commitment to achieving sound emergency planning and preparedness at Indian Point has helped to bring about a variety of improvements in recent weeks. Those improvements have narrowly tipped the balance in favor of continued operation.

In giving heavy weight to FEMA's evaluation, we are in no sense attempting to evade our own regulatory responsibility. Rather, we are giving due weight, as we have all along, to FEMA's primary responsibility for the evaluation of offsite emergency planning, a position established by Executive Order and recognized in the NRC's own regulations.

It will doubtless be argued that the Commission, having twice before declined to order a shutdown of the Indian Point plants on grounds of emergency planning and preparedness, cannot a third time allow continued operation with anything less than full compliance with the Commission's regulations, proven in a full-scale emergency exercise. That argument would miss the point. Neither the law nor our regulations dictate how many opportunities a licensee has to bring itself into compliance with our emergency planning rules. See *Rockland County v. NRC*, 709 F.2d 760, n.13 (2d Cir., May 27, 1983). The Commission's regulatory process requires us to assess the evolving state of emergency planning and preparedness, as it improves and as it deteriorates, and to frame our regulatory responses accordingly. That is what we have done today.

It must be borne in mind, moreover, what the purpose of the Commission's emergency planning regulations is: to assure that the health and safety of the public will be protected in the event of a radiological emergency at a nuclear power plant. If assuring the public health and safety requires that we shut down a nuclear power plant, we will not hesitate to do so, but it would be inconsistent with our regulatory responsibilities to shut down a facility where the public health, safety, or interest do not so require.

Our order of May 5, indicating our intent at that time to order a shutdown of the facility unless FEMA's evaluation of the situation changed, or the commenters presented strong contrary evidence, was a straightforward statement of the necessary preconditions for continued operation of the facility. We conclude that those preconditions have now been met, and that shutdown of the two plants while further improvements are made would not be warranted. Operation of the two plants may therefore continue.

Commissioners Gilinsky and Asselstine dissent from this decision. The additional views of all Commissioners are attached.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 10th day of June, 1983.

APPENDIX A

Procedural History

Even before the adoption of the emergency planning rule in 1980, the subject of emergency planning and preparedness at Indian Point had been the subject of special concern on the part of members of the public and of the Commission. On September 17, 1979, the Union of Concerned Scientists filed a petition under 10 CFR §2.206, requesting, among other things, suspension of the operating licenses for Indian Point Units 2 and 3, in part on grounds of emergency planning issues. The petition was referred to the Director, Office of Nuclear Reactor Regulation, who on January 22, 1980, granted the request in part and denied it in part. 11 NRC 351. The Commission, in part in order to address the issues raised by the UCS petition and the Director's partial denial, instituted a special evidentiary proceeding before an Atomic Safety and Licensing Board to take testimony and make recommendations on certain specific questions posed by the Commission, relating to the risks posed by the plants and the consequences of a shutdown. That proceeding is still in progress at this time, with recommendations by the Board expected by the end of August. The Commission also established a Task Force to consider whether operation of the two plants should be permitted during the pendency of the special proceeding. The Task Force found that because of certain design features the risk of an accident for the Indian Point reactors is lower than that for other reactors. Overall risk was found to be about average, however, because of the high population density surrounding the plant. Based on these findings, the Commission decided on July 15, 1980 to allow interim operation of the two plants.

On March 27, 1981, in accordance with the new emergency planning regulations described above, the NRC wrote to the Federal Emergency Management Agency (FEMA), asking for its findings and determinations on State and local offsite emergency plans for Indian Point. FEMA, while stressing that Indian Point plans were still under review and that only an "informal report" could be provided at that time, replied on April 2, 1981, that it found two major problem areas in State and local planning for all five nuclear reactors located in New York State: a conflict in organizational relationships and the assignment of responsibilities for emergency management, and a lack of specificity in the plans. On April 6, 1981, FEMA presented a more detailed statement of its concerns to the New York State Disaster Preparedness Commission, again stressing the problem of conflict between State and county authorities and responsibilities in radiological emergencies.

On April 23, 1981, FEMA forwarded its review of the New York State Plan to NRC, and on the following day, the NRC wrote identical letters to the licensees of the five operating nuclear power plants located in New York State. The letters forwarded the FEMA analyses and informed the licensees that "many of these deficiencies identified by FEMA must be removed in order for us to conclude that appropriate protective measures can and will be taken in the event of a radiological emergency at your facility." The licensees were informed that unless these deficiencies were corrected within 120 days, the NRC would determine whether to shut facilities down or take other enforcement action. The NRC added that it recognizes that correction of the deficiencies might require the enactment of new statutes by the State Legislature.

On July 9, 1981, the State Legislature enacted new legislation dealing with the responsibilities of the State and counties in the area of emergency planning and preparedness. On August 10, as the 120-day period neared its end, the NRC asked FEMA for an updated evaluation of emergency plans. On August 19, 1981, FEMA replied that its earlier concerns had been "partially answered" by the enactment of the new legislation. Observing that other deficiencies were in the process of being corrected, and that emergency exercises would be held in coming months, FEMA concluded that "the present state of planning is generally adequate to carry out the responsibilities of the state and local government in the case of an accident at these sites." It emphasized, however, that a "judgment of the overall adequacy of preparedness cannot be provided until the results of the exercises are evaluated." Five days later, on August 24, the NRC staff wrote identical letters to the nuclear licensees in New York State, forwarding the FEMA

letter and stating the staff's conclusion that. "this issue has been resolved satisfactorily."¹

On March 3, 1982, the adequacy of onsite and offsite preparedness for radiological emergencies at Indian Point was the subject of an exercise conducted by FEMA. On May 18, 1982, the Legislature of Rockland County enacted Resolution 320, declaring that the County would not cooperate in emergency planning and emergency exercises for Indian Point, and barring County personnel from offering any assistance to Federal agencies working to assure preparedness for radiological emergencies at the Indian Point plants. On June 16, 1982, the NRC staff asked FEMA for an updated evaluation of the adequacy of offsite preparedness around the site. On August 2, 1982, FEMA forwarded to the NRC its reply, dated July 30, in which it stated that significant deficiencies existed with respect to five of the sixteen planning standards set forth in 10 CFR 50.47(b), and in *Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants*, NUREG-0654/FEMA-REP-1 (1980). FEMA's evaluation was based *inter alia* on its review of the radiological emergency response plans of New York State and the Counties of Orange, Putnam, Rockland, and Westchester; of the performance of those jurisdictions during the March 3 emergency exercise; and on Rockland County's May 18 non-cooperation resolution.

On the following day, August 3, 1982, the Commission notified the Indian Point licensees that unless the significant deficiencies identified by FEMA were corrected within 120 days, the NRC would consider whether to shut the plants down or take other enforcement action.

One day later, on August 4, the Union of Concerned Scientists and the New York Public Interest Research Group wrote to the Commission, commenting on FEMA's July 30 report, and calling upon the Commission to order an immediate shutdown of the Indian Point plants. The Commission, after receiving a briefing on September 9, 1982, from its staff and that of FEMA on Indian Point emergency planning, decided to treat the UCS/NYPIRG request as a petition under 10 CFR §2.206, and it was referred to the Director of the Office of Inspection and Enforcement for action.

On November 26, 1982, the Director of the Office of Inspection and Enforcement denied the UCS/NYPIRG request. The Director's decision

¹ The Union of Concerned Scientists and the New York Public Interest Research Group on October 7, 1981, filed a petition in the United States Court of Appeals for the Second Circuit for review of the August 24 letter (No. 81-4188). On November 18, 1981, the Nuclear Regulatory Commission and the United States filed a Motion to Dismiss, contending that the Petitioners had failed to utilize the administrative remedy available to them (a petition under 10 CFR §2.206), and that the August 24 letter did not represent a "final order" of the agency within the meaning of 28 U.S.C. §2342(4) and 42 U.S.C. §2239(b). On December 15, 1981, the Second Circuit granted the Motion to Dismiss.

noted that the Commission's rules contemplated a 120-day period for the correction of deficiencies (a period not due to expire until December, 1982), and stated that the petitioners had not shown grounds for shortening that time period. The Director acknowledged that some of the deficiencies were the same as those identified in the 1981 "120-day clock." He explained, however, that where a number of items cumulatively constitute a significant deficiency, some lesser deficiencies may remain after the correction of major problems and yet not preclude a finding of general adequacy. In the case of the 1981 "120-day clock" the Director went on, enough progress had been made on the issue of competing State and county authority and on the other deficiencies to permit such a finding of general adequacy. The Director observed that FEMA briefings of the Commission indicated that substantial progress was being made in the correction of identified deficiencies. He concluded that although the Commission would consider the necessity of further corrective action at the end of the 120-day period, he saw no need for enforcement action in advance of that date.

On December 17, 1982, FEMA provided the Commission with a status report on offsite emergency planning for Indian Point, and on December 21, briefed the Commission on the report. The FEMA report addressed the status of remedial actions and concerns raised at public meetings and provided an updated review of the Indian Point emergency plans. The report dealt specifically with each of the 34 sub-elements in which FEMA had found deficiencies, and which cumulatively had led to the finding of significant deficiencies in five planning standards, as described in the July 30 FEMA status report.

Overall, the report concluded that the federal, state, county and utility personnel who had worked since August 3 to remedy the identified deficiencies "have put forth an impressive level of effort and, through effective management, hard work, and dedication, have made significant progress." However, it also found that two of the more than 34 original problems remained. First, the Westchester County Radiological Emergency Response Plan called for reliance on public and commercial buses and drivers for emergency evacuations, but FEMA found that it lacked information on whether the buses and drivers would in fact be available in emergency situations. Although the New York State Division of Military and Naval Affairs had proposed using military forces to replace civilian bus drivers, FEMA's evaluation led it to conclude that this plan would increase evacuation times to an unsatisfactory degree. Letter from L. M. Thomas, FEMA, to W. J. Dircks, dated Dec. 17, 1983, at 2.

Secondly, Rockland County's non-participation in the four-county planning process was found to present continuing problems, although FEMA believed that New York State had ameliorated the situation substantially by

developing a generic compensatory plan for dealing with counties either unwilling to participate or having inadequate plans. *Id.*

On December 23, 1982, the Commission issued its determination (CLI-82-38, 16 NRC 1698) under 10 CFR 50.54(s) that no shutdown or other enforcement action was necessary with respect to Indian Point Unit 2. Indian Point Unit 3 was scheduled to be shut down until March or April, 1983, for reasons unrelated to emergency planning.

The Commission's December 23 decision relied heavily on FEMA's December 17, 1982 Status Report and the major improvements which it described, while noting the remaining problems which FEMA found in the area of bus driver availability and the non-cooperation of Rockland County. The Commission mentioned that it had asked FEMA to conduct a preparedness exercise before the end of the 120-day period for corrective action, but that FEMA had replied that to conduct an exercise sooner than the scheduled date of March, 1983 would not be feasible.

The Commission based its conclusion that no interim enforcement action was needed at that time on a variety of factors. First, substantial progress had been made since July, 1982, when FEMA's Status Report was issued, and additional progress would be made in coming months. Second, FEMA had concluded that the remedial actions already accomplished and those scheduled to be completed in the next few months constituted offsite plans that would be feasible and capable of implementation. Third, the Commission found it very unlikely that a severe accident would occur in the few months (until March or April, 1983) during which those further remedial actions would be taken. The order stated that in April, 1983, upon receipt of FEMA's evaluation of the March exercise, the Commission would revisit the issue of the adequacy of emergency planning and preparedness at Indian Point.

The Commission observed that FEMA and New York State were working together to resolve the problem of bus and driver availability. It noted that compensating measures had been proposed which would probably be adequate in many accident scenarios, and that even in the event evacuation by bus of those without their own cars should prove infeasible because of a lack of drivers and a delayed response by the State, many drivers would carpool, and in any case, taking shelter without evacuation could prove to be the most effective way of reducing radiation doses in a fast-breaking event.

The Commission's decision noted that Rockland County officials had made commitments to cooperate with state and federal officials in developing a plan, and that FEMA hoped to have a workable Rockland plan in early 1983. In assessing the seriousness of the deficiency in this area, the Commission commented, two considerations should be taken into account:

first, the fact that the New York State plan called for State officials to take over county functions where counties could not fulfill those functions, and second, that federal approval of plans, as FEMA had acknowledged in its briefing to the Commission, is not a prerequisite to effective emergency response. The Commission observed that state plans and *ad hoc* responses, even if different from what federal authorities might have preferred, had in many cases proved sufficient in the past. The Commission commented that both remaining problems related to State and local governments and their role in offsite response, matters which lay beyond the power of licensees to control.

The Commission concluded that the two planning standard deficiencies noted by FEMA did not warrant immediate shutdown. The Commission stated that it would continue to monitor the progress of corrective actions; that FEMA would be conducting an emergency exercise in March, 1983; and that the Commission would be receiving an update from FEMA on the status of planning and preparedness soon thereafter. The Commission stated that it would revisit the status of emergency planning after receiving FEMA's post-exercise report, and that in the meantime, FEMA was being asked to give the Commission monthly reports on the status of Rockland County plans and participation, the resolution of the bus driver issue in Westchester County, and any other emergency preparedness issues that might arise.²

On March 9, 1983, FEMA conducted its emergency exercise at Indian Point. In a letter dated April 15, and in a briefing on April 20, FEMA reported to the Commission that it found continuing deficiencies in the area of Rockland County's non-participation and the questionable availability of buses and drivers for evacuations in Westchester County.

On May 5, 1983, therefore, the Commission issued an order (CLI-83-11) in which it described the deficiencies found by FEMA; observed that the Indian Point licensees and the surrounding jurisdictions had twice already been put on notice that the NRC's emergency planning regulations were not being met; provided an opportunity for comment; and

² On May 27, 1983, in *County of Rockland v. NRC* (Nos. 83-4003, 83-4037), the United States Court of Appeals for the Second Circuit upheld the Commission's December 23, 1982 decision not to take enforcement action, and its February 1983 order affirming that decision. The court observed that the Commission's regulations give it broad discretion to decide, on the basis of a variety of factors, whether enforcement action should be taken at the conclusion of a 120-day clock. The court found that the Commission had acted in accordance with applicable law and regulations when it took into account, among other factors, the substantial progress which had been made in correcting deficiencies in emergency planning and preparedness at Indian Point during the 120-day period in question; the likelihood that remaining problems would soon be corrected; and the remote possibility of a nuclear accident in the period during which those corrective actions would be completed. Noting that its review was guided by the "arbitrary and capricious" standard, the court found substantial evidence in the record to support the Commission's decision on the merits.

stated that the Commission's present intent, subject to evaluation of the comments, was

[T]o issue an order by June 9, 1983 promptly suspending operation of the Indian Point plants unless:

- (1) FEMA has determined that the significant deficiencies as determined in FEMA's Post Exercise Assessment dated April 14, 1983 no longer exist, or
- (2) The licensees demonstrate to the satisfaction of the Commission in accordance with 10 CFR 50.54(s) (2) (ii) that:
 - (a) adequate interim compensating actions have been or will be taken promptly, or
 - (b) the deficiencies identified by FEMA as significant are not significant, or
 - (c) other compelling reasons exist to permit operation of the facility, or
 - (d) there are other factors justifying continued operation.

ADDITIONAL VIEWS OF CHAIRMAN PALLADINO

This decision, I believe, has been a difficult one for all Commissioners. I have reviewed the matter at length and studied the information and views we have received. I would not require shutdown of the Indian Point plant. The Commission's Order of May 5, 1983 provides that the Commission will issue an order by June 9 suspending operating authority for Indian Point *unless* specified conditions are met. In my opinion, a sufficient number of those conditions have been met.

As noted in the June 8, 1983 letter of Mr. Frank P. Petrone, Regional Director of Region II, Federal Emergency Management Agency, the course of offsite emergency planning at Indian Point has been one of significant progress to where only two deficiencies existed at the time of FEMA's April 14, 1983 report. Mr. Petrone further notes that since April 14, the actions of the State and the licensees regarding these deficiencies "represent an adequate, positive and important commitment through which emergency preparedness could be achieved for Indian Point." Mr. Petrone's letter also notes that many recommendations regarding plan improvement have been implemented; others are in process and the State has committed to have them in place within 30 days. Further, it notes that commitments have been made with respect to the Westchester deficiency. Among the steps to correct this deficiency are an orientation program, with union support, for bus drivers, in order to inform the drivers themselves, of what is being

asked of them; commitments from the bus companies in the area to provide buses; and the training of approximately 200 licensee employees as a backup pool of drivers.

In reaching my decision I have kept in mind the importance of emergency preparedness even though it is highly improbable that an accident leading to a major offsite release will occur at Indian Point. Even if one were to occur which required emergency response, it most likely would be one that would allow 12 or more hours for responsive actions. Far less likely is a fast-moving accident. For such an accident sheltering even in homes without basements would likely be preferred over immediate evacuation.

Finally, I cannot ignore the economic costs of a shutdown. While the exact amount of those costs can be debated, they are significant, and give added weight to the above reasons for not shutting down the plant.

In closing, let me again say that the decision was a difficult one. I view the two emergency planning deficiencies at Indian Point, which prompted our May 5 order, to be deficiencies in commitments. Now, as evidenced by FEMA's evaluation, the necessary commitments have been made. Of course, they must be fulfilled, and I encourage all participants to continue the initiative and positive direction that characterizes their present activities.

The exercise to verify preparedness should be scheduled at the earliest possible date. The licensees and the government entities should work diligently to prepare for an effective exercise.

ADDITIONAL VIEWS OF COMMISSIONER AHEARNE REGARDING INDIAN POINT ENFORCEMENT ACTION

This is a razor-thin decision — but I must follow the facts as I see them. Therefore, at this time I would allow the Indian Point Units 2 and 3 to continue operation.

On May 5 the Commission concluded it was necessary to consider shutting down the Indian Point plants because it found serious problems continued to exist with regard to Indian Point emergency planning. The Commission indicated it would decide on June 9th whether or not the plants would be allowed to continue to operate. I believed the basic problem was that the State, counties, and utilities were not working effectively on the emergency planning problems. This was reflected in that:

- (1) There were no formal commitments for buses and drivers in Westchester County despite the fact that this appeared to be a

discrete, manageable issue which had been identified as a problem for some time,

- (2) Rockland County apparently did not intend to complete a plan in the foreseeable future and the State had not developed specific plans to step in for Rockland, and
- (3) The utilities apparently saw little need to work with local governments nor provide resources, for example, funds to cover some of Rockland County's emergency planning costs.

These problems led FEMA to conclude there were two major deficiencies.

Since the Commission issued its order, major steps have been taken.

Westchester County now has letters of intent for the buses that would be needed. Although there are not yet any unconditional agreements to provide drivers, programs have begun whose purpose is to arrange for those drivers.

The State of New York has submitted a revised emergency response plan that explicitly provides for the State taking over the emergency functions for Rockland County. An explicit procedure has been developed. It involves a determination the county cannot implement effective emergency response actions and State declaration of an emergency which would lead to the State exercising the emergency control function. Commission staff have indicated this process can be done quite rapidly. This revision apparently solves the major problem which FEMA had found in the previous plan, namely, an explicit plan for State control.

In addition, the State committed to resolving in thirty days a set of weaknesses that the Radiological Advisory Committee found in reviewing the State's plan.¹ I find the State is still lukewarm in addressing what it appears to me is the State's responsibility in the absence of the county's willingness to exercise this responsibility. For example, in transmitting the plan to FEMA,² the State described the plan as the "mechanism available for the several months which Rockland County has indicated it required to complete its own planning." This plan is clearly going to be needed much longer than "several months." However, this lukewarm action is a significant improvement over the arms length treatment that the State had previously taken and apparently is adequate to meet FEMA's major concerns about planning.

¹ Letter from D. Davidoff, Director of the Radiological Emergency Preparedness Group, New York Department of Health to F. Petrone, Regional Director, FEMA (June 7, 1983).

² Letter from D. Axelrod, Chairman, New York State Disaster Preparedness Commission to F. Petrone, Regional Director, FEMA (May 27, 1983).

Finally, the utilities do seem to be getting more involved. As the Chairman of the Rockland County Legislature testified to the Commission, "Since you guys said June 9, all of a sudden I have had a flood of people in my office that weren't there before."³ Both PASNY and Con Ed are also more visible, as in their work with the bus companies and the revised brochure. This increased involvement apparently has had major positive effects, as indicated in FEMA's letters to the Commission on June 8th.

With respect to our May 5th order, I conclude "adequate interim compensating actions have been or will be taken promptly." The Commission should allow the plants to continue to operate pending (1) the exercise which FEMA has committed to running in the near future and (2) the Indian Point special proceeding board submitting its recommendations.

There are three basic questions involved in emergency planning:

1. Is there a plan?
2. Can it be implemented?
3. Can it be successful?

The first question has been answered by FEMA in their recent letter in which they say essentially: yes, there is a plan. I am willing to accept this conclusion. As I explained in May, underlying my judgment is the view that an "ability to take protective measures" does not mean that preparation for an emergency must address every contingency, nor does it mean that there must be confidence all details have been worked out and everything will progress smoothly in the event of an accident. It does mean that a basic framework must be in place for making decisions and taking appropriate actions.

"Can it be implemented?" is the question that FEMA has consistently said requires an exercise to answer and once again we await an exercise.

I recognize FEMA will probably not be able to make a complete finding even after the next exercise. The State plan involves the use of Rockland County employees. Although we have been assured Rockland County will assist in the event of a *real* emergency, I do not expect they will agree to participate in the exercise. However, I believe the exercise will provide an opportunity to assess the ability of the State to come into the county and take over, which is the aspect I would be most interested in if I were going to take part in the Commission's decision. (I do not expect we will ever see a Rockland County plan.)

I would not shut down Indian Point solely because of Rockland County's failure to participate. Initially it may seem entirely appropriate to reach a

³ Transcript of May 26, 1983 Commission meeting at p. 85.

conclusion that emergency planning cannot be done for Indian Point when one of the affected counties concludes:

We do not believe that there is any emergency plan that man or his maker can create which would make it possible to safely evacuate the 260,000 people of Rockland County in the event of a major accident, such as a meltdown at Indian Point, and since we do not believe that we can ever come up with a plan to protect the health and safety of our people, we have repeatedly passed resolutions calling for the closing down of Indian Point, and that is still our current position.⁴

However, it is necessary to recognize exactly what that statement means. In this case, the county also has said:

If we recognize the potential adverse consequences of an accident, emergency response planning must be based upon the worst possible accident scenario and acceptability of a plan must be based upon the ability to react to a worst possible accident.⁵

If one redefines the objectives sufficiently, it is inevitable that one will reach the conclusion that emergency planning is not possible.

There are several aspects to emergency planning. On the one hand, there is an assessment of the type of situation which one must be prepared to respond to and the best approach to that response. This is an area which I believe is the responsibility of NRC and FEMA. It is our responsibility to develop planning guidelines based on radiological hazard (such as the 10 mile zone for evacuation). On the other hand, there must be an assessment of the local ability to satisfy those guidelines. Clearly State and local governments are best able to evaluate their own ability to meet our standards. However, this ability does not extend to redefining the initial guidelines.

"Can it be successful?" normally is treated as implicit in the emergency planning requirements. The implementation of an adequate plan is treated as a measure of a successful plan. For the purposes of this enforcement action, it is appropriate to continue to do so.

However, in the particular case of Indian Point, the Commission years ago established a special proceeding. In initiating the proceeding, the Commission explained its "primary concern is the extent to which the population around Indian Point affects the risk posed by Indian Point as compared to the spectrum of risks posed by other nuclear plants." The Commission explained it was concerned both with the total societal risk and the individu-

⁴ Testimony of Herbert Reisman, Chairman of the Rockland County Legislature, before the Subcommittee on Energy Conservation and Power of the Committee on Energy and Commerce, U.S. House of Representatives at 3 (June 8, 1983).

⁵ *Id.* at 6.

al risk "including that resulting from the difficulty of evacuation in an emergency."⁶ It asked a Licensing Board to examine in detail many questions, which boil down to "Is the risk of operating the Indian Point plants too great to allow operation?" Involved in that question was the judgment of whether emergency plans can be successful for Indian Point in light of the high population. These issues are to be resolved in the Board's recommendations in late summer or early fall.

Two additional points should be made:

- (1) Under current law the final decision on whether emergency planning is adequate must be the NRC's not FEMA's. In April 1980, the NRC submitted a legislative proposal to transfer to FEMA the final authority regarding offsite emergency planning. For those who believe we should take FEMA's position automatically, perhaps they should support the legislative proposal.
- (2) One intervenor has said, "If you don't vote for shutdown today, the emergency planning regulations will be effectively buried forever." I share the fear but do not reach the same conclusion.

Consequently, I reluctantly agree that the plants can continue in operation. The Perils of Pauline development of emergency planning for Indian Point is extremely frustrating for everyone. The intervenors can rightfully claim "the effort at Indian Point has been backward from the start."⁷ The process we are going through with Indian Point is straining the fabric of Federal, State, and local relations. Emergency planning is too important for political posturing on behalf of any participant. Although the events that we are attempting to plan for have a low probability, they could be quite serious and consequently serious planning is necessary.

ADDITIONAL VIEWS OF COMMISSIONER ROBERTS ON INDIAN POINT ORDER

Many individuals, including some Commissioners, have interpreted the NRC's regulations to require plant shutdown if deficiencies remain following the expiration of the "120-day clock." Such interpretations are not correct. The regulations allow the Commission to take a full range of enforcement actions necessary to bring about compliance with emergency planning standards. If assuring the public health and safety requires that the

⁶ *Consolidated Edison Co. of New York* (Indian Point, Unit No. 2), *Power Authority of the State of New York* (Indian Point, Unit No. 3), CLI-81-1, 13 NRC 1, 6 (1981).

⁷ Statement of J. Holt, Director of NYPIRG's Indian Point Project, submitted to Subcommittee on Energy Conservation and Power, Committee on Energy and Commerce, U.S. House of Representatives at 2 (June 8, 1983).

Commission shut down a nuclear power plant it should not hesitate to do so; however, a shutdown would be a capricious violation of our regulatory responsibilities if it were not mandated for health and safety reasons which is clearly not the case at Indian Point.

The June 8, 1983 letters of the Executive Deputy Director and the Region II Regional Director of FEMA report considerable progress in each of the two areas which were previously reported as significantly deficient. With regard to the first deficiency, agreements have been reached with Westchester bus companies, resolving any uncertainty that there will be a sufficient number of buses to assist in evacuation of those in Westchester County with special transportation needs. Training has been initiated and will soon be completed to ensure that the bus drivers can perform the necessary emergency duties.

The second significant deficiency was addressed by the New York State Interim Compensatory Plan, which is now in place to perform emergency functions in Rockland County. While some deficiencies still exist in the interim plan, FEMA reports that it has discussed those deficiencies with New York State and that it has received adequate, positive, and important commitments to address promptly these deficiencies. Furthermore, FEMA has received a commitment to test the compensatory plan.

In view of improvements and commitments reported by FEMA, combined with the extremely low probability and risk of an accident while the compensating plan is being completed and tested, I conclude that shutdown of the Indian Point Power Plants would serve no constructive purpose. Those actions needed to achieve adequate emergency preparedness have been initiated. Consequently it is my belief that the conditions of the May 5 order have been met. Furthermore, a shutdown order issued today would serve only to penalize the licensees and thousands of rate payers for events totally beyond their control.

Needless to say, the Commission will be revisiting the question of emergency planning and preparedness at Indian Point after it receives FEMA's evaluation of the upcoming exercise. There can be no room for doubt, therefore, that both licensees and public officials must maintain the strong commitments to continued progress on which we have relied in today's decision.

SEPARATE VIEWS OF COMMISSIONER GILINSKY REGARDING INDIAN POINT

The Indian Point reactors should not be allowed to operate until the Federal Emergency Management Agency advises this Commission that — in the words of our regulations — there is “reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.” FEMA has not yet done so. Although in its letter of June 8, 1983, FEMA said that improvements have been made, it did not modify its earlier finding that emergency preparedness in the surrounding areas was inadequate.

Emergency preparedness is especially important for the area surrounding Indian Point because of the uniquely high population in the vicinity of the site. Yet, the performance record on emergency preparedness around this site is the worst in the country. The State and counties failed their initial test in March, 1982, and a retest a year later. Indian Point is the only nuclear site which has never passed such a test.

The question before the Commission was a simple one: Was it going to enforce its regulations on emergency preparedness? The answer that emerges is that the NRC will settle for “the moral equivalent” of compliance. I am afraid the Commission will pay a heavy price, in terms of increased public cynicism, for this decision.

In order to overcome the lack of a favorable FEMA finding, the Commission was obliged to make its own hurried assessment of the details of off-site emergency preparedness. But the fact is that FEMA has the lead federal responsibility in this area and we have agreed to rely on their advice. We have said repeatedly that FEMA is the government agency with the personnel and the expertise to make these assessments. Unless FEMA’s findings are clearly wrong, the only sensible course is to rely on them to determine whether the standards that have been routinely applied to all other plants are met in this case.

There is another cost, as well, the Commission’s decision to look behind FEMA’s finding in this case may boomerang. The decision will undoubtedly be cited as a precedent by parties who are dissatisfied with FEMA’s favorable findings, which have been made in all cases other than Indian Point, and who hope to obtain a different result from the NRC.

A final note: because we only received FEMA’s letter late Wednesday, it would have been helpful for FEMA to have attended the Commission’s Thursday pre-vote discussion meeting. The Commission majority refused to invite FEMA, apparently for fear that FEMA’s comments might undermine the rationale for their decision.

DISSENTING OPINION OF COMMISSIONER ASSELSTINE

In our May 5 order, the Commission stated its intention to issue an order not later than June 9 promptly suspending operation of the Indian Point plants unless *either* FEMA has determined that the significant emergency planning and preparedness deficiencies identified by FEMA no longer exist *or* the licensees demonstrate to our satisfaction that adequate interim compensating actions have been or will be taken promptly, the deficiencies identified by FEMA are not significant, there are other compelling reasons to permit continued operation of the facility, or there are other factors justifying continued plant operation.

On the first point — whether the significant deficiencies identified by FEMA no longer exist — I believe that FEMA's June 8 letter is clear. That letter notes that "substantial progress" has been made in meeting FEMA's concerns, and that work on the two deficiencies of most concern is "progressing favorably." FEMA's letter goes on to state that the plans submitted since our May 5 order "offer a sound approach to resolution of remaining difficulties" and that, subject to further evaluation from upcoming exercises, it "appears that continuation of this commitment and momentum should bring about responsive corrections to the deficiencies." As positive as these statements are on the progress being made and on the likelihood that these deficiencies will be resolved in the future, they clearly fall far short of a judgment by FEMA that the significant deficiencies in emergency planning and preparedness identified in FEMA's April 14 Post Exercise Assessment no longer exist. Moreover, FEMA's June 8 letter does not rescind FEMA's previous bottom-line judgment that it cannot assure that the public health and safety can be protected in the 10-mile emergency planning zone around Indian Point.

On the second point, the licensees, in their written submittals and oral presentations to the Commission, have asserted that the deficiencies identified by FEMA are not significant, that adequate interim compensating actions have been undertaken or are under way, and that the likely economic consequences of shutting down the Indian Point plants provide a compelling reason for allowing continued operation until the deficiencies are corrected.

On the question of whether the deficiencies are significant, I believe that the Commission must give great weight to FEMA's judgment. I do not believe that the licensees have carried their burden of demonstrating that these deficiencies are not significant.

Nor do I believe that the licensees have provided a sufficient showing of adequate interim compensating actions. The measures identified by the licensees are principally the measures identified by FEMA to resolve the

Westchester bus driver and Rockland County nonparticipation issues. Although FEMA has concluded that significant progress is being made, it is clear from the June 8 letter that the significant deficiencies in each of these areas have not yet been corrected.

The oral presentations to the Commission and FEMA's June 8 letter note that preliminary commitments have been made to provide buses in Westchester County. The licensees are funding the development of a comprehensive transportation plan for Westchester County and, according to the licensees' oral presentation, they are beginning a program to recruit and eventually to train drivers for the buses. However, drivers have not yet committed, and have not yet been trained, to drive the buses needed for an evacuation in Westchester County. In the case of Rockland County, the State of New York has now submitted to FEMA a compensatory plan for emergency preparedness for the county. Yet, the FEMA Region II report accompanying FEMA's June 8 letter notes numerous inadequacies in that plan, including the lack of identification of the many individuals who would be required to implement the plan. Moreover, that plan relies heavily on licensee personnel to carry out the emergency preparedness functions for Rockland County. Those personnel, who have not previously been involved in offsite emergency preparedness, also have not been trained to carry out these new responsibilities.

These efforts to address the Westchester bus driver and Rockland County nonparticipation issues are laudable and, according to FEMA, provide a basis for believing that these significant deficiencies will ultimately be corrected. But to argue at this time that they now constitute interim compensating actions sufficient to provide adequate protection to the public health and safety is simply incorrect and unsupported by the record before the Commission, including the expert judgments provided to the Commission by FEMA.

On the matter of the economic consequences of a shutdown of the plants, I believe that the licensees have shown that there will be an economic burden imposed by the shutdown, although the precise magnitude of that burden is less clear.

All of this leads me to the conclusion that the Indian Point plants should be shut down. It has been more than two years since the Federal Emergency Management Agency first notified the Commission that significant deficiencies in emergency planning and preparedness existed for the Indian Point plants. Significant deficiencies still exist today, and adequate interim compensating measures are not now in place. It is past time for the Commission to insist on positive assurances that these deficiencies have been corrected as an essential precondition to the continued operation of the Indian

Point plants. I believe that the public interest and our own regulations require no less.

It is now clear that a majority of the Commission does not share my view. In my judgment, the majority's decision is unfortunate in several respects. First, it reflects the clear view of the Commission that it is prepared to permit the virtually unlimited future operation of these plants despite continuing significant deficiencies in emergency planning. This makes a mockery of our emergency planning regulations. It is difficult to believe that the Commission's 120-day clock procedure for requiring the correction of deficiencies has any meaning at all in light of today's action. Whatever the majority may *say* about their commitment to emergency planning at this and other nuclear power plants, their actions speak louder than their words.

Second, the majority's decision may undermine continued progress in correcting the deficiencies at the Indian Point plants. It appears to me that much of the progress that has been made during the past month can be attributed to the Commission's announced intention to order the shutdown of the plants unless certain conditions were met. Clearly, that driving force is now gone, and this decision may well work against the objective that I hope we all share — assuring the adequate protection of the health and safety of the people within the 10-mile emergency planning zone surrounding the Indian Point plants.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket No. 50-322-OL

LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station,
Unit 1)

June 30, 1983

In response to a question certified to it by the Licensing Board, the Commission decides that existing uncertainty about whether the NRC's offsite emergency preparedness requirements can be met for full-power operation of the Shoreham plant does not, in and of itself, bar the grant of a low-power license under 10 CFR §50.47(d). The Commission accordingly holds that if the applicant can meet all the other requirements of the Atomic Energy Act and NRC regulations pertinent to the grant of a low-power license, it is entitled to that license here.

EMERGENCY PLANNING: LOW POWER OPERATION

10 CFR §50.47(d) gives the Commission unqualified authorization to issue a low-power license in the absence of NRC or FEMA approval of an offsite emergency plan so long as other prerequisites, including an adequate state of onsite emergency preparedness, are met. The section requires no predictive finding of reasonable assurance with regard to offsite emergency planning prior to low-power operation.

ORDER

On April 20, 1983, the Atomic Safety and Licensing Board conducting the operating license hearing for the Shoreham Nuclear Power Station certified to the Commission a question relating to the issuance of a license for fuel-loading and low-power testing. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-83-21, 17 NRC 593 (1983). After consideration of the question presented by the Licensing Board and its accompanying explanation, we have decided to accept the certification. Further, for the reasons stated herein, we find that the present uncertainty about whether the agency's offsite emergency preparedness requirements can be met for full-power operation would not, in and of itself, bar the grant of a license for low-power operation under 10 CFR §50.57(c).

In its order, the Licensing Board noted that under the clear language of 10 CFR §50.47(d), the issuance of a low-power license is authorized notwithstanding the absence of an offsite emergency plan approved by the NRC or the Federal Emergency Management Agency (FEMA).¹ LBP-83-21, 17 NRC 599. Although the Licensing Board recognized the clear language of the regulation, it held the view that "as a matter of sound public policy" the Commission should not allow fuel loading and low-power testing "in circumstances where there is no reasonable assurance" that the plant will ever be allowed to operate above five percent power. *Id.* at 601. In support of its position the Board speculated that "the Commission may have implicitly made a generic finding that, in the absence of special circumstances existing for a particular facility, emergency preparedness required for full-power licenses can in the end be developed for nuclear power plants." *Id.* at 602. Thus the regulation would not be applicable in cases for which this generic finding was in doubt. However, the Board conceded that it was questionable whether its position could be supported under the current regulation and Statement of Considerations. *Id.* at 601. Because of the likelihood that the "Commission's policy guidance would eventually be needed on this question," the Board certified a question to the Commission. *Id.* at 604. The question is "whether the Commission *intended or now intends* Section 50.47(d) to be applied in circumstances which raise preliminary doubts that emergency preparedness requirements for

¹ In pertinent part, 10 CFR §50.47(d) provides:

Notwithstanding the requirements of paragraphs (a) and (b) of this section, no NRC or FEMA review, findings, or determinations concerning the state of offsite emergency preparedness or the adequacy of and capability to implement State and local offsite emergency plans are required prior to issuance of an operating license authorizing only fuel loading and/or low power operations (up to 5% of the rated power).

full power operation can and will be met in the future.” *Id.* at 601 (emphasis added).

Since this is basically a policy question concerning the Commission’s intentions in allowing low-power operation, we believe it is appropriate to simply address the issue and clarify our views on the matter raised by the Board.²

Section 50.47(d) gives unqualified authorization to issue a low-power license in the absence of NRC or FEMA approval of an offsite emergency plan so long as other prerequisites, including an adequate state of onsite emergency preparedness, are met. The language of the regulation requires no predictive finding of “reasonable assurance” with regard to offsite emergency planning prior to low-power operation and none was intended by implication or otherwise. In issuing section 50.47(d), the Commission did not implicitly make any generic findings about the likelihood that emergency preparedness could be developed. Rather, our position was simply (1) not all of the emergency planning requirements were necessary for fuel loading and low-power operation because of the nature of the risks, and (2) we would not grant a full-power license until the emergency planning requirements for full power had been met. (The Board recognized this was a reasonable interpretation of the Commission’s statements accompanying the rule. *Id.* at 601-02 n.8.) Moreover, it seems apparent that the Licensing Board’s preliminary doubt about whether there is reasonable assurance that a sufficient offsite emergency plan can and will be developed is no different from preliminary doubt about whether a safety issue can be adequately resolved which has significance for full-power operation but not for low-power activities. Interjection of such doubts into the low-power proceeding could create a limited full-power hearing, before authorization of the low-power license. Such a procedure would have little to commend it.

The emergency planning issues in this case are difficult. However, they do not appear to us to be categorically unresolvable. We believe the better procedure is to reserve full-power issues, like offsite emergency planning, for the full-power authorization decision. Accordingly, if applicant Long Island Lighting Company (LILCO) can meet all the other requirements of the Atomic Energy Act and NRC regulations pertinent to the grant of a low-power license,³ it is entitled to that license despite the existing uncertainties

² On June 29, 1983, intervenor Suffolk County filed a motion asking that the Commission defer action on the certified question and hear the views of the parties before making any determination. In its motion, the County has not indicated that there are any relevant legal or policy arguments that were not discussed by the Licensing Board. Accordingly, we find no reason to delay consideration of this issue and deny the motion to defer action.

³ On June 8, 1983, LILCO filed an application for a low-power license under 10 CFR §50.57(c). If LILCO should later file for a temporary operating license under the authority of section 192 of the Atomic Energy Act, 42 U.S.C. §2242, as it has indicated it will, it must, of course, comply with all statutory and agency requirements relative to this type of license.

about offsite emergency planning. It should be added, however, that such authorization would in no way assure LILCO that it will be granted a full-power license and that in implementing any authorization it may be given to operate at low power, LILCO management would do so entirely at its own risk.⁴

Commissioners Gilinsky and Asselstine dissent from this order. Their separate views are attached.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 30th day of June, 1983.

**SEPARATE VIEWS OF COMMISSIONER GILINSKY:
SHOREHAM — EMERGENCY PLANNING — LOW POWER
OPERATIONS**

The Commission has told the Licensing Board not to let worries about Shoreham being able to meet emergency planning and preparedness standards for full power operation stand in the way of issuance of a low power operating license. The Commission's position would be tenable if it had reviewed the details of the situation and concluded that the Licensing Board had exaggerated the difficulties of emergency preparedness around Shoreham. But the Commission has not done this. Instead, it has taken the myopic view that doubts that a full power operating license will be issued are irrelevant to a decision to issue a low power license.

⁴ A State Public Service Commission undoubtedly would have jurisdiction to examine the propriety of a management decision to load fuel and conduct low-power testing in the face of substantial uncertainties about full-power operation of the plant, particularly when the State Commission will be called upon to allocate costs, including any incremental costs due to fuel loading and low-power testing, in the event the reactor never receives full-power authorization from the NRC.

I am at a loss to explain the Commission's decision — which was made without even hearing from the parties — except as an effort to weight the scales in favor of a full power license before the present majority evaporates on June 30, 1983. The Commission is, in essence, playing chicken with the Governor of New York. The Commission has sought to justify its actions with the familiar pretense that the utility proceeds "at its own risk." In actuality, the utility proceeds at the risk of the public. In light of the fundamental change in plant conditions which results from the irradiation of fuel, and of the associated substantial increases in the cost of maintenance and plant modification, the common sense and responsible view is that a low power license should not issue when there is substantial question that full power operation of the reactor will ever be permitted.

I should add that, at this point, I do not have a view as to whether the Licensing Board's doubts about the possibility of adequate emergency preparedness are justified. My comments are limited to the question which is before the Commission. However, if the Commission disagrees with the course taken by the Licensing Board, it should take up this case.

SEPARATE VIEWS OF COMMISSIONER ASSELSTINE

I believe that the Commission majority's order is ill-advised. The legal and policy issues involved are not nearly as simple or clear cut as the majority would have us believe. Since the Licensing Board raised this matter *suu sponte*, neither the parties nor any other interested persons have had an opportunity to comment. Simple fairness requires that we allow them to do so. Moreover, I believe that the views of the parties on the significant legal and policy issues involved would have assisted the Commission in reaching a sound and informed decision.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket Nos. 50-445
50-446

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

June 30, 1983

The Commission grants the NRC staff's petition for review of ALAB-714, 17 NRC 86 (1983) in which the Appeal Board dismissed, on the ground of mootness, the staff's appeal from the Licensing Board's orders requiring staff disclosure of the identity of individuals referred to in a staff investigation report which the staff introduced into evidence in this operating license proceeding. The Commission defers further consideration of the matters raised in ALAB-714 pending completion of its on-going generic review of informant confidentiality issues.

ORDER

This matter involves an appeal by the NRC staff from a series of orders by the Licensing Board requiring the staff to disclose the names and statements of individuals interviewed by the staff in the course of a particular investigation. The facts giving rise to the staff's appeal are summarized in the Appeal Board decision now before the Commission and will not be repeated here. See ALAB-714, 17 NRC 86, 88-91 (Dr. Johnson,

dissenting) (1983). In pertinent part, the Appeal Board dismissed the staff's appeal as moot due to the asserted identification of the interviewees by witnesses for the applicant and intervenors in the proceeding after the staff asserted the informer's privilege. However, the Appeal Board left standing the Licensing Board's orders requiring a staff disclosure of its interviewees. 17 NRC 88. The NRC staff has petitioned the Commission to take review under 10 CFR 2.786.¹

In view of the exceptional policy importance of informant confidentiality in the Commission's regulatory activities, we have decided to grant the NRC staff petition and take review of ALAB-714. However, because the issues raised by this appeal have a generic significance, we believe that they would be more appropriately addressed against the backdrop of generic studies regarding the scope of informant confidentiality. The Commission has already started a generic review of informant confidentiality issues. Pending completion of that review or unless otherwise ordered by the Commission, we shall defer any specification of the questions to be briefed regarding the instant appeal and the schedule to be followed by the parties in addressing such questions.

In connection with this determination, the Licensing Board shall, within 10 days of receipt of this order, advise the Commission whether it intends to proceed in any manner which would, in its judgment, require either: (1) an identification of any interviewees, or (2) the testimony of persons identified in the Board's order of March 4, 1983 regarding their possible participation in Staff Exhibit 199.

The Commission would like to receive a statement of the Board's plans in this case and its tentative schedule.

Commissioners Gilinsky and Asselstine dissent from this order. Their separate views are attached.

¹ On March 4, 1983, the Commission issued a stay of ALAB-714 pending final Commission action on the staff's appeal. CLI-83-6, 17 NRC 333 (1983). In a related action, the Commission also stayed pending further Commission order the scope of a proposed Licensing Board hearing to the extent such hearing could directly or indirectly cause an identification of the interviewees who were the subject of the instant appeal. CLI-83-8, 17 NRC 339 (1983).

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 30th day of June, 1983.

**SEPARATE VIEWS OF COMMISSIONER GILINSKY
(COMANCHE PEAK — SECY-83-239)**

The Commission, as usual, appears determined to fritter away its time and energy on trivial matters. This entire case is moot and has been moot for a long time.

DISSENTING OPINION OF COMMISSIONER ASSELSTINE

I support the Commission majority's decision to undertake a generic review of informant confidentiality issues. However, I would have denied the staff's Petition for Review in this case.

In my opinion, this matter has been moot *ab initio*. The informer's privilege is not absolute under either Commission or Federal practice. *Houston Lighting & Power Co.* (South Texas Project, Units 1 and 2), ALAB-639, 13 NRC 469, 473 (1981); *Roviaro v. United States*, 353 U.S. 53, 60-61 (1957). Accordingly, such testimonial privileges may be waived by the holder of the privilege or their authorized agents. *See, United States v. Benford*, 457 F. Supp. 589 (E.D. Mich. 1978). In the case of the informant's privilege, disclosure by the government of the identities of its informant constitutes a waiver of the privilege. *Mitchell v. Bass*, 252 F.2d 513 (8th Cir. 1958).

Such is the case here. The underlying investigative report identifies the staff's interviewees by letter designation *and* unique job title or other identifying information. Since in my view, this permitted a knowledgeable reader to determine not only the identities of the staff's interviewees but also the substance of each interviewee's statement, the underlying report itself constituted a waiver of the informer's privilege. Accordingly, this

entire controversy over the applicability of the informant's privilege to the staff interviewees at issue in this proceeding has been and is moot.

For this reason, I would have denied the staff's Petition for Review and would have vacated all orders and decisions of the Licensing Board and Appeal Board ordering or authorizing the staff to disclose the identities of its interviewees.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gillinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

Docket Nos. 50-413
50-414

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

June 30, 1983

The Commission reviews, *sua sponte*, the question raised by the Appeal Board's decision (ALAB-687, 16 NRC 460) on the proper criteria for accepting late-filed contentions in a licensing proceeding that are based on licensing-related documents which were not available early enough to provide a basis for a timely contention. The Commission determines that: (1) the Appeal Board erred in holding that Section 189a. of the Atomic Energy Act requires a licensing board to treat the good cause factor of 10 CFR 2.714(a)(1) as controlling in ruling on the admissibility of a contention that is filed late because it is based solely on information in institutionally unavailable licensing-related documents; (2) it is not inconsistent with public hearing rights for a licensing board to consider all five factors contained in Section 2.714(a)(1) before admitting a late contention based on previously-unavailable information; and (3) the institutional unavailability of a licensing-related document does not establish good cause for filing a contention late if information was available early enough to provide the basis for the timely filing of that contention.

ATOMIC ENERGY ACT: RIGHT TO HEARING

It is well-established that Section 189a. of the Atomic Energy Act does not provide an unqualified right to a hearing. Rather, the Commission is au-

thorized to establish reasonable regulations on procedural matters like the filing of petitions to intervene and the proffering of contentions, *BPI v. AEC*, 502 F.2d 424 (D.C. Cir. 1974); *Eastern Utilities Commission v. AEC*, 424 F.2d 847 (D.C. Cir. 1970).

ATOMIC ENERGY ACT: RIGHT TO HEARING

Section 189a. of the Act is not offended by a procedural rule that simply recognizes that the public's interest in an efficient administrative process is not properly accounted for by a rule of automatic admission of certain late-filed contentions. *Cf. BPI v. AEC, supra*.

ATOMIC ENERGY ACT: RIGHT TO HEARING

Where agency procedural requirements simply raise the threshold for admitting some contentions as an incidental effect of regulations designed to prevent unnecessary delay in the hearing process, such requirements are reasonable. *Cf. United Mine Workers v. Kleppe*, 561 F.2d 1258, 1263 (7th Cir. 1977).

REGULATIONS: INTERPRETATION

The proper test of a regulation is whether its normal and fair interpretation will deny persons of their statutory rights. *American Trucking Association v. United States*, 627 F.2d 1313, 1318-19 (D.C. Cir. 1980).

RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES

An intervenor voluntarily accepts the obligations of participation in an NRC proceeding, including the obligation of uncovering information in publicly available documentary material.

RULES OF PRACTICE: ADMINISTRATIVE FAIRNESS (BALANCING OF COMPETING PUBLIC INTERESTS)

There is a substantial public interest in efficient and expeditious administrative proceedings. *WSTE-TV, Inc. v. FCC*, 566 F.2d 333, 337 (D.C. Cir. 1977). Although this interest is undoubtedly subordinate to the public's interest in health, safety, and the environment, it is an interest which the Commission incorporates in the formulation of NRC's procedural rules. *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 453 (1981).

MEMORANDUM AND ORDER

INTRODUCTION

This decision completes the Commission's review of two generic issues arising from the decision by the Atomic Safety and Licensing Appeal Board¹ regarding the criteria for accepting late-filed contentions based on information contained in licensing-related documents which are not required to be prepared early enough in a licensing proceeding to provide a timely basis for framing contentions.² Because of the generic nature of the issues, the Commission invited briefs from the parties and any other person who wished to submit an amicus brief. The Commission has determined that these filings fully present the issues and that oral argument would not aid our deliberations. For the reasons discussed below, the Commission has determined that Section 189a. of the Atomic Energy Act of 1954, as amended ("Atomic Energy Act" or "Act") does not require the Commission to give controlling weight to the good cause factor in 10 CFR 2.714(a)(1)(i) in determining whether to admit a late-filed contention based on licensing documents which were not required to be prepared early enough to provide a basis for a timely-filed contention. The Commission has also determined that the unavailability of these documents does not constitute a showing of good cause for admitting a late-filed contention when the factual predicate for that contention is available from other sources in a timely manner.

BACKGROUND

In ALAB-687, the Appeal Board held that the criteria in 10 CFR 2.714(a)³ were automatically satisfied for an adequately specific late-filed contention which

1. is wholly dependent upon the content of a particular document;

¹ *Duke Power Co., et al.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460 (1982).

² Section 2.714(b) requires a list of contentions to be filed by an intervenor "[n]ot later than fifteen (15) days prior to the holding of the special prehearing conference pursuant to §2.751a, or where no special prehearing conference is held, fifteen (15) days prior to the holding of the first prehearing conference, . . ." 10 CFR 2.714(b).

³ (i) Good cause, if any, for failure to file on time.

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

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

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

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

2. could not therefore be advanced with any degree of specificity (if at all) in advance of the public availability of that document; and
3. is tendered with the requisite degree of promptness once the document comes into existence and is accessible for public examination.

The Board held that, where “the nonexistence or public unavailability of relevant documents made it impossible for a sufficiently specific contention to have been asserted at an earlier date, that factor must be deemed controlling; it is not amenable to being overridden by other factors such as that relating to the broadening of the issues.” 16 NRC 470. Examples of documents which are “institutionally unavailable” due to the NRC’s hearing schedule are the applicant’s emergency plan and the NRC staff’s Final Environmental Statement and Safety Evaluation Report. The Appeal Board concluded that Section 189a. hearing rights would be unlawfully precluded if a contention which satisfied the Board’s three-part test could be rejected for failing to satisfy one or more of the other factors in 10 CFR 2.714(a)(1). The Appeal Board explicitly declined to decide whether the availability of an applicant’s Environmental Report would trigger an obligation to file environmental contentions that were not directed to the adequacy of the staff’s performance of its responsibilities under the National Environmental Policy Act.

No party petitioned the Commission for review of ALAB-687. However, because of the potential pervasive impact of that decision on NRC practice, the Commission *sua sponte* took review on the following two issues:

1. Does Section 189a. of the Atomic Energy Act of 1954, as amended, require an Atomic Safety and Licensing Board to give controlling weight to the good cause factor in 10 CFR 2.714(a)(1)(i) in determining whether to admit a late-filed contention that could not be filed in a timely manner because the “institutional unavailability” of licensing-related documents precluded the timely formulation of that contention with the requisite specificity?
2. Is there “good cause” for filing a late contention when the reason given for late filing is the previous “institutional unavailability” of an agency document, *e.g.*, the FES, but the information relied on was available early enough to provide the basis for a timely-filed contention, *e.g.*, in an applicant’s environment report?

Unpublished Order of December 23, 1982.

The parties’ positions are summarized in the Appendix.

DECISION

The Commission shares the concerns raised by both the Licensing Board and Appeal Board that there may be circumstances when the public unavailability of relevant documents makes it impossible for an intervenor to assert adequately specific contentions at an earlier date. The Commission recognizes that fairness requires procedures which permit participants to licensing proceedings to react to licensing documents that are developed or submitted after a proceeding has begun. Fairness also requires the Commission to conduct efficient and expeditious licensing proceedings.

For the reasons discussed below, the Commission believes that the Appeal Board erred in holding that Section 189a. of the Atomic Energy Act requires a Licensing Board to treat the good cause factor as controlling in ruling on the admissibility of a contention that is filed late because it is based solely on information in institutionally unavailable licensing-related documents. Rather, the Commission finds that all of the factors in 10 CFR 2.714(a)(1) should be applied by the Licensing Board, including the Appeal Board's three-part test for good cause. The Commission believes that the five factors, together, are permitted by Section 189a. of the Act and are reasonable procedural requirements for determining whether to admit contentions that are filed late because they rely solely on information contained in licensing-related documents that were not required to be prepared or submitted early enough to provide a basis for the timely formulation of contentions. These procedural requirements are consistent with a petitioner's obligation to examine the publicly available documentary material pertaining to the facility in question with sufficient care to enable it to uncover any information that could serve as the foundation for a specific contention. Accordingly, the institutional unavailability of a licensing-related document does not establish good cause for filing a contention late if information was publicly available early enough to provide the basis for the timely filing of that contention.

Question 1

1. It is well-established that Section 189a. of the Atomic Energy Act does not provide an unqualified right to a hearing. Rather, the Commission is authorized to establish reasonable regulations on procedural matters like the filing of petitions to intervene and on the proffering of contentions. *BPI v. AEC*, 502 F.2d 424 (D.C. Cir. 1974); *Easton Utilities Commission v. AEC*, 424 F.2d 847 (D.C. Cir. 1970).

2. No participant has cited to us any authority for the proposition that Section 189a. requires the Commission to give controlling weight to the

good cause factor in determining whether to admit a late-filed contention based solely on institutionally unavailable documents. We know of no such authority. Quite to the contrary, what limited precedent there is supports the Commission's authority to apply all the factors in 10 CFR 2.714(a) for admitting late-filed contentions even if the contentions are based on information contained solely in institutionally unavailable documents. *Cf. BPI v. AEC, supra; Cities of Statesville, et al. v. AEC*, 441 F.2d 962 (D.C. Cir. 1969) (en banc).

American Trucking Association v. United States, 627 F.2d 1313, 1320-21 (D.C. Cir. 1980) upheld the Interstate Commerce Commission's (ICC) discretion to establish intervention criteria which are similar to the Commission's late-filing criteria in 10 CFR 2.714(a). The Commission's grant of authority to establish procedural rules is not less than the ICC's. Compare, Section 10321(a) and 10328(b) of the Interstate Commerce Act, 49 U.S.C.A. §§ 10321(a) and 10328(b) (1979), with Sections 161p. and 189a. of the Atomic Energy Act, 42 U.S.C. 2201p. and 2239a. Thus, if the ICC is not required to provide for automatic intervention in its proceedings but can establish intervention criteria similar to 10 CFR 2.714(a) at the starting gate of an adjudication, the Commission is not required to automatically accept late-filed contentions but can apply such criteria to late-filed contentions by a participant even if the factual predicate for such contentions is not required to be available early enough to provide a timely basis for contentions.

By this decision, the Commission is not acting to exclude persons with a cognizable interest. Rather, the Commission is simply requiring participants to a proceeding to make a reasonable showing under well-established late-filing criteria. Section 189a. of the Act is not offended by a procedural rule that simply recognizes that the public's interest in an efficient administrative process is not properly accounted for by a rule of automatic admission for certain late-filed contentions. *Cf. BPI v. AEC, supra*.

3. While some participants have explained why they believe that the Appeal Board's decision is a reasonable exercise of Commission discretion, no participant has presented a cognizable argument that application of all the factors in 10 CFR 2.714(a)(1) would be unreasonable.

Several considerations support the reasonableness of applying the late contention criteria in 10 CFR 2.714(a) in this type of situation. First, as several participants have stated, Licensing Boards have usually applied the lateness criteria generously to admit late-filed safety contentions upon a showing of good cause. See, *Florida Power & Light Co. (St. Lucie Nuclear Power Plant, Unit 2)*, ALAB-420, 6 NRC 8, 22 (1977). Second, the admission of late-filed contentions must be balanced against the public interest considerations in the efficient and timely conduct of administrative

proceedings. Third, application of the five factors in 10 CFR 2.714(a)(1) only increases the showing required for the admission of a late contention, and does not act to automatically or unreasonably cut off hearing rights. Where agency procedural requirements simply raise the threshold for admitting some contentions as an incidental effect of regulations designed to prevent unnecessary delay in the hearing process, such requirements are reasonable. *Cf. United Mine Workers v. Kleppe*, 561 F.2d 1258, 1263 (7th Cir. 1977) (filing period prescribed by agency upheld where there is no effective bar or insurmountable barrier to the adjudicatory process). Finally, the Commission believes it must consider the need to preserve administrative flexibility to deal with the unusual case.

For these reasons, the Commission concludes that the application of the five late intervention factors in accordance with established NRC practice constitutes a reasonable exercise of the Commission's authority to establish procedural requirements in accordance with Section 189a. of the Atomic Energy Act. Moreover, the Commission believes that the Appeal Board three-part test constitutes a reasonable and useful test of the good cause factor as applied to late-filed contentions based solely on information contained in institutionally unavailable licensing-related documents.⁴ Therefore, the Commission vacates ALAB-687 to the extent that it is inconsistent with this opinion.

We find no merit in its contention that application of the lateness criteria would allow applicants and the NRC staff to manipulate the availability of licensing-related documents to deprive intervenors of their rights to a hearing. The situation under consideration here results from the Commission's generic establishment of schedules and, thus, is not susceptible to manipulation by the parties to a proceeding. If undue delay should occur, it can be as easily dealt with in a balancing test as by a *per se* rule.

The proper test of a regulation is whether its normal and fair interpretation will deny persons of their statutory rights. *American Trucking*, 627 F.2d at 1318-19. In view of prior NRC practice, as described above, the Commission concludes that this decision does not deny rights established by Section 189a. Accordingly, we find nothing in UCS's position to contradict our conclusion that it is reasonable to apply the late-filing criteria in 10 CFR 2.714(a)(1) and the Appeal Board's three-part test for good cause to contentions that are filed late because they depend solely on information contained in institutionally unavailable licensing-related documents.

⁴ While these documents include those identified by the applicants, and an applicant's off-site emergency plan, the Commission does not believe that those documents are all-inclusive. However, for any other document to be in this category, it must be unequivocally licensing-related.

Question 2

We start with the basic principle that a person who invokes the right to participate in an NRC proceeding also voluntarily accepts the obligations attendant upon such participation. *See, e.g., Consumers Power Co. (Midland Plant, Units 1 and 2), ALAB-691, 16 NRC 897 (1982)*. And as a corollary, since intervenors have the option to choose the issues on which they will participate, it is reasonable to expect intervenors to shoulder the same burden carried by any other party to a Commission proceeding. While we are sympathetic with the fact that a party may have personal or other obligations or possess fewer resources than others to devote to a proceeding, this fact does not relieve that party of its hearing obligations. *Statement of Policy on Conduct of Licensing Proceedings, CLI-81-8, 13 NRC 452, 454 (1981)* (“Statement of Policy”). Thus, an intervenor in an NRC proceeding must be taken as having accepted the obligation of uncovering information in publicly available documentary material. Statements that such material is too voluminous or written in too abstruse or technical language are inconsistent with the responsibilities connected with participation in Commission proceedings and, thus, do not present cognizable arguments.

A second fundamental principle applicable here is that there is a substantial public interest in efficient and expeditious administrative proceedings. *WSTE-TV, Inc. v. FCC, 566 F.2d 333, 337 (D.C. Cir. 1977)*. Although this interest is undoubtedly subordinate to the public’s interests in health, safety and the environment, it is an interest which the Commission incorporates in the formulation of NRC’s procedural rules. *Statement of Policy* at 453. A corollary of this principle is our requirement that contentions should be filed not later than 15 days prior to the special or first pre-hearing conference. 10 CFR 2.714(b).

Taken together, these principles require intervenors to diligently uncover and apply all publicly available information to the prompt formulation of contentions. Accordingly, the institutional unavailability of a licensing-related document does not establish good cause for filing a contention late if information was available early enough to provide the basis for the timely filing of that contention.

Turning now to the specific subject areas raised by the participants, we have the following observations:

1. Safety-Related Contentions

It is well established that the Applicant carries the burden of proof on safety issues. *Consumers Power Co. (Midland Plant, Units 1 and 2), ALAB-283, 2 NRC 11, 17 (1975)*. Thus, the FSAR is the central document

for the formulation of safety contentions. Should the subsequent issuance of the SER lead to a change in the FSAR and thereby modify or moot a contention based on that document, that contention can be amended or promptly disposed of by summary disposition or a stipulation. However, the possibility that such a circumstance could occur does not provide a reasonable basis for deferring the filing of safety-related contentions until the staff issues its SER.

2. *Environmental Contentions*

It is also settled that the NRC has the burden of complying with NEPA. Thus, the adequacy of the NRC's environmental review as reflected in the adequacy of a DES or FES is an appropriate issue for litigation in a licensing proceeding. Because the adequacy of those documents cannot be determined before they are prepared, contentions regarding their adequacy cannot be expected to be proffered at an earlier stage of the proceeding before the documents are available. But this does not mean that no environmental contentions can be formulated before the staff issues a DES or FES. While all environmental contentions may, in a general sense, ultimately be challenges to the NRC's compliance with NEPA, factual aspects of particular issues can be raised before the DES is prepared. As a practical matter, much of the information in an Applicant's ER is used in the DES. Just as the submission of a safety-related contention based on the FSAR is not to be deferred because the staff may issue an SER requiring a change in a safety matter, so too, the Commission expects that the filing of an environmental concern based on the ER will not be deferred because the staff may provide a different analysis in its DES. Should that circumstance transpire, there will be ample opportunity to either amend or dispose of the contention.

3. *Off-Site Emergency Plans*

Here too, the basic principles urge the adoption of guidance leading to the early filing of contentions. Once an applicant has filed its on-site plan, contentions can certainly be based on those aspects that are not dependent on the off-site response plans. Moreover, to the extent that the applicant makes assumptions about those off-site response plans for the purpose of preparing its on-site plan, contentions can be raised on that basis. As for the temporary lack of such off-site response plans, UCS is correct in stating that it would be fruitless to raise that temporary lack as a contention. Differences between the actual off-site response plans and those assumed by the appli-

cant can provide the basis for either disposing of contentions or modifying them.

In conclusion, intervenors are expected to raise issues as early as possible. To the extent that this leads to contentions that are superseded by the subsequent issuance of licensing-related documents, those changes can be dealt with by either modifying or disposing of the superseded contentions.

CONCLUSION

For the reasons stated above, the Commission has determined that Section 189a. of the Atomic Energy Act lets the Commission apply the five factors in 10 CFR 2.714(a)(1) to contentions that are filed late because they are based on information available only in licensing-related documents not required to be prepared early enough to provide a timely basis for those contentions. The Commission has further determined that the application of these criteria in accordance with NRC practice strikes a reasonable balance between the public's hearing rights and its rights to an efficient and expeditious administrative process.

Commissioners Gilinsky and Asselstine dissent from this order. Their separate views follow.

It is so ORDERED.

For the Commission⁵

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 30th day of June, 1983.

⁵ Commissioner Asselstine was not present when this order was approved but had previously indicated his disapproval.

APPENDIX

POSITIONS ON THE ISSUES

A. Does Section 189a. of the Atomic Energy Act Require the Commission to Give Controlling Weight to the Good Cause Factor in 10 CFR 2.714(a) for Contentions Filed Late Due to the Institutional Unavailability of Licensing-Related Documents?

Applicants contended that Section 189a., as interpreted in *BPI v. AEC*, 502 F.2d 424 (D.C. Cir. 1974), authorized the Commission to set reasonable procedural requirements. Applicants believed that the Appeal Board's decision is within the Commission's authority under the Atomic Energy Act. However, in Applicants' view, the decision would be reasonable only if limited to contentions wholly dependent on one or more of the following licensing-related documents: Amendments to the Environmental Report ("ER") and Final Safety Analysis Report ("FSAR"); the NRC's Draft Environmental Statement ("DES"), Final Environmental Statement ("FES") and Safety Evaluation Report ("SER"); the letter on the SER from the Advisory Committee on Reactor Safeguards ("ACRS"); and the off-site emergency plan.

The NRC staff stated that Section 189a. compelled the Appeal Board's result. But the staff's discussion only supports the proposition that the Appeal Board's decision was within the Commission's authority and was reasonable. Moreover, the staff observed that the Appeal Board's decision would have little practical effect because under current NRC practice a showing of good cause has generally led Atomic Safety and Licensing Boards ("Licensing Board") to accept late-filed contentions. Intervenor, Palmetto Alliance, relied solely on the Appeal Board's discussion related to the fairness of rejecting late-filed contentions based on institutionally unavailable documents. Thus, Palmetto also did not contend that the Appeal Board's result was compelled by the Act.

The Union of Concerned Scientists ("UCS") did not brief this issue, but simply stated its agreement with the parties that the first question "must be answered in the affirmative." Any other result, in UCS's view, would be unfair to prospective intervenors because applicants and the NRC staff could delay making essential information available to the public in an attempt to prevent the litigation of issues related to that information.

Both the Lawyers' Committee Steering Groups of the Atomic Industrial Forum ("AIF") and a group of utilities ("Utility Group")¹ contended that Section 189a. did not require the Commission to give controlling weight to the good cause factor in determining whether to admit a late-filed contention based solely on the prior unavailability of licensing-related documents. Rather, in their views, the Act gave the Commission broad authority to determine what factors to consider and the weight to be given to such factors in connection with the admissibility of late-filed contentions. In particular, the Utilities Group contended that under *Easton Utilities Commission v. AEC*, 424 F.2d 847, 852 (D.C. Cir. 1970), the Commission can impose more stringent requirements for late-filed contentions because of the additional public interest considerations implicated in such instances. Moreover, the Utility Group observed that because application of the five factors in 10 CFR 2.714(a)(1) only increased the showing required to obtain a hearing, it did not understand how such an application of these factors would render hearing rights nugatory as contended by the Appeal Board. AIF noted that as a practical matter a showing of good cause has usually led to the admission of a late-filed safety contention, but that the Commission should consider preserving for the unusual case the option of balancing the five factors. AIF also suggested that the Commission should adopt the Appeal Board's Three-Part Test as an appropriate formulation of good cause for the late filing of contentions based on institutionally unavailable licensing-related documents.

B. Can Good Cause for Filing a Late Contention Be Based on the Previous Institutional Unavailability of an Agency Document Even if the Information Relied Upon Was Available Early Enough to Provide the Basis for a Timely Filed Contention?

Applicants contended that unless late-filed contentions are required to be based solely on previously unavailable licensing-related documents, intervenors could delay filing contentions on entire topics in such documents even though other available documents would already provide information for the timely formulation of contentions on those topics. Applicants believed that such opportunity for delaying a proceeding is inconsistent with established NRC practice. Moreover, Applicants suggested that by requiring late-filed contentions to be based solely on previously unavailable information in institutionally unavailable documents, intervenors will be precluded from justifying the untimely submittal of contentions by simply

¹ The utility group was comprised of Florida Power & Light Co., Houston Lighting and Power Co., Iowa Electric Light and Power Co. and Puget Sound Power and Light Co.

asserting that such contentions challenge the adequacy of the NRC staff's review. Applicants provided examples of contentions which they believed were really substantive challenges based on readily available information but which had been offered as examples of inadequate staff evaluations in licensing-related documents.

The NRC staff also believed that good cause for late-filed contentions must be based solely on a showing that the information relied on was available only in institutionally unavailable licensing-related documents. Because intervenors have an iron-clad obligation to uncover information in publicly available documentary material, staff contended that there should be no finding of good cause for filing late where the contention simply adds to previously available facts the additional claim that staff's analysis of that information is inadequate. In particular, the staff noted that proper safety-related contentions should be based on the applicant's submittals because the applicant, and not the staff, carries the burden of proof on safety. Thus, the staff's evaluation of the applicant's FSAR is not the ultimate issue for decision.

As for environmental issues, the staff acknowledged that it has the ultimate burden of complying with the National Environmental Policy Act ("NEPA"). However, the staff also noted that ordinarily much of the information in a DES is derived from an applicant's ER. Thus, the staff asserted that intervenors have enough information in the ER to proffer reasonably specific contentions on environmental subjects. Once the DES is issued, the litigation of such contentions can be tailored to take into account the staff's treatment of those matters. Finally, the staff noted that the applicant's submission of an off-site emergency plan is distinguishable from the staff's preparation of NRC licensing-related documents because the proposed responses of off-site agencies will in most cases not be previously publicly available. Thus, staff believed it would be unlikely that off-site emergency response plans would contain previously publicly available information.

Intervenor, Palmetto Alliance, did not address this issue.

The AIF contended that the desirable goal of identifying issues early in a proceeding would be defeated by any rule that would enable a party to defer the filing of contentions until a late stage of the licensing process. Thus, AIF also supported a strict rule limiting good cause for filing late contentions to a showing that they were based on information contained solely in institutionally unavailable licensing-related documents. AIF agreed with the staff's observation that because the applicant carries the burden of proof on safety issues, the adequacy of the staff's safety evaluation is not at issue. However, AIF differed from the staff on environmental issues, contending that the adequacy of the staff's environmental review is not a suit-

able issue for litigation although recognizing that the adequacy of an environmental impact statement's treatment of substantive environmental issues is a suitable issue.

The Utility Group stated the view that the availability of factual information on which to base contentions was the important consideration. Accordingly, the Utility Group would limit a showing of good cause to new factual information in staff licensing-related documents. Furthermore, the Utility Group contended that an intervenor's late contentions on environmental issues should not be admitted when the information supporting them was already available in the applicant's ER. In the Utility Group's view, intervenors should frame their contentions as early in the proceeding as possible, and should not await the possibility that the staff's DES or FES will alter or alleviate those environmental concerns.

Regarding environmental issues, UCS contended that at bottom all environmental concerns ultimately challenge the Commission's compliance with NEPA. Since the Commission is the only party to an NRC proceeding which is required to comply with NEPA, and that compliance is embodied in the DES or FES, UCS believed that no environmental contention can be formulated until the staff prepares an environmental document. UCS rejected the arguments that contentions should be based on information in the Applicant's ER. UCS characterized such contentions as sheer speculation that the staff would not perform its duties and, thus, such contentions would be dismissed as premature by a Licensing Board. UCS also stated that it would be grossly unreasonable to require impecunious intervenors to be familiar with publicly available documents describing NRC methodologies for calculating environmental impacts.

Regarding safety contentions, UCS believed that the staff's SER is the basic safety document. UCS rejected as meaningless the position that contentions should be based on the Applicant's FSAR because the staff will require the correction of any deficiencies in that document. UCS also contended that the SER provided the only manageable summary of safety issues understandable to the general public. Thus, UCS contended that the admission of contentions based on the SER would enhance the public's participation in the hearing process.

Finally, regarding off-site emergency planning contentions, UCS contended that these should be considered timely if filed within a reasonable time after local government emergency plans are made available to the public. UCS rejected the suggestion that emergency planning contentions should be filed after the Applicant files its off-site plan because the Applicant's inability to include the as-yet nonexistent local plans in that plan would lead to speculative contentions.

**COMMISSIONER GILINSKY'S SEPARATE VIEW —
COMMISSION REVIEW OF ALAB-687 (SECY-83-190A)**

I am appalled that the Commission has wasted so much time reviewing this decision. It should simply have affirmed the Appeal Board's ruling.

ADDITIONAL VIEWS OF COMMISSIONER ASSELSTINE

I agree with the Commission majority's conclusion that section 189a. of the Atomic Energy Act of 1954 does not *require* an Atomic Safety and Licensing Board to give controlling weight to the good cause factor in 10 CFR section 2.714(a)(1)(i) in determining whether to admit a late-filed contention that could not be filed in a timely manner because the "institutional unavailability" of licensing-related documents precluded the timely formulation of that contention with the requisite specificity. However, I would have concluded that the Appeal Board's three-part test for "good cause" and its decision to give controlling weight to that factor once that test is met is a reasonable exercise of Commission discretion.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Stephen F. Ellperin, Chairman
Thomas S. Moore
Dr. Reginald L. Gotchy

In the Matter of

Docket No. 50-341-OL

THE DETROIT EDISON COMPANY, et al.
(Enrico Fermi Atomic Power
Plant, Unit 2)

June 2, 1983

The Appeal Board affirms the Licensing Board's October 29, 1982 initial decision (LBP-82-96, 16 NRC 1408) authorizing the issuance of a full power operating license for Fermi, Unit 2.

EMERGENCY PLANS: REQUIREMENT FOR OPERATING LICENSE

Under Commission regulations, no operating license for a nuclear power reactor can issue unless the NRC finds that there is reasonable assurance that adequate protective measures both on and off the facility site can and will be taken in the event of a radiological emergency. 10 CFR §50.47(a)(1); *Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit No. 1), ALAB-727, 17 NRC 760 (1983). With regard to the adequacy of offsite emergency measures, the NRC must base its finding on a review of the Federal Emergency Management Agency (FEMA) findings and determinations as to whether State and local emergency plans are adequate and whether there is reasonable assurance that they can be implemented. 10 CFR §50.47(a)(2); *Zimmer, supra*.

EMERGENCY PLANS: EMERGENCY PLANNING ZONES

The Commission's regulatory scheme for offsite emergency response plans contemplates the establishment, for planning purposes, of two emergency planning zones (EPZ): a plume exposure pathway EPZ, a more or less circular area extending approximately ten miles from the plant, and an ingestion pathway EPZ, a similarly shaped area with a fifty mile radius. The former is concerned principally with the avoidance in the event of a nuclear facility accident of whole body external exposure and inhalation exposure from the passing radioactive plume, while the latter is concerned with avoiding exposure traceable to contaminated water or foods. *Zimmer, supra*, 17 NRC at 765.

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

A party seeking to reopen a proceeding for consideration of a newly recognized contention must satisfy an objective test of good cause. Among other things, the party seeking to reopen must show that the issue it now seeks to raise could not have been raised earlier. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973). In addition, the party must show that the matter it wishes to have considered is (1) timely presented, (2) addressed to a significant issue, and (3) susceptible of altering the result previously reached. *See Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-5, 13 NRC 361, 364-65 (1981); *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit No. 1), ALAB-462, 7 NRC 320, 338 (1978).

EMERGENCY PLANS: CONTENT (SUFFICIENCY)

Offsite emergency response plans need not be complete or finally evaluated by FEMA prior to conclusion of the adjudicatory process. Hearings may properly be held, and a decision on a full power operating license reached, at such time as the plans are sufficiently developed to support a conclusion that the state of emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-717, 17 NRC 346, 380 (1983); *Zimmer, supra*, 17 NRC at 775. *See* 47 Fed. Reg. 30232 (July 13, 1982), *petition for review pending sub nom. Union of Concerned Scientists v. NRC*, No. 82-2053 (D.C. Cir. filed September 10, 1982); 45 Fed. Reg. 82713 (Dec. 16, 1980). *See also* 10 CFR §50.47(c)(1).

EMERGENCY PLANNING: EXERCISES (EFFECT ON LICENSING DECISION)

Emergency preparedness exercises are not required for a nuclear power plant operating license decision, but must be completed prior to operating above 5% of rated power. 47 Fed. Reg. 30232, *supra*.

EMERGENCY PLANNING: CONTENTIONS (OPPORTUNITY TO LITIGATE)

An intervenor in a construction permit or operating license proceeding must have the opportunity to litigate the substantive question whether there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. *San Onofre, supra*, 17 NRC at 380 n.57.

RULES OF PRACTICE: CONTENTIONS (ADMISSIBILITY)

A late-filed contention is always admissible where the nonexistence or public unavailability of relevant documents made it impossible for a sufficiently specific contention to have been asserted at an earlier date. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 470 (1982), *rev'd in part*, CLI-83-19, 17 NRC 1041 (1983).

EMERGENCY PLANS: CONTENT (EVACUATION)

Under the Commission's present emergency planning scheme, emergency evacuation plans must be developed only for the plume EPZ. *See* 10 CFR §50.47(b)(10), (c)(2); 10 CFR Part 50, Appendix E, §I n.2. *See generally* NUREG-0396, "Planning Basis for the Development of State and Local Government Radiological Response Plans in Support of Light Water Nuclear Power Plants" (December 1978).

RULES OF PRACTICE: APPELLATE REVIEW

On appellate review, an appeal board gives a licensing board's factual findings the deference that their probative force intrinsically commands. *Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear 1), ALAB-303, 2 NRC 858, 867 (1975).

EMERGENCY PLANS: CONTENT (EVACUATION)

The Commission's emergency planning regulations do not specify the time within which the plume EPZ must be evacuated in the event of a nuclear emergency. Applicants must provide only an analysis of the time required to evacuate and for taking other protective actions within the plume EPZ for transient and permanent populations. 10 CFR Part 50, Appendix E, §IV. *See also* NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Rev. 1 (November 1980), at 61 and Appendix 4. *See generally Zimmer, supra*, 17 NRC at 770-71.

APPEARANCES

John R. Minock, Ann Arbor, Michigan, for the intervenor Citizens for Employment and Energy.

Harry H. Voigt and **L. Charles Landgraf**, Washington, D.C., for the applicants, Detroit Edison Company, *etal.*

Colleen P. Woodhead for the Nuclear Regulatory Commission staff.

DECISION

On October 29, 1982, the Licensing Board issued its initial decision authorizing an operating license for the Enrico Fermi Atomic Power Plant, Unit 2. *See* LBP-82-96, 16 NRC 1408. The reactor is located on the western shore of Lake Erie in Frenchtown Township, Monroe County, Michigan.

We have before us the appeal of the sole intervenor in the operating license proceeding, Citizens for Employment and Energy (CEE). CEE raises three issues for our consideration. First, CEE claims that the Licensing Board erred in finding that Monroe County's emergency plan is complete. It is intervenor's position that absent a final local plan, emergency planning issues are not even ripe for an administrative hearing, let alone for decision. Second, CEE claims that the Licensing Board erred in striking that part of its original contention 8 that challenged the adequacy of the emergency plans then under development. Again, CEE argues that the issue raised by that contention should be litigated at such time as Monroe County adopts a final emergency plan. Lastly, CEE asserts that the Licensing Board erred in finding that there is a feasible evacuation route for resi-

dents of the Stony Point area. That community is quite close to Fermi 2, and the sole evacuation route for its residents initially leads toward the reactor.

I. FACTUAL BACKGROUND

On October 9, 1978, CEE filed its petition for leave to intervene in this proceeding. Its amended petition, filed shortly thereafter, included among the 11 contentions CEE proposed to litigate only one directed to emergency planning that is of consequence to this appeal. Contention 8 read as follows:

Emergency plans and procedures have not been adequately developed or entirely conceived with respect to an accident which could require immediate evacuations of entire towns within a 100-mile radius of the Fermi 2 plant, including Detroit. In particular, CEE is concerned over whether there is a feasible escape route for the residents of the Stony Point area which is adjacent to the Fermi 2 site. The only road leading to and from the area, Pointe Aux Peaux, lies very close to the reactor site. In case of an accident the residents would have to travel towards the accident before they could move away from it.

CEE Amended Petition to Intervene (Dec. 4, 1978) at 4.

In granting CEE's petition for leave to intervene, the Licensing Board struck the first sentence of contention 8 for noncompliance with the basis and specificity requirements of the Commission's rules. LBP-79-1, 9 NRC 73 (1979). See 10 CFR §2.714(b). The Board was of the view that the "introductory sentence challenging the lack of emergency plans and procedures for all towns within a 100-mile radius of the plant, including Detroit, is too broadly written, and not supported by any information which would warrant a conclusion that such plans are necessary." 9 NRC at 80. As to CEE's remaining contentions, the Board admitted some, rejected others, and asked the parties to meet in an attempt to reach an agreement on the rest. *Id.* at 87. The attempt was successful, and on March 5, 1979, intervenor, applicants and the NRC staff entered into a stipulation, accepted by the Licensing Board, that set out the scope of the contentions for hearing. See Order of March 21, 1979 (unpublished).

Thereafter construction of Fermi 2 slowed and the licensing proceeding slowed with it. The next prehearing conference was not held for another two years. In the interim, the TMI-2 accident occurred, leading the Commission to a heightened awareness of the importance of emergency planning for nuclear accidents. The increased emphasis in that area is manifest in a new set of regulatory requirements that we briefly discuss in Part II of this opinion. See pp. 1063-64, *infra*.

In view of the new regulatory requirements and the passage of time, the July 1981 prehearing conference again took up the scope of contentions for hearing and also inquired into the status of emergency planning. Tr. 184-85, 186-88, 195-97. As to the scope of contentions, CEE's counsel explained that it wished to withdraw some contentions that had previously been admitted so as to "really narrow it to the things that we are interested in and just proceed on those. I think that makes the best use of our very, very limited resources." Tr. 192. CEE noted that it wished to retain contention 8 which "relate[d] to the evacuation of residents towards the plant from one particular geographic area." Tr. 193.¹ Similarly, in response to the applicants' assertion that the general adequacy of the emergency plan was not an issue and "[t]he sole matter in controversy is the evacuation route from Stony Point" (Tr. 207), CEE responded (Tr. 208):

Speaking on behalf of the Intervenor, the contention that was submitted is very specific. . . . We have major reservations about the Applicant's emergency evacuation plans. We can deal with that in other forums. We are not going to try to expand our contentions.

With regard to emergency planning, the Board was informed that an emergency planning exercise was set for February 1982, some seven months away.²

Meanwhile, on November 19, 1981, Michigan officials submitted an emergency plan for Monroe County to the regional office of the Federal Emergency Management Agency (FEMA) for review and comment. That plan, along with those developed by the State of Michigan and Wayne County (the other county near the reactor), was tested, as scheduled, in a full-scale exercise in which Monroe County participated, on February 1-2, 1982. See pp. 1066-68, *infra*. See generally ALAB-707, 16 NRC 1760, 1764 (1982). The evidentiary hearing in this licensing proceeding was held from March 31 to April 2, 1982.

Nearly five months after the close of evidentiary hearings, but before the Board's initial decision, Monroe County filed a petition for leave to intervene and to reopen the record, contending generally that its emergency plan was incomplete and that it lacked the resources to implement an effective one. See Monroe County Petition (Aug. 27, 1982). CEE supported the County's motion. Answer of Intervenor CEE (Sept. 6, 1982). The Licens-

¹ CEE also retained two other contentions for the hearing, but they are not at issue on appeal.

² The parties agreed that for purposes of scheduling the evidentiary hearing the only contention that would be affected by the exercise was contention 8 dealing with the feasibility of the Stony Point evacuation route. Tr. 187-88. CEE did not advance any more general emergency planning claim.

ing Board denied the motions in its initial decision. See LBP-82-96, *supra*, 16 NRC at 1429-36.³

On the County's appeal, we affirmed the Board but asked the Director of Nuclear Reactor Regulation (NRR) to treat the County's petition as a request under 10 CFR §2.206. ALAB-707, *supra*, 16 NRC at 1768-69. That section allows any person seeking to raise health, safety, or environmental concerns regarding a licensing action to file a request asking the Director to institute a proceeding to address those concerns. In our view, the extreme lateness of the County's filing on matters it should have been aware of years earlier made it inappropriate to reopen the formal operating license proceeding. Given the importance of Monroe County's emergency planning concerns, however, we concluded that the best disposition was to refer the matter to the Director for his action. *Ibid.*⁴ Those concerns are currently being analyzed by FEMA, the State of Michigan, and the NRC staff, in consultation with Monroe County.⁵

II. REGULATORY SCHEME FOR EMERGENCY PLANNING

We recently had occasion to outline the regulatory scheme for emergency planning issues in *Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit No. 1), ALAB-727, 17 NRC 760 (1983). It is useful to set forth an abbreviated discussion of that here (*id.* at 764-65 (footnotes omitted in part)):

Under Commission regulations, no operating license for a nuclear power reactor can issue unless the NRC finds that there is reasonable assurance that adequate protective measures both on and off the facility site can and will be taken in the event of a radiological emergency. 10 CFR 50.47(a)(1). With regard to the adequacy of off-site emergency measures, the NRC must "base its finding on a

³ The Licensing Board treated CEE's Answer as an independently filed motion to reopen the proceeding. LBP-82-96, *supra*, 16 NRC at 1435.

⁴ Thus, we said:

At bottom, Monroe County claims that the Fermi 2 emergency plan cannot work. The claim is obviously one that must not be ignored, but it is pressed so late that it cannot easily fit into the adjudicatory process.

ALAB-707, *supra*, 16 NRC at 1767 (footnote omitted).

⁵ At oral argument we asked the parties to submit copies of letters or memoranda detailing the status of discussions relating to the Monroe County plan. In response, we were provided with (1) an April 20, 1983 internal FEMA memorandum with attachments, (2) a letter of March 18, 1983 with attachments from Jon Eckert, Monroe County Civil Preparedness Coordinator to Arden T. Westover, Chairman, Monroe County Board of Commissioners, and (3) a letter of April 8, 1983 from Lt. James M. Tyler, Michigan State Police, to Mr. Westover. See attachments to letter from applicants' counsel to Appeal Board (May 5, 1983). These documents indicate the action that has been taken in response to our referral of the County's petition to the Director.

review of the Federal Emergency Management Agency (FEMA) findings and determinations as to whether State and local emergency plans are adequate and whether there is reasonable assurance that they can be implemented.” 10 CFR 50.47(a) (2).³

³ Section 50.47(a) (2) reads in full as follows:

(2) The NRC will base its finding on a review of the Federal Emergency Management Agency (FEMA) findings and determinations as to whether State and local emergency plans are adequate and whether there is reasonable assurance that they can be implemented, and on the NRC assessment as to whether the applicant's onsite emergency plans are adequate and whether there is reasonable assurance that they can be implemented. A FEMA finding will primarily be based on a review of the plans. Any other information already available to FEMA may be considered in assessing whether there is reasonable assurance that the plans can be implemented. In any NRC licensing proceeding, a FEMA finding will constitute a rebuttable presumption on questions of adequacy and implementation capability. Emergency preparedness exercises (required by paragraph (b) (14) of this section and Appendix E, Section F of this part) are part of the operational inspection process and are not required for any initial licensing decision.

Central to the development of offsite emergency response plans is the concept of emergency planning zones (EPZ). The regulatory scheme contemplates the establishment, for planning purposes, of two such zones: a plume exposure pathway (plume) EPZ, a more or less circular area extending approximately ten miles from the plant, and an ingestion exposure pathway (ingestion) EPZ, a similarly shaped area with a fifty mile radius. The plume EPZ is concerned principally with the avoidance in the event of a nuclear facility accident of possible (1) whole body external exposure to gamma radiation from the plume and from deposited materials and (2) inhalation exposure from the passing radioactive plume. The duration of those exposures could vary in length from hours to days. The ingestion EPZ is established primarily for the purpose of avoiding exposures traceable to contaminated water or foods (such as milk or fresh vegetables), a potential exposure source that could vary in duration from hours to months.

III. ANALYSIS

A. Lack of a Final Plan

CEE's central argument is that the Monroe County emergency plan is not yet complete; that, in fact, the Monroe County Board of Commissioners thinks the existing plan cannot be implemented; and that it is violative of CEE's procedural rights to a fair hearing for the Licensing Board to litigate and decide emergency planning issues at such a preliminary stage.

CEE's argument is not persuasive. In ALAB-707, *supra*, we ruled that Monroe County did not have good cause to defer questioning the complete-

ness or adequacy of the County emergency plan until the evidentiary hearings were over. We reasoned that the matters bearing on the plan's inadequacy and incompleteness that the county sought to raise — e.g., the condition of the roads in the vicinity of the Fermi 2 plant, the effect of winter weather, the number of buses available for transportation, the availability of emergency workers and the adequacy of their training — were well within the understanding of a local governmental body. They could have, and should have, been raised earlier. ALAB-707, *supra*, 16 NRC at 1765. Consequently, after consideration of the other factors bearing upon late intervention, we denied the County's petition.⁶ Our opinion also noted that we

would not allow a *party* to the proceeding to press a newly recognized contention after the evidentiary hearing was concluded unless the party could satisfy an objective test of good cause. Among other things, our standard requires that the party seeking to reopen must show that the issue it now seeks to raise *could not have been raised earlier*. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973).

Id. at 1765 (emphasis in original; footnote omitted).⁷

CEE here stands in no better position than Monroe County did in its earlier appeal. CEE was in as good a position as Monroe County to question the completeness and adequacy of the County emergency plan, yet did not do so until the evidentiary hearings were long over. One of CEE's members, its principal witness on emergency planning and an active participant in the proceeding since the December 1978 prehearing conference, was Frank Kuron — himself a member of the Monroe County Board of Commissioners since January 1981. See Tr. 6-14, 28, 501-03. In view of the limited nature of CEE's organization, we think it fair to impute Mr. Kuron's knowledge to CEE.⁸ Even if we did not, it is plain that the kinds of emergency preparedness failings CEE advances do not constitute "new" information that

⁶ As indicated above, we submitted Monroe County's petition and its underlying documentation to the Director of NRR to treat as a 10 CFR §2.206 petition. It is now under active consideration. See p. 1063 and n.5, *supra*.

⁷ In order to justify reopening a proceeding, a party must show that the matter it wishes to have considered is

(1) timely presented, (2) addressed to a significant issue, and (3) susceptible of altering the result previously reached. See *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-5, 13 NRC 361, 364-65 (1981); *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit No. 1), ALAB-462, 7 NRC 320, 338 (1978).

ALAB-707, *supra*, 16 NRC at 1765 n.4.

⁸ CEE is an unincorporated association. Its members do not pay dues, do not hold formal meetings, and are scattered throughout Michigan. It is unclear whether the organization operates under any charter or bylaws. CEE has only one officer, the position of Director, which stood empty at the time of the December 1978 prehearing conference. Tr. 29, 35-37; CEE Petition (Oct. 9, 1978); CEE Amended Petition (Dec. 4, 1978).

would excuse intervenor's delay in not raising the issue earlier.⁹ There is no allegation that the number of emergency workers or buses available to the county has just decreased, or that the roads to be used in an evacuation have suddenly fallen into irreparable disrepair. Nor is there a showing that Monroe County has abandoned its efforts to assist in emergency planning. CEE does not offer us new facts; rather, its argument for a reopened hearing relies upon the County's reevaluation of already existing circumstances. This showing does not assist CEE any more than it satisfied Monroe County's burden on the appeal that was before us earlier. *See* pp. 1064-65, *supra*. There is no substantial reason why the asserted significance of the basic facts long available to both Monroe County and CEE should not have been appreciated earlier and raised in a timely fashion.

Nor does the lack of completeness of the Monroe County plan, standing alone, preclude issuance of a full power operating license. We recently canvassed that issue in *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-717, 17 NRC 346 (1983) and in *Zimmer, supra*. Those cases explained "that the Commission expects licensing decisions on emergency preparedness to be made on the basis of the best available current information." *San Onofre, supra*, 17 NRC at 380. But that general principle does not mandate either a final local government emergency plan or a final evaluation of offsite preparedness by FEMA, the agency that has the principal responsibility to conduct such an evaluation. The regulatory scheme set forth by the Commission, we ruled, contemplates that "hearings may properly be held [and a decision on a full power operating license reached] at such time as the plans are sufficiently developed to support a conclusion that the state of emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken . . . in the event of a radiological emergency." *Zimmer, supra*, 17 NRC at 775. While we could not draw a bright line respecting how much plan development would be enough for that purpose, it is plain from the Commission's regulatory requirements that offsite plans need not be complete, nor finally evaluated by FEMA prior to conclusion of the adjudicatory process. *San Onofre, supra*, 17 NRC at 380 & n.57; *Zimmer, supra*, 17 NRC at 775. *See* 47 Fed. Reg. 30232 (July 13, 1982), *petition for review pending sub nom. Union of Concerned Scientists v. NRC*, No. 82-2053 (D.C. Cir. filed September 10, 1982); 45 Fed. Reg. 82713 (Dec. 16, 1980). *See also* 10 CFR §50.47(c)(1).

Here, Monroe County's emergency plan, while not final, has *already* been the subject of the emergency preparedness exercise that the Commission regulations provide need *not* be conducted prior to an operating license

⁹ *See* n.7, *supra*.

decision by the adjudicatory boards.¹⁰ The Monroe County plan has also been the subject of a so-called "final FEMA finding."¹¹ It is apparent that CEE's bare bones claim that the Licensing Board erred by issuing a decision favorable to the applicants in the absence of a final Monroe County plan must be rejected.

Lastly, CEE argues that it is violative of intervenor's procedural rights to a fair hearing for the Licensing Board to litigate and decide emergency planning issues in the absence of a final plan. In *San Onofre, supra*, we cautioned that there are procedural as well as substantive limits to deferring emergency planning issues until after the close of the evidentiary hearing. We explained:

Procedurally, the limits are established by Section 189 of the Atomic Energy Act, as amended, 42 U.S.C. §2239, which entitles interested persons to an adjudicatory hearing on the issuance of a construction permit or operating license. This means that an intervenor must have the opportunity to litigate the substantive question whether there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

17 NRC at 380 n.57. That limit was not breached here. Not only had the Monroe County plan been drafted, it had already been the subject of an extensive emergency planning exercise before the hearing was held in this case. And as explained below (*see* pp. 1068-69, *infra*), CEE raised no objection to the Licensing Board's going forward with the hearing when it did. Plainly, intervenor had an opportunity (which it forsook) to contest whether Monroe County's draft emergency plan could be implemented.

To the extent that CEE is claiming that it could not fairly be required to formulate an emergency planning contention in 1978 at the very outset of the Fermi 2 proceeding prior to development of the County plan, its argument runs afoul of our decision in *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460 (1982), *rev'd in part*, CLI-83-19, 17 NRC 1041 (1983). There we explained that

in order to put forth a specific contention respecting, for example, the adequacy of an environmental impact statement or an emergency plan, one must have had the *opportunity* to examine the statement or plan. Indeed, without that opportunity, it is not possible for a petitioner even to determine whether there is warrant for a contention

¹⁰ Emergency preparedness exercises are not required for a nuclear power plant operating license decision, but must be completed prior to operation above 5% of rated power. 47 Fed. Reg. 30232, *supra*. The emergency preparedness exercise at Fermi 2 was conducted on February 1 and 2, 1982 — before the initial decision.

¹¹ FEMA's report was the subject of a May 19, 1982 Board Notification that was served upon the intervenor. *See* Board Notification BN-82-50, Enclosure 1. As noted *supra* n.5, FEMA is again evaluating Monroe County's emergency preparedness.

on the subject — *i.e.*, whether the impact statement or emergency plan is open to a claim of insufficiency on some colorable ground.

Id. at 468 (emphasis in original). For that reason we held that a late-filed contention would always be admissible where “the nonexistence or public unavailability of relevant documents made it impossible for a sufficiently specific contention to have been asserted at an earlier date.” *Id.* at 470. The difficulty with this leg of CEE’s argument then, is that its argument is based on an erroneous premise. As our *Catawba* decision indicates, CEE was *not* obligated to file a detailed contention asserting the inadequacy of the Monroe County emergency plan in 1978 before the plan was formulated. CEE was obliged, however, to file such a contention surely no later than February 1982, when a draft of that plan *did* exist and a full-scale exercise was held to test the Fermi 2 emergency plans. As the Licensing Board said of Monroe County in words equally applicable to CEE:

By February of 1982, when the full-scale exercise was carried out, the County was aware not only of what its emergency plan contained, but was aware of how the plan fared in the exercise. The County must have been aware, at this point at the very latest, of the issues posed by emergency planning and response for Fermi-2. February 2-3, the days of the exercise and its critique, were still *eight weeks before* the beginning of the evidentiary hearing. It is impossible to believe that the County did not possess sufficient knowledge to intervene at that time.

LBP-82-96, *supra*, 16 NRC at 1432 (emphasis in original).

B. Contention 8

CEE argues that the Licensing Board erred in striking that part of its original contention 8 that challenged the adequacy of the emergency plans then under development. That struck sentence reads: “Emergency plans and procedures have not been adequately developed or entirely conceived with respect to an accident which could require immediate evacuations of entire towns within a 100-mile radius of the Fermi 2 plant, including Detroit.” *See* p. 1061, *supra*. It is CEE’s position that the issue raised by that contention should be litigated at such time as Monroe County adopts a final emergency plan.

The factual background bearing on this claim has been set out in Part I of this opinion. *See* pp. 1061-63, *supra*. To the extent that the issue is viewed as anything more than a variant of the “final plan” argument just disposed of, we find that it has been waived. Further, the discussion among counsel and the Licensing Board at the July 1981 prehearing conference is open to no interpretation other than waiver. Repeatedly, CEE’s counsel explained

that intervenor had limited resources, that it would use those resources to litigate a few narrow areas, and that CEE's more general emergency planning concerns would be pressed in other fora. See p. 1062, *supra*. It is wholly inconsistent with the tenor of that discussion to claim that intervenor intended to preserve for appellate review a Licensing Board ruling rendered two and one-half years earlier that had struck a broadly generalized claim of inadequate emergency planning.¹²

C. Evacuation of Stony Point

The final question before us is one of substantial evidence — whether the record supports the Licensing Board's finding that *Pointe Aux Peaux Road* is a feasible evacuation route for residents of the Stony Point area. The Licensing Board concluded that even in the "worst case" — where all Fermi 2 workers and all residents of Stony Point arrived simultaneously at the intersection of *Pointe Aux Peaux Road* and the main evacuation route, North Dixie Highway — evacuation of Stony Point was possible within two and one-half hours. LBP-82-96, *supra*, 16 NRC at 1425. CEE challenges the Board's finding based on what it claims is the Board's erroneous reliance on the draft Monroe County emergency plan, and its failure to take into account the effects of essentially four factors: (1) accidents, (2) weather, (3) the time needed for residents who work outside the Stony Point area to return home to collect their families, and (4) the time needed for buses to enter Stony Point to provide transportation for the handicapped and others without access to vehicles.¹³ CEE presented no witnesses of its own on these issues.

On appellate review, we give a licensing board's factual findings the deference that their probative force intrinsically commands. *Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear 1), ALAB-303, 2

¹² We should also add that the struck portion of CEE's original contention 8 had no basis in either then-effective or proposed emergency planning regulations. And under the Commission's present emergency planning scheme adopted in 1980, emergency evacuation plans must be developed only for the plume exposure pathway EPZ, an area covering typically 10 miles around a nuclear facility, not the 100-mile radius that CEE's original contention sought to put in issue. See 10 CFR §50.47(b)(10), (c)(2); 10 CFR Part 50, Appendix E, §1 n.2. See generally NUREG-0396, "Planning Basis for the Development of State and Local Government Radiological Response Plans in Support of Light Water Nuclear Power Plants" (December 1978).

¹³ CEE does not question the Board's determination that the two and one half-hour upper limit on evacuation time is reasonable. Indeed, the Commission's emergency planning regulations do not specify the time within which the plume EPZ must be evacuated in the event of a nuclear emergency. 10 CFR Part 50, Appendix E, §IV, requires only that applicants provide

an analysis of the time required to evacuate and for taking other protective actions for various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations.

See also NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Rev. 1 (November 1980), at 61 and Appendix 4. See generally *Zimmer, supra*, 17 NRC at 770-71.

NRC 858, 867 (1975). Stony Point lies approximately one mile south of the reactor. Some 1400 people live in the community. LBP-82-96, *supra*, 16 NRC at 1425. In order for the residents to evacuate that area they must drive approximately three-fourths of a mile to Pointe Aux Peaux Road, then take that road two and one-half miles to its intersection with North Dixie Highway, the main evacuation route. Kantor, fol. Tr. 533, at 2; Madsen, fol. Tr. 406, Figs. 1, 4. The Pointe Aux Peaux Road extends a short distance, about one-fourth of a mile, toward the reactor during its two and one-half mile course. Tr. 559. The Licensing Board set the context for the issue now before us:

There was no dispute as to whether [the two lane] Pointe Aux Peaux Road lies close to the reactor — it clearly does — or whether it is the sole evacuation route from Stony Point — it clearly is — or whether in using the Road the residents of Stony Point would be forced to move toward the reactor before moving away from the reactor — they clearly would. The sole issue was whether, given these facts, the road is a feasible evacuation route.

LBP-82-96, *supra*, 16 NRC at 1422. As noted earlier, the Board examined that issue in factual findings that cover some eight pages. *Id.* at 1422-29. The findings are amply supported by the evidence and we need go over them only in brief outline. In essence, the Board found that the testimony presented by the applicants and staff established that vehicles departing Stony Point during an evacuation can be accommodated by Pointe Aux Peaux Road. The fact that residents must travel toward Fermi 2 for a short distance does not impair the feasibility of that road as an evacuation route. *Id.* at 1429.¹⁴

CEE's quarrel with those findings is wide of the mark. CEE objects to the witnesses' reliance on the Monroe County emergency plan for the propositions that a policeman would be available for traffic control and that an accident on the road could be cleared without undue delay. *See* CEE Brief (Feb. 9, 1983) at 6-7. The availability of a police officer or two to direct traffic and of a tow truck or wrecker to clear an accident are permissible inferences for the Board to draw, especially given Monroe County's willingness to work with other government agencies to assure a workable emergency evacuation plan. *See* note 5, *supra*.

¹⁴ Evelyn F. Madsen, an environmental engineer with Detroit Edison Company, testified for the applicants. She was accompanied by Herbert Eugene Hungerford, Professor of Nuclear Engineering at Purdue University; Andrew C. Kanen, a Vice President of the consulting firm PRC Voorhees; and Roger A. Nelson, a professional meteorologist. *See generally* fol. Tr. 406.

The staff's testimony on Contention 8 was presented by Rick J. Anthony, an emergency management specialist with the Federal Emergency Management Agency; Thomas Urbanik, II, a transportation engineer with Texas Transportation Institute at Texas A&M University; and Falk Kantor, an Emergency Preparedness Analyst with the NRC Office of Inspection and Enforcement. *See generally* fol. Tr. 533.

Nor are CEE's other criticisms of the Board's fact finding well-founded. CEE claims the evacuation time estimates fail to comprehend the time necessary for persons working outside the Stony Point area to return home to collect their families. We disagree. On cross-examination by the staff, applicants' witness Kanen stated explicitly that allowance was made in the time estimates for this purpose. Tr. 439-40.¹⁵

CEE asserts that none of the witnesses estimated possible delays due to reduced visibility and the increased likelihood of accidents in heavy rain, snow, or fog. CEE Brief at 8. The Board found, as the applicants' witnesses testified, that during "adverse" weather (*i.e.*, snow or icy road conditions), there would be an increase in the level of congestion at certain intersections along Pointe Aux Peaux Road and along its principal "feeder" street, Dewey Drive. At a maximum, however, the increase in travel time to exit from Stony Point would be only five to seven minutes, depending on whether the evacuation took place during the week or on a weekend. LBP-82-96, *supra*, 16 NRC at 1423-24; Madsen, fol. Tr. 406, at 6-8 and Table 2.

The staff distinguished between "adverse" (rain or light snow) and "severe" (heavy snow) weather. Adverse weather would increase the time needed to evacuate Stony Point by 20 percent; severe weather would increase that by the time it takes to clear the road. Urbanik, fol. Tr. 533 at 3-4. While the staff did not estimate the time it would take to clear Pointe Aux Peaux Road of snow, it is apparent that that area experiences and has handled heavy snowfalls. The staff witness, Mr. Kantor, noted that the roads were well maintained and open in February 1982 — at the time of the emergency preparedness exercise, when 20 inches of snow fell over a four-day period. Tr. 569.

CEE's final argument is that Pointe Aux Peaux Road is not a feasible escape route for Stony Point because the residents must travel in the direction of the Fermi plant in order to evacuate. CEE Brief at 8. It is undisputed that use of Pointe Aux Peaux Road to evacuate Stony Point entails traveling toward the reactor. At its closest point, the road is 0.9 miles from the reactor. According to the staff, Stony Point evacuees would spend between six and ten minutes driving toward the reactor. LBP-82-96, *supra*, 16 NRC at 1426, 1428; Tr. 563. Staff witness Kantor admitted, under certain conditions, that the evacuees might receive a slight increase in dose as they

¹⁵ Applicants estimated that about 30 percent of the residents of Stony Point work outside Monroe County. Tr. 420. Mr. Kanen assumed the nuclear emergency would occur on a weekday and that families would attempt to find one another before evacuations. Tr. 439. Mr. Kanen testified that, by comparison, the shorter evacuation time estimate calculated for Sundays is a result of *not* allowing time for workers to return to their homes. Tr. 440.

traveled along Pointe Aux Peaux Road towards the reactor, but testified that the incremental increase would be insignificant, even as to that small segment of the road that bends toward the reactor over its 2.5-mile course. Tr. 548, 559, 567-68, 569-70. The phenomenon of driving toward the reactor before driving away from it, the staff testified, was “not a limiting factor [for emergency planning purposes] and probably not unique in the ten-mile emergency [planning] zone.” Tr. 548. *See also* Kantor, fol. Tr. 533, at 4-5. The Board found this “accurate and convincing” and concluded that the need to drive toward the reactor did not render Pointe Aux Peaux road infeasible as an evacuation route. LBP-82-96, *supra*, 16 NRC at 1427.¹⁶ Substantial evidence in the record, just outlined, supports the Board’s conclusion. In accordance with our customary practice we have also reviewed those portions of the initial decision and underlying record that are not encompassed by the appeal, and find no error that warrants corrective action.

For the foregoing reasons, the Licensing Board’s October 29, 1982 initial decision authorizing the issuance of a full power operating license for Fermi 2 is *affirmed*.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

¹⁶ As CEE points out (Brief at 8), nearly a decade ago we had occasion to question the workability of an emergency plan that provided for public evacuation in the direction of a nuclear reactor. *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-248, 8 AEC 957, 962-63 (1974). In *San Onofre*, we assumed that evacuees would reject travelling towards a reactor during evacuation; that for purely psychological reasons they simply would not utilize an evacuation route involving travel towards the reactor. On this record, however, there is nothing to indicate that residents of Stony Point, aware they would have to travel towards the Fermi reactor for a short period of time, would not evacuate using Pointe Aux Peaux Road. (CEE’s intervenor, Mr. Kuron, presented no testimony to that effect). Pointe Aux Peaux Road is the regularly used entrance and exit road for Stony Point residents; applicants selected it as the appropriate evacuation route because it is the “natural” route residents would ordinarily select in leaving the area. *See* Madsen, fol. Tr. 406, at 3-4 and Fig. 6. This is in direct contrast to the partially abandoned route looked upon with doubt in *San Onofre*. 8 AEC at 963. Moreover, in *Fermi* we are looking primarily at evacuation of a stable residential population, rather than a predominately transient beach and park population as was involved in *San Onofre*. *See ibid*.

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)

June 20, 1983

The Appeal Board dismisses an intervenor's appeal of the Licensing Board's dismissal of a contention sponsored by intervenor in this operating license proceeding, and denies an alternative petition for directed certification.

RULES OF PRACTICE: APPELLATE PROCEDURE

A licensing board's dismissal of a party's contention that does not otherwise terminate that party's participational rights is an interlocutory order and is not appealable as a matter of right until the board below has rendered a decision disposing of at least a major segment of the case. *See Toledo Edison Co. (Davis-Besse Nuclear Power Station)*, ALAB-300, 2 NRC 752, 758 (1975).

RULES OF PRACTICE: APPELLATE PROCEDURE

A claim of error based simply on a licensing board's dismissal of a contention is not enough to show that the board's action affects "the basic structure of the proceeding in a pervasive or unusual manner" within the mean-

ing of *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977) and will not warrant exercise of an appeal board's directed certification authority under 10 CFR 2.718(i). See *Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-635, 13 NRC 309, 310-11 (1981).

APPEARANCES

Robert A. Backus, Manchester, New Hampshire, for the intervenor, Seacoast Anti-Pollution League.

Thomas G. Dignan, Jr., and **R. K. Gad, III**, Boston, Massachusetts, for the applicants, Public Service Company of New Hampshire, *et al.*

Roy P. Lessy, **William F. Patterson, Jr.**, and **Robert G. Perlis** for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

The Seacoast Anti-Pollution League (SAPL), an intervenor in this operating license proceeding, has appealed from, and alternatively petitioned for directed certification of, so much of the Licensing Board's May 11, 1983 memorandum and order as granted summary disposition against it on SAPL Supplemental Contention 3. We *dismiss* the appeal and *deny* directed certification.

1. SAPL does not dispute that it is still a party to the proceeding below notwithstanding the dismissal of its Supplemental Contention 3. Although that dismissal left no other contentions originated by it, SAPL itself notes that it has joined in a contention filed by the State of New Hampshire that remains before the Licensing Board. SAPL's participational rights with regard to the New Hampshire contention were, of course, not affected by the Licensing Board's action on Supplemental Contention 3.

It follows that the appeal will not lie. As we said long ago:

The test of "finality" for appeal purposes before this agency (as in the courts) is essentially a practical one. As a general matter, a licensing board's action is final for appellate purposes where it either disposes of at least a major segment of the case or terminates a party's right to participate; rulings which do neither are interlocutory. Under the Commission's rules (except in limited circumstances not

present here), interlocutory determinations may not be brought before us for review as a matter of right until the Board below has rendered a reviewable decision.

Toledo Edison Co. (Davis-Besse Nuclear Power Station), ALAB-300, 2 NRC 752, 758 (1975) (footnotes omitted).

2. Nor is there warrant for now invoking the directed certification authority conferred by 10 CFR 2.718(i). Supplemental Contention 3 reads as follows:

The applicable requirements of the Commission's Interim Policy Statement issued June 13, 1980, 45 Fed. Reg. 40101 on Nuclear Power Plant Accident Considerations under the National Environmental Policy Act of 1969 have not been met.

Contrary to SAPL's assertion, we find no basis for concluding that, even if erroneous, the grant of summary disposition on the contention might affect "the basic structure of the proceeding in a pervasive or unusual manner." See *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977).¹ Apart from the most conclusory statement that the "issue of accident considerations" is central to the proceeding, SAPL's argument is simply that the Licensing Board erred in determining that no genuine issues of material fact were associated with the applicants' motion for summary disposition. This being so, SAPL must await the Licensing Board's initial decision before presenting its grievance for appellate consideration. *Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-635, 13 NRC 309, 310-11 (1981).

It is so ORDERED.

FOR THE APPEAL BOARD

Barbara A. Tompkins
Secretary to the
Appeal Board

¹ *Marble Hill* established two alternative criteria for the grant of directed certification. There is no claim here that the other test is also satisfied; i.e., SAPL does not maintain that the challenged ruling threatens it with "immediate and serious irreparable impact which, as a practical matter, could not be alleviated by a later appeal."

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

**Stephen F. Eilperin, Chairman
Dr. W. Reed Johnson
Christine N. Kohl**

In the Matter of

Docket No. 50-382-OL

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

June 29, 1983

The Appeal Board affirms the Licensing Board's November 3, 1982 partial initial decision that resolved all but one contested issue in this operating license proceeding for Waterford 3 (LBP-82-100, 16 NRC 1550, *as modified*, LBP-82-112, 16 NRC 1901 (1982)).

RULES OF PRACTICE: BRIEFS

Exceptions not fully briefed are considered waived. *Public Service Electric and Gas Co.* (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 NRC 43, 49-50 (1981), *aff'd sub nom. Township of Lower Alloways Creek v. Public Service Electric & Gas Co.*, 687 F.2d 732 (3d Cir. 1982).

LICENSING BOARD: RESPONSIBILITIES

Licensing boards have a duty not only to resolve contested issues, but to articulate in reasonable detail the basis for the course of action chosen. A board must do more than reach conclusions; it must confront the facts. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 41 (1977), *aff'd*, CLI-78-1, 7 NRC 1 (1978).

APPEAL BOARD: SCOPE OF REVIEW

Despite the failure of a licensing board decision to explain its basis in reasonable detail, an appeal board need not necessarily reverse it. Instead, the appeal board may make factual findings based on its own review of the record and decide the case accordingly. *Id.* at 41-42.

RULES OF PRACTICE: LIMITED APPEARANCE STATEMENTS

The purpose of limited appearance statements is to alert the Licensing Board and parties to areas in which evidence may need to be adduced. Such statements do not constitute evidence and, accordingly, the Board is not obligated to discuss them in its decision. 10 CFR §2.715(a); *Iowa Electric Light & Power Co.* (Duane Arnold Energy Center), ALAB-108, 6 AEC 195, 196 n.4 (1973).

EVIDENCE: ADMISSIBILITY (SPONSORSHIP BY EXPERT)

A licensing board may refuse to accept an expert witness' prefiled written testimony as evidence in a licensing proceeding in the absence of the expert's personal appearance for cross-examination at the hearing. *See generally* 10 CFR §2.718; *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Unit 2), ALAB-27, 4 AEC 652, 658-59 (1971).

EVIDENCE: ADMISSIBILITY (EXPERT TESTIMONY)

In order for expert testimony to be admissible, it need only (1) assist the trier of fact, and (2) be rendered by a properly qualified witness. *See* Fed. R. Evid. 702; *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 475 (1982). The fact that a witness is employed by a party, or paid by a party, goes only to the persuasiveness or weight that should be accorded the expert's testimony, not to its admissibility. *See* 11 J. Moore & H. Bendix, *Moore's Federal Practice*, ¶702.30[1] (2d ed. 1982).

RULES OR PRACTICE: RESPONSIBILITIES OF PARTIES

The NRC staff has the obligation to lay all relevant materials before the Licensing Board to enable it adequately to dispose of the issues before it. *Consolidated Edison Co. of New York* (Indian Point Station, Units 1, 2 and 3), CLI-77-2, 5 NRC 13, 15 (1977). *See generally* *Tennessee Valley Authority*

(Browns Ferry Nuclear Plant, Units 1, 2 and 3), ALAB-677, 15 NRC 1387 (1982); *Allied-General Nuclear Services* (Barnwell Nuclear Fuel Plant Separations Facility), ALAB-296, 2 NRC 671, 680 (1975).

RULES OF PRACTICE: BURDEN OF PROOF

The ultimate burden of proof in a licensing proceeding on the question of whether a permit or license should be issued is upon the applicant. But where one of the other parties to the proceeding contends that, for a specific reason the permit or license should be denied, that party has the burden of going forward with evidence to buttress that contention. Once the party has introduced sufficient evidence to establish a prima facie case, the burden then shifts to the applicant, which as part of its overall burden of proof, must provide a sufficient rebuttal to satisfy the Board that it should reject the contention as a basis for denial of the permit or license. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-123, 6 AEC 331, 345 (1973).

EMERGENCY PLANS: REQUIREMENT FOR OPERATING LICENSE

Prior to the issuance of an operating license, the Commission must make a finding of reasonable assurance that adequate protective measures, both offsite and onsite, can and will be taken in the event of a radiological emergency. 10 CFR §50.47(a)(1). The Commission bases its overall "reasonable assurance" finding on a review of the Federal Emergency Management Agency (FEMA) determination of the adequacy of offsite (state and local) planning, and on the NRC staff assessment of the adequacy of an applicant's onsite plan. 10 CFR §50.47(a)(2).

EMERGENCY PLANS: EMERGENCY PLANNING ZONES

Offsite emergency preparedness is implemented through the concept of emergency planning zones (EPZ). The two zones are (i) the plume exposure pathway EPZ, which is an area with a radius of about 10 miles from the plant, and (ii) the ingestion pathway EPZ, which is about 50 miles in radius. 10 CFR §50.47(c)(2). See *Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit No. 1), ALAB-727, 17 NRC, 760, 764-65 (1983).

RULES OF PRACTICE: CROSS-EXAMINATION (BY INTERVENORS)

An intervenor has the right to make its case defensively by cross-examination of applicant and staff witnesses. *Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-463, 7 NRC 341, 356 (1978). Proper cross-examination can be an especially valuable tool in the development of a full record. *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-244, 8 AEC 857, 868 (1974), *reconsideration denied*, ALAB-252, 8 AEC 1175, *affirmed*, CLI-75-1, 1 NRC 1 (1975).

RULES OF PRACTICE: CROSS-EXAMINATION (LIMITATION)

Cross-examination must be limited to the scope of the contentions admitted for litigation and can appropriately be limited to the scope of direct examination. *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-673, 15 NRC 688, 698, *affirmed*, CLI-82-11, 15 NRC 1383 (1982); *Prairie Island*, ALAB-244, *supra*, 8 AEC at 867, 869 n.16. In exercising its discretion to limit what appears to be improper cross-examination, a licensing board may insist on some offer of proof or other advance indication of what the cross-examiner hopes to elicit from the witness. *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-461, 7 NRC 313, 316 (1978); *San Onofre*, ALAB-673, *supra*, 15 NRC at 697; *Prairie Island*, ALAB-244, *supra*, 8 AEC at 869. Even if cross-examination is wrongly denied, however, such denial does not constitute prejudicial error *per se*. *San Onofre*, CLI-82-11, *supra*, 15 NRC at 1384. The complaining party must demonstrate actual prejudice — *i.e.*, that the ruling had a substantial effect on the outcome of the proceeding. *San Onofre*, ALAB-673, *supra*, 15 NRC at 697 & n.14.

EMERGENCY PLANS: CONTENT (TRAINING OF OFFSITE WORKERS)

An applicant's emergency plans must include a radiological orientation training program for offsite emergency workers, such as civil defense and law enforcement personnel. 10 CFR Part 50, Appendix E, §IV.F. *See also* NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Rev. 1 (November 1980), at 75-77.

LICENSING BOARD: RESOLUTION OF ISSUES

As a general proposition, issues should be dealt with in the hearings and not left over for later (and possibly more informal) resolution. *Consolidated Edison Co. of New York* (Indian Point Station, Unit No. 2), CLI-74-23, 7 AEC 947, 951 (1974). The “post-hearing” approach should be employed sparingly and only in clear cases — for example, where minor procedural deficiencies are involved. *Id.* at 951 n.8, 952. *Accord, Marble Hill, supra*, 7 NRC at 318; *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-298, 2 NRC 730, 736-37 (1975); *Washington Public Power Supply System* (Hanford No. 2 Nuclear Power Plant), ALAB-113, 6 AEC 251, 252 (1973).

EMERGENCY PLANS: COMMISSION FINDINGS

The findings on emergency planning required prior to license issuance are predictive in nature. 47 Fed. Reg. 30232, 30235 (July 13, 1982).

EMERGENCY PLANS: CONTENT (SUFFICIENCY)

While an emergency plan need not be final at the time of an operating license hearing, it must be sufficiently developed to permit the board to make the reasonable assurance finding required by 10 CFR §50.47(a)(1). *See Zimmer, supra*, 17 NRC at 770, 773; *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Unit 2 and 3), ALAB-717, 17 NRC 346, 380 n.57 (1983).

RULES OF PRACTICE: CHALLENGE TO COMMISSION REGULATIONS

Unless the Commission has granted a waiver, NRC regulations “shall not be subject to attack by way of discovery, proof, argument, or other means in any adjudicatory proceeding involving initial licensing.” 10 CFR §2.758.

EMERGENCY PLANS: IMPLEMENTING PROCEDURES

An applicant for a nuclear plant operating license is not required to submit the implementing procedures for its emergency plan for consideration in the licensing hearing in order for the Commission to make its “reasonable assurance” finding. *See* 10 CFR Part 50, Appendix E, §V. The focus of the hearing should be on whether the applicant’s emergency plan itself meets the broadly drafted standards of 10 CFR §50.47(b).

EMERGENCY PLANNING: EXERCISES (EFFECT ON LICENSING DECISION)

Emergency preparedness exercises are part of the operational inspection process and are not required for any initial licensing decision, although they are required prior to operation above five percent of rated power. 10 CFR §50.47(a)(2); 10 CFR Part 50, Appendix E, §IV.F.1.b. Full-scale exercises are to test as much of the emergency plans as is reasonably achievable without mandatory public participation. 10 CFR Part 50, Appendix E, §IV.F.1. Should the actual exercises reveal fundamental defects in the emergency plans, a party's recourse is to seek to reopen a concluded hearing or file a petition for action pursuant to 10 CFR §2.206, as appropriate. 47 Fed. Reg. at 30233. These rules do not preclude public observation of and participation in the exercises themselves (to the extent consistent with the rules and policies of the Commission and the objectives of the exercise) and in the review and assessment critique meetings held after the exercise. *Ibid.*

LICENSING BOARD: CONSIDERATION OF GENERIC SAFETY ISSUES

A licensing board in an operating license proceeding has an obligation to search the record (especially the Safety Evaluation Report) to determine whether the staff has dealt "appropriately" with the unresolved generic safety issues, even where they are not contested. *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-491, 8 NRC 245, 247-49 (1978).

APPEAL BOARD: SCOPE OF REVIEW (*SUA SPONTE*)

It is long standing appeal board practice to review the entirety of licensing board decisions on significant safety and environmental issues, even when they are not raised on appeal. *See Offshore Power Systems* (Manufacturing License for Floating Nuclear Power Plants), ALAB-689, 16 NRC 887, 890 (1982).

LICENSING BOARD: SCOPE OF REVIEW (*SUA SPONTE*)

A licensing board may, under 10 CFR §2.760a, raise and decide, *sua sponte*, a serious safety, environmental, or common defense and security matter, should it determine such a serious issue exists. The limitations imposed by regulation on a board's review of a matter not in contest (and

therefore not subject to the more intense scrutiny afforded by the adversarial process) do not override a board's authority to invoke 10 CFR §2.760a. See *North Anna, supra*, 8 NRC at 248 n.7. The Commission may, however, on a case by case basis relieve the boards of any obligation to pursue uncontested issues.

BOARD NOTIFICATION: CONTENT (SUFFICIENCY)

If a board notification is to serve its intended purpose, it must contain an exposition adequate to allow a ready appreciation of (1) the precise nature of the addressed issue and (2) the extent to which the issue might have a bearing upon the particular facility before the board. *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-551, 9 NRC 704, 710 (1979).

TECHNICAL ISSUES DISCUSSED

Synergism
Decay heat removal

APPEARANCES

Gary L. Groesch, New Orleans, Louisiana, for joint intervenors, Oystershell Alliance and Save Our Wetlands, Inc.

Bruce W. Churchill and **James B. Hamlin**, Washington, D.C. (with whom **Ernest L. Blake, Jr.**, and **Delissa A. Ridgway**, Washington, D.C., were on the brief), for applicant, Louisiana Power & Light Company.

Sherwin E. Turk for the Nuclear Regulatory Commission staff.

DECISION

Joint Intervenors, Oystershell Alliance and Save Our Wetlands, Inc., have appealed the Licensing Board's November 3, 1982, partial initial decision regarding Louisiana Power & Light Company's application for an

operating license for the Waterford 3 nuclear power plant. See LBP-82-100, 16 NRC 1550. The Board's decision, which was favorable to the applicant, resolved all but one contested issue in the case.¹

Joint Intervenors' appeal focuses on the issues of synergism and emergency planning. Synergism is the cooperative action of discrete agents to produce an effect greater than the sum of the effects taken independently. See *id.* at 1591. Joint Intervenors claim that the radioactive releases from the Waterford 3 nuclear power plant will react synergistically with the industrial (chemical) pollutants of the lower Mississippi River area, causing a higher incidence of cancer than would otherwise be the case. With regard to emergency planning, Joint Intervenors argued before the Licensing Board that the evacuation plans for the parishes surrounding Waterford 3 are inadequate in a number of respects. Here, they primarily assert that the Board erred in numerous procedural rulings. We discuss these two sets of issues, in turn, below and address a third — decay heat removal — on our own motion.² We conclude by affirming the Board's decision.

I. SYNERGISM

A. Background

The Waterford 3 nuclear power plant is located in St. Charles Parish on the west bank of the Mississippi River, about 24 miles west of New Orleans, Louisiana. As noted, it is Joint Intervenors' position that that area is subject to chemical pollution from heavy industry, and the addition of radioactive effluents from Waterford 3 will have a multiplying effect on the already high cancer rates there.³ While the Licensing Board agreed that the southern Mississippi River corridor exhibits a higher incidence of some cancers than other regions of the United States, it rejected Joint Intervenors' claim that the levels of radiation expected to be released from Waterford 3 will induce a synergistic effect. *Id.* at 1569-71.

¹ The open issue — the adequacy of applicant's revised pre-emergency public information brochure (see 10 CFR §50.47(b)(7)) — was subsequently resolved in favor of the applicant after further evidentiary hearings. See LBP-83-27, 17 NRC 949 (1983). Joint Intervenors have recently filed exceptions to this decision.

² Exceptions not fully briefed by Joint Intervenors are considered waived. *Public Service Electric and Gas Co.* (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 NRC 43, 49-50 (1981), *aff'd sub nom. Township of Lower Alloways Creek v. Public Service Electric & Gas Co.*, 687 F.2d 732 (3d Cir. 1982). However, as is our usual practice, we have reviewed those portions of the partial initial decision and underlying record not properly subject to the appeal and, with the exception of the matter on decay heat removal addressed in Part III, *infra*, have found no error warranting corrective action.

³ Specifically, Joint Intervenors' contention 8/9 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 order to determine whether radioactive emissions from Waterford 3 might react synergistically with existing environmental pollutants, it is first necessary to develop an estimate of the radiation dose that would be attributable to these routine emissions. Using the GALE computer code,⁴ applicant determined what these emissions would be and then calculated the radiation dose estimate for the average individual in the vicinity of the Waterford 3 plant as less than 0.01 millirem (mrem) per year. Applicant's Testimony, fol. Tr. 461, at 5, Table 2. Both applicant and the NRC staff also calculated estimated doses received by a hypothetical "maximally exposed" individual for the several exposure pathways. For each pathway, the predicted maximum dose was within the design objectives of 10 CFR Part 50, Appendix I. *See id.* at 4-5, Table 1; NRC Staff Testimony of Edward F. Branagan, Jr., fol. Tr. 767, at 2-4; Staff Exh. 1, "Final Environmental Statement" (FES), at 5-27 - 5-31, J-2 - J-3, Table J-5, as corrected at Tr. 738-51. The Licensing Board accepted both the applicant's and the staff's calculations of dose estimates, finding them "very close to each other" and based on commonly accepted methodology. LBP-82-100, *supra*, 16 NRC at 1569. In the Board's view, when compared to the average 80 mrem per year dose from naturally occurring background radiation near Waterford (*see* Applicant's Testimony, fol. Tr. 461, at 8), the minute average addition of 0.01 mrem per year could have only a correspondingly minimal health impact.⁵ Thus, the Board found that the additional projected dose from Waterford is "exceedingly unlikely" to cause any synergistic effect and would not measurably increase any synergistic interactions that might already be occurring in the environment. LBP-82-100, *supra*, 16 NRC at 1571.

B. Analysis

Joint Intervenors make essentially a four-pronged attack on the Board's decision. They claim that (1) the dose estimate employed by the Board is erroneous; (2) their evidence, which the Board ignored, supports a finding of synergism; (3) the staff and applicant witnesses were biased and unqualified; and (4) the Board committed procedural error by placing the burden of proving synergism on Joint Intervenors rather than disproving synergism on the applicant.

⁴ The GALE (Gaseous and Liquid Effluent) code reflects the cumulative operating experience of all U.S. nuclear plants through the mid-1970's and is still deemed accurate. It permits consideration of specific plant parameters and assumes that the plant will experience a certain amount of leakage. Tr. 491-97.

⁵ The Board also noted that the estimated doses from Waterford calculated by applicant and the staff were smaller than even the 20 mrem per year variation in the natural background radiation dose. LBP-82-100, *supra*, 16 NRC at 1571. *See* Applicant's Testimony, fol. Tr. 461, at 8.

1. Dose Estimate

Joint Intervenors argue that the radiation dose estimate should be derived from the Commission regulations that specify the design objectives for nuclear power plants — 10 CFR Part 50, Appendix I — rather than the calculated values based on anticipated operating experience that were employed by the staff and applicant. On cross-examination, Joint Intervenors asked staff witness Dr. Edward F. Branagan, Jr., to sum those Appendix I design objective values. He calculated a whole body dose of 23 mrem for all pathways and all types of effluents. Tr. 879-80, 1014.⁶ It is this value that Joint Intervenors urge be used to assess the possibility of synergistic interactions.

We disagree. First, the Appendix I design objectives represent a conservatively determined maximum exposure for each pathway. It is extremely unlikely that any real individual would receive any one of these doses, much less the sum of all of them. Tr. 999-1003, 1014.⁷ For this reason alone the Appendix I design objectives do not provide a realistic estimate of the expected radiological impact of operation of Waterford 3 or any other plant. Moreover, in terms of the radiological consequences of the operation of Waterford 3, the total population dose — here characterized as the average dose to persons within a 50-mile radius — is the more telling consideration. Determination of a maximum dose for each radioactive effluent pathway ensures that the possibly higher dose that may be received by an individual, or class of individuals, in the immediate vicinity of the plant will not be obscured by the averaging. But the total population dose also must be considered to establish the general population risk associated with plant operation — even where, as here (*see* p. 1084, *supra*), the pathway maximum doses are within the prescribed limits. *See generally Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion "As Low As Practicable" for Radioactive Material in Light-Water-Cooled Nuclear Reactor Effluents*, CLI-75-5, 1 NRC 277, 298-300 (1975). Applicant and the staff both determined total population dose in this case. We find that an ap-

⁶ We note that Dr. Branagan included a 15 mrem dose to the thyroid in his computation of a *whole body* dose, yet the thyroid dose is obviously only an organ dose. In effect, he was adding apples and apple trees, thereby distorting the total value.

⁷ As well as adding the Appendix I values, Dr. Branagan summed the calculated doses predicted for operation of Waterford 3 and determined that, at maximum, an individual might receive a dose of 6 mrem per year. Tr. 1000. But even this estimate is quite high. In order to receive a dose of that magnitude the individual would have to obtain all his or her food and water from each of several different sources that, for the particular exposure pathway analyzed, had the highest effluent levels from Waterford 3. Tr. 1010. *See generally* Tr. 1006-10.

propriate technique for analyzing what, if any, synergistic effect might be attributable to operating Waterford 3.⁸

2. Evidence on Synergism

a. Staff and Applicant Witnesses

The staff and applicant witnesses converted population dose estimates to risk values (*i.e.*, detrimental health effects) generally by using the correlations of the BEIR III report.⁹ These witnesses, in particular, Dr. Marvin Goldman for the staff and Dr. Leonard Hamilton for the applicant, also addressed the synergism question. See Applicant's Testimony, fol. Tr. 461, at 10-15; NRC Staff Testimony of Dr. Marvin Goldman, fol. Tr. 735, at 3-4, 9-15. They noted that a number of experiments using animal cells have demonstrated an "enhancement" of effects when radiation and a chemical agent act together. The experiments, however, utilized radiation doses 10,000 to 100,000 times (or more) higher than the predicted doses to the maximally exposed individual from Waterford 3. Applicant's Testimony, fol. Tr. 461, at 13-14; NRC Staff Testimony of Dr. Marvin Goldman, fol. Tr. 735, at 10-12, 14.

Because of this tremendous difference between the doses used in the laboratory experiments and those conservatively expected from operation of Waterford 3, Drs. Goldman and Hamilton were unable to find any synergistic effect at Waterford based on the available data.¹⁰ Moreover, even if there were such an effect, because the doses attributable to Waterford are so very small, any enhancement would also be small, so small as to be insignificant. Applicant's Testimony, fol. Tr. 461, at 10, 14-15; NRC Staff Testimony of Dr. Marvin Goldman, fol. Tr. 735, at 3, 12-13, 14-15; Tr. 715-17. Further, Dr. Goldman testified that the existing data seem to converge at a certain point, creating a "threshold effect" where no enhancement occurred — *i.e.*, cell transformation did not occur

⁸ In any event, even at the higher dose estimate that Joint Intervenors urge (23 mrem), the evidence does not reveal a synergistic effect. See pp. 1086-90, *infra*.

⁹ Committee on the Biological Effects of Ionizing Radiations (BEIR III), *The Effects on Populations of Exposure to Low Levels of Ionizing Radiation: 1980*, National Research Council, National Academy of Sciences.

¹⁰ Indeed, none of the staff and applicant witnesses was willing to accept that the laboratory experiments demonstrated synergism in humans from the combined effects of environmental carcinogens and radiation at millirem dose levels. The only acknowledged evidence of synergism in humans is that between cigarette smoking and lung radiation exposure in uranium miners. See NRC Staff Testimony of Dr. Marvin Goldman, fol. Tr. 735, at 13, 14. But Dr. Jacob I. Fabrikant, an applicant rebuttal witness, pointed out that the uranium miner lung doses were very high (in the range of 1000 rem) and that the latest data appear to show that the effects of smoking and radiation exposure are additive, rather than synergistic. Tr. 3649-52.

until the 50 to 100 rad level.¹¹ In Dr. Goldman's view, any extrapolation of enhanced effects (*i.e.*, synergism) from high to low doses would be non-linear, showing the enhancement as diminishing exponentially. Thus, at very low doses, such as those attributable to Waterford, any effect would be indistinguishable from an unenhanced effect. Tr. 942, 950-51, 971-72, 975, 988-89. Dr. Hamilton also pointed out that the population of southeastern Louisiana (like populations elsewhere) is exposed continually to background levels of radiation many times greater than those attributable to Waterford. *See* p. 1084, *supra*. Thus, to the extent that any synergistic enhancement might exist, the environmental pollutants would already be interacting with the natural background radiation, and any addition to such effects from Waterford 3 would be "miniscule." Applicant's Testimony, fol. Tr. 461, at 10, 14-15.

b. Joint Intervenors' Witnesses

The testimony presented by Joint Intervenors did not raise a serious question about the correctness of the applicant and staff positions. However, because the Licensing Board referred directly to the testimony of only one of Joint Intervenors' four witnesses — Dr. Velma L. Campbell, who testified to the existence of higher than normal cancer rates in southern Louisiana — we are constrained to set forth the evidence in more detail. *See* LBP-82-100, *supra*, 16 NRC at 1568-71, 1590.¹²

¹¹ For the purpose of this discussion, x-ray doses in synergism experiments (rads) and human doses (rems) can be considered to represent the same amount of radiation exposure or dose. Thus, 50 rad, for example, is the equivalent of 50 rem or 50,000 mrem.

¹² Hence, Joint Intervenors' complaint that the Board failed to consider the testimony of their witnesses is, in a sense, well founded. "We long ago reminded licensing boards of their duty not only to resolve contested issues, but 'to articulate in reasonable detail the basis' for the course of action chosen. . . . A board must do more than reach conclusions; it must 'confront the facts.'" *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 41 (1977), *aff'd*, CLI-78-1, 7 NRC 1 (1978) (citations omitted). Where, as here, an intervenor makes a sincere effort to pursue its case by sponsoring the appearance of a number of witnesses, the board has some obligation at least to refer to the particular arguments raised by the witnesses, and to explain why they were not accepted or were deemed to be less persuasive than those of other parties. Despite those deficiencies in the Licensing Board's opinion here, however, "the decision below need not necessarily be reversed. . . for we have authority to make factual findings on the basis of [the] record evidence." *Id.* at 41-42. Our own review of the record, in other words, will determine the outcome of the case.

Joint Intervenors also complain that the Licensing Board failed to address several "limited appearance" statements (*see* 10 CFR §2.715(a)). Joint Intervenors' Brief (Feb. 4, 1983) at 31. But as we pointed out a decade ago, limited appearance statements do not constitute evidence and, accordingly, the Board was not obligated to discuss them in its decision. *See Iowa Electric Light & Power Co. (Duane Arnold Energy Center)*, ALAB-108, 6 AEC 195, 196 n.4 (1973). The purpose of such statements is "to alert the Board and the parties to areas in which evidence may need to be adduced." *Ibid.* Our review of the statements to which Joint Intervenors refer convinces us that the Board properly pursued at the hearing any "relevant and meritorious questions" raised by persons making a limited appearance. *See* 10 CFR Part 2, Appendix A, §V(b)(4).

In addition to Dr. Campbell, Joint Intervenors presented Dr. Irwin D. J. Bross on the issues of radiation health effects and synergism (fol. Tr. 1342); Dr. Carl Johnson, on the adverse health effects of radiation, radiation dose estimates, and synergism (fol. Tr. 1836); and Dr. Hemchandra Pandit on radiation health effects and synergism (fol. Tr. 1218).¹³ We have reviewed all of Joint Intervenors' testimony and, for the reasons set out below, are of the opinion that the conclusions reached by the Licensing Board are correct.

Dr. Campbell is a practicing physician in New Orleans. Her testimony was directed to showing the existence of higher than normal cancer rates in the New Orleans area due to chemical pollutants in the waters of the Mississippi River. See Testimony of Dr. Velma L. Campbell, fol. Tr. 1055. The Licensing Board accepted that position as accurate, despite lengthy cross-examination that tended to cast doubt on some of her conclusions. LBP-82-100, *supra*, 16 NRC at 1569-70. See Tr. 2039-101, 2110-18.

We need not decide whether Dr. Campbell's position has enough support in the evidence, for the resolution of the *synergism* issue is founded on the extremely low levels of radiation exposure to the population likely to result from the operation of Waterford 3, and not on whether the same population is exposed to excessive chemical pollutants. Again, we point out that the existing cancer rate data are already influenced by natural background radiation levels many times in excess of the anticipated Waterford 3 contribution. Synergistic effects, if they exist at these very low levels, are already reflected in the health risk data. See pp. 1086-87, *supra*.

Joint Intervenors' next witness, Dr. Bross, is Director of Biostatistics at Roswell Park Memorial Institute for Cancer Research in Buffalo, New York. Dr. Bross' principal attempt¹⁴ to demonstrate radiation/chemical pollutant synergism relies on an analogy between the Waterford plant on the bank of the Mississippi River and nuclear power plants found along polluted river systems in the Soviet Union. Statement of Dr. Irwin D. J.

¹³ Joint Intervenors also sought to call Dr. Samuel S. Epstein, but Dr. Epstein was unwilling to appear at the hearing. Tr. 351. The Board acted well within its discretion in refusing to accept Dr. Epstein's prefiled written testimony as evidence in the absence of his personal appearance for cross-examination at the hearing. Tr. 363-65. See generally 10 CFR §2.718; *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant Unit 2), ALAB-27, 4 AEC 652, 658-59 (1971). In any event, the material on synergism sought to be presented by Dr. Epstein (which the Board accepted as a limited appearance statement) is unspecific and generally cumulative of evidence presented by other witnesses. See Tr. 436-50.

¹⁴ To illustrate a "synergistic" effect, Dr. Bross, in passing, refers to a 1981 report in *Science* based on data from the children of Japanese A-bomb survivors. Statement of Dr. Irwin D. J. Bross, fol. Tr. 1342, at Questions 35-37, Appendix A. (Dr. Bross' unpaginated testimony, like that of Joint Intervenors' other witnesses, is in the form of answers to numbered questions, as our citation form reflects.) But Dr. Bross himself recognizes that the paper relates only to radiation exposure, not to chemical carcinogens, and therefore does not bear upon our present considerations. See *id.* at Question 35.

Bross, fol. Tr. 1342, at Questions 29-34, 51.¹⁵ Based upon two newspaper articles, Dr. Bross asserts that there may well have been a synergistic increase in infant mortality attributable to chemical pollution in Soviet rivers and the nuclear power plants located along these rivers. By extrapolating from this experience — concededly a “rough qualitative assessment” — Dr. Bross stated that similar effects can be projected for Waterford. *Id.* at Question 29.

Neither newspaper source points to any connection between the infant mortality rate and nuclear power. *See* Tr. 1563-68, 1746-48. Moreover, Dr. Bross made no study of, and showed no familiarity with, infant mortality in Russia, reactor siting, or the release of reactor effluents in the Soviet Union. Tr. 1543-78.¹⁶ We find that his testimony is pure conjecture.

Dr. Carl Johnson, Associate Clinical Professor of Social and Environmental Health at the University of Colorado College of Medicine, is generally critical of the health risk estimates that have been made in connection with projected routine radiation releases from Waterford. He suggests that insufficient attention has been given to the food, air, and

¹⁵ Dr. Bross also considers the radiation risk estimates used by applicant and the staff to be understated. *Id.* at Questions 18-19. The record demonstrates very clearly, however, that Dr. Bross' theories regarding the health risks of radiation exposure have been widely criticized and rejected by respected members of the medical and radiological health community. *See, e.g.,* Tr. 1604-37. *See also* Applicant's Rebuttal Testimony of Dr. George B. Hutchison (Professor of Epidemiology, Harvard University School of Public Health), fol. Tr. 3411, and of Dr. Jacob I. Fabrikant (Professor of Radiology, University of California School of Medicine at San Francisco), fol. Tr. 3627. The overwhelming weight of the scientific evidence of record supports the radiation risk estimates adopted by applicant and the staff.

¹⁶ The following excerpts from the cross-examination of Dr. Bross are illustrative:

- Q. Have you ever seen a single calculation of the effluents released from a Russian nuclear powerplant?
- A. You mean, corresponding to the sort of things here, no. . . .
- Q. Dr. Bross, what is the basis for your knowledge regarding effluents from Russian nuclear powerplants?
- A. None specific. (Tr. 1558.)
- Q. What are the infant mortality rates currently in Russia?
- A. Well, I don't remember the exact numbers. They are up towards 30, the high 20's. I think it's around 29, but maybe — It's up in that range. And earlier in Russia the rates were substantially lower — to the low 20's. (Tr. 1563.)
- Q. Do you recall whether or not the article which you read provided any distribution of the infant mortality rates in Russia?
- A. No.
- Q. Provided any information with regard to where the infants obtained their drinking water in Russia?
- A. No.
- Q. And you have no independent knowledge of that as well?
- A. No.
- Q. Do you know what the primary causes for infant mortality are in Russia?
- A. You mean to name the diseases or — Is that what you're asking for?
- Q. Do you know what the primary causes for infant mortality are in Russia?
- A. Specifically, no.
- Q. Have you made any studies regarding chemical discharges from plants in Russia?
- A. No. (Tr. 1565.)

water pathways as potential sources of human exposure. Testimony of Dr. Carl Johnson, fol. Tr. 1836, at Questions 13, 18, 19, 21, 22.¹⁷

A principal source of Dr. Johnson's criticism of the health risk estimates is a study by the Heidelberg (West Germany) Institute for Energy and Environmental Research. Dr. Johnson's cross-examination, however, revealed his lack of familiarity with the methodology of that study and the extent of its acceptance *vel non* by the scientific community. Tr. 1948-54. Dr. Johnson was similarly unacquainted with the Commission's regulations on the control of radiation emissions and the methodology for determining dose estimates. He was also not aware of the staff's and applicant's consideration of all the various ingestion pathways in their population dose estimates for Waterford (*see* p. 1084, *supra*), nor has he attempted to determine such estimates on his own. *See* Tr. 1853-55, 1875-76, 1886-87, 1901-12, 1947, 1964-65, 1994-95, 2002-03, 2006-07. In short, we find Dr. Johnson's testimony to be of essentially no value with respect to the staff and applicant dose estimates for Waterford 3.

Finally, we have reviewed the testimony and resume of Joint Intervenors' witness, Dr. Hemchandra Pandit, Professor of Biology at D'Youville College, Buffalo, New York. Dr. Pandit suggested that synergistic actions between toxic chemical waste and radioactive waste occurred at the Love Canal and could occur at Waterford. Testimony of Dr. Hemchandra Pandit, fol. Tr. 1218, at Questions 15-16. But under cross-examination he was unable to substantiate this view. Tr. 1231-38. Nor was he familiar with the radiation dose values determined for Waterford. Tr. 1239. We believe Dr. Pandit was at best marginally qualified to testify in this proceeding and find that the Board correctly disregarded the substance of his testimony.

In sum, Joint Intervenors' testimony did little to detract from the cases presented by applicant and the staff. The great weight of the evidence supports the Licensing Board's conclusion that the radiation dose from Waterford 3 will average about 0.01 mrem per year — a dose so low that, if synergism were to occur at this level, it is exceedingly unlikely to cause any measurable enhancement in preexisting effects.

¹⁷ Dr. Johnson's contribution to the synergism issue is a brief discussion of the uranium miners smoking study (*see* note 10, *supra*), and an unrelated conclusory statement that one could expect the same effect in Louisiana as a result of Waterford 3. "Support" for Dr. Johnson's conclusions is found in several unidentified publications that assertedly address this problem. Testimony of Dr. Carl Johnson, fol. Tr. 1836, at Questions 11, 20. *See also* Tr. 1966-71, 2026.

3. *Bias and Lack of Qualifications*

Joint Intervenor's argue that the witnesses put forward by the staff and applicant were either unqualified or biased. They assert generally that "[t]he Board erred in relying upon the testimony of the NRC and [applicant] witnesses who have a pecuniary interest in nuclear power and radiation." Joint Intervenor's Br. at 2. The argument is without merit.

The fact that a witness is employed by a party, or paid by a party, does not disqualify the witness from testifying or render the testimony valueless. In order for expert testimony, such as we have here (*see* pp. 1091-92, *infra*), to be admissible, it need only (1) assist the trier of fact, and (2) be rendered by a properly qualified witness. *See* Fed. R. Evid. 702; *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 475 (1982). It should come as no surprise that most expert witnesses do receive compensation from the parties on whose behalf they testify. But their compensation is for their time and expertise, not for their testimony as such. There is nothing wrong or inherently suspect about that. To be sure, as was done here, the opposing party can elicit the fact that a witness has been paid for his or her appearance, or is employed by a party. But that line of attack goes only to the persuasiveness or weight that should be accorded the expert's testimony, not to its admissibility. *See* 11 J. Moore & H. Bendix, *Moore's Federal Practice* ¶702.30[1] (2d ed. 1982).¹⁸

Joint Intervenor's more particularized objections to the qualifications and credibility of Drs. John Mauro and Leonard Hamilton for the applicant, and Dr. Marvin Goldman for the staff, are also wide of the mark. We need give only a few examples. Joint Intervenor's assert that Dr. Mauro, who has been involved for eight years in assessing the offsite radiation doses that can be expected from Waterford 3, "has never taken a biology course." Joint Intervenor's Br. at 2. In fact, Dr. Mauro has a B.S. degree in Biology from Long Island University, in addition to an M.S. in Biology/Health Physics and a Ph.D. in Health Physics from New York University. He has 45 graduate credits in biology and is plainly qualified to calculate an

¹⁸ If anything, there is an additional safeguard against bias in NRC licensing proceedings because of the staff's special responsibilities. The Commission and its adjudicatory boards have on more than one occasion stressed that the "staff has the obligation to lay all relevant materials before the Board to enable it adequately to dispose of the issues before it." *Consolidated Edison Co. of New York* (Indian Point Station, Units 1, 2 and 3), CLI-77-2, 5 NRC 13, 15 (1977). *See generally Tennessee Valley Authority* (Browns Ferry Nuclear Plant, Units 1, 2 and 3), ALAB-677, 15 NRC 1387 (1982); *Allied-General Nuclear Services* (Barnwell Nuclear Fuel Plant Separations Facility), ALAB-296, 2 NRC 671, 680 (1975).

estimated radiation dose from Waterford 3. Applicant's Testimony, fol. Tr. 461, at 3, Resume of John J. Mauro; Tr. 480.¹⁹

Joint Intervenors' criticism of the credentials of Drs. Hamilton and Goldman — both of whom testified that it was exceedingly unlikely that the expected releases from Waterford 3 would cause any synergistic effect (*see pp. 1086-87, supra*) — is no more persuasive. We have previously noted that "Dr. Hamilton's expert qualifications in the appraisal of radiation health risks are beyond cavil." *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-701, 16 NRC 1517, 1524-25 (1982). His curriculum vitae reflects the facts that he holds a doctorate in experimental pathology from Cambridge University and an M.D. degree from Oxford University. He has been involved in assessing the human risks from radiation for the past 35 years. Applicant's Testimony, fol. Tr. 461, at 9, Resume of Dr. L. D. Hamilton. Dr. Hamilton plainly is qualified to speak to those risks in this case.²⁰ Dr. Goldman's credentials are equally impressive. He is a Professor of Radiobiology at the University of California at Davis. He has more than 30 years experience in radiation research and has authored over 100 papers and reports on radiation-related topics. NRC Staff Testimony of Dr. Marvin Goldman, fol. Tr. 735, at 1, Resume of Marvin Goldman.²¹

¹⁹ Joint Intervenors also assert that Dr. Mauro

conducted no studies of radiation in the Mississippi River. As the most dangerous pathway for radioactive effluents is ingestion via food or drinking water, this omission is extremely serious.

Joint Intervenors' Br. at 2. In fact, Dr. Mauro's analysis assumes that persons obtain all their seafood and drinking water from the plant's discharge canal leading into the river, a source of more concentrated radioactivity than the Mississippi River itself. Applicant's Testimony, fol. Tr. 461, at 5; Tr. 497-98, 604.

²⁰ Joint Intervenors also contend that Dr. Hamilton did not know the expected radiation dose from Waterford 3. Joint Intervenors' Br. at 4. Dr. Hamilton's prepared testimony is part of a panel presentation that included Dr. Mauro's dose estimate of less than 0.01 millirem per year. Dr. Hamilton refers to this figure at least three times in answering questions on cross-examination. Tr. 637, 639, 683.

²¹ Joint Intervenors argue that Dr. Goldman's credibility and competence were "severely compromised by his gross misrepresentation" of the amount of synergistic enhancement observed in one of the laboratory experiments. Joint Intervenors' Br. at 7. Dr. Goldman referred to an eight or ninefold enhancement, when the report refers to an enhancement by a factor of 19. *See* NRC Staff Testimony of Dr. Marvin Goldman, fol. Tr. 735, at 10; Tr. 946-48; Kennedy, Mondal, Heidelberger, & Little, *Enhancement of X-ray Transformation by 12-O-Tetradecanoyl-phorbol-13-acetate in a Cloned Line of C3H Mouse Embryo Cells*, 38 *Cancer Research* 439, 440 (1978). But the error, when called to Dr. Goldman's attention, did not alter his testimony — *i.e.*, that regardless of the amount of ultimate enhancement, there was no cell transformation observed in the experiment until the 50 to 100 rad level, and extrapolation downward to the much lower levels of radiation involved here is not feasible. Tr. 950-53. *See pp. 1086-87, supra*. In these circumstances, we do not view Dr. Goldman's error as casting significant doubt on his overall testimony.

Joint Intervenors also make much of the number of corrections that were made to Dr. Branagan's testimony. Joint Intervenors' Br. at 28, 30-31. *See* Tr. 738-51. While it is disappointing that the prepared testimony was not more accurate, the changes were typographical and did not significantly affect the staff's radiation dose estimates or its conclusions on health risks. Hence, Joint Intervenors were not prejudiced by the changes, and the Board did not err in allowing the corrections to be made for the sake of a more accurate record.

4. *Burden of Proof*

Joint Intervenors also argue that the Board improperly allocated the burden of proof by placing the burden of proving synergism on them. Joint Intervenors' Br. at 24-27. That argument does not fairly characterize the Licensing Board's decision. We had the occasion to deal with a virtually identical claim a decade ago. The discussion is apt here.

The final point on synergism made by the Saginaw Intervenors is that the burden of proof on this issue was "misplaced;" and that the Board required the intervenors to "demonstrate there was a problem of synergism rather than, as is required by the Rules, having Applicant and the Regulatory Staff demonstrate that there is no problem with synergism." Here intervenors misinterpret the requirements of the rules.

The ultimate burden of proof on the question of whether the permit or license should be issued is, of course, upon the applicant. But where, as here, one of the other parties contends that, for a specific reason (in this instance alleged synergism) the permit or license should be denied, that party has the *burden of going forward* with evidence to buttress that contention. Once he has introduced sufficient evidence to establish a *prima facie* case, the burden then shifts to the applicant who, as part of his overall burden of proof, must provide a sufficient rebuttal to satisfy the Board that it should reject the contention as a basis for denial of the permit or license. In this case, the Licensing Board determined not only that the intervenors had failed to make a *prima facie* showing of synergistic effects, but also that the applicant's evidence affirmatively established that synergism would not occur.

Consumers Power Co. (Midland Plant, Units 1 and 2), ALAB-123, 6 AEC 331, 345 (1973) (footnote omitted). As the evidence recounted earlier demonstrates, applicant and the staff introduced persuasive evidence for the proposition that, if any synergism takes place at the millirem levels involved here, the enhancement effect is essentially nil. Thus, to the extent Joint Intervenors' evidence even established a *prima facie* case, it has been rebutted, and there has been no improper shift of the burden of proof.

II. EMERGENCY PLANNING

In the wake of the March 1979 accident at Unit 2 of the Three Mile Island facility, the Commission undertook "a formal reconsideration of the role of emergency planning in ensuring the continued protection of the public

health and safety in areas around nuclear power facilities.” 45 Fed. Reg. 55402 (Aug. 19, 1980). Accordingly, the Commission promulgated regulations requiring, prior to the issuance of an operating license, a finding of “reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.” 10 CFR §50.47(a)(1). Adequate protective measures for offsite, as well as onsite, are required.²² The Emergency Planning Zone (EPZ) concept, adopted as an added conservatism to the Commission’s “defense-in-depth” philosophy,²³ provides the means of implementing offsite emergency preparedness. 45 Fed. Reg. at 55406.²⁴ The regulations set forth 16 emergency planning standards and define the areas of responsibility of the licensee and state and local organizations concerned with emergency responses. 10 CFR §50.47(b). *See also* 10 CFR Part 50, Appendix E. In addition, NUREG-0654/FEMA-REP-1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” Rev. 1 (November 1980), prepared jointly by the NRC and FEMA, provides guidance for developing and reviewing emergency plans.

As a consequence of this increased regulatory attention on emergency preparedness, litigation concerning the adequacy of the emergency plans of applicants and the appropriate governmental entities has assumed a large role in many NRC licensing proceedings. *Waterford* is no exception. Indeed, the major part of the hearing below and the Licensing Board’s partial initial decision was devoted to Joint Intervenors’ two emergency planning contentions.

As pertinent here, the broader of those contentions challenged only the adequacy of the evacuation plans for the plume EPZ in the event of a serious reactor incident at *Waterford*.²⁵ Specifically, contention 17/26(1) alleged:²⁶

²² The Commission bases its overall “reasonable assurance” finding on a review of the Federal Emergency Management Agency (FEMA) determination of the adequacy of offsite (state and local) planning, and on the NRC staff assessment of the adequacy of an applicant’s onsite plan. 10 CFR §50.47(a)(2).

²³ *See Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), CLI-74-40, 8 AEC 809, 813 (1974).

²⁴ There are two emergency planning zones — (i) the plume exposure pathway EPZ, which is an area with a radius of about 10 miles from the plant, and (ii) the ingestion pathway EPZ, which is about 50 miles in radius. 10 CFR §50.47(c)(2). *See Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit No. 1), ALAB-727, 17 NRC 760, 764-65 (1983).

²⁵ The other contention, 17/26(2), claimed that applicant has not adequately provided for distribution of potassium iodide, which is used as protection against thyroid irradiation. The Licensing Board concluded that “the State of Louisiana’s public health policy decision not to provide [potassium iodide] to the general public is reasonable and is not inconsistent with the guidance provided by FEMA and the NRC.” LBP-82-100, *supra*, 16 NRC at 1567-68. *See also id.* at 1571, 1585-89. Joint Intervenors do not pursue this matter on appeal, and we see nothing in the Board’s decision on this point requiring corrective action.

²⁶ This contention was the result of several revisions and the combination of two of the Joint Intervenors’ original contentions. The Licensing Board approved it for litigation as it appears above in an unpublished Memorandum and Order (January 15, 1982).

Applicant has failed to adequately make provision, according to the Emergency Plan contained in Chapter 13.3 of the FSAR, for evacuation of individuals located within the 10-mile plume exposure pathway emergency planning zone for the Waterford 3 site in the event of a serious reactor incident, as required by applicable NRC regulations, in that:

- (a) the provisions for notifying residents of evacuation procedures are inadequate;
- (b) the roads and highways necessary for such evacuation are inadequate;
- (c) the evacuation warning system is inadequate;
- (d) there is not an adequate command decision structure, including appropriate guidance, for commencing evacuation;
- (e) the Emergency Plan fails to provide for realistic and comprehensive evacuation drills, in that the provisions for moving individuals are not actually tested;
- (f) procedures are inadequate for evacuating people who are:
 - (i) without vehicles
 - (ii) school children
 - (iii) aged or crippled
 - (iv) sick and hospitalized
 - (v) imprisoned
 - (vi) transient workers.

Joint Intervenors sponsored no witnesses in support of this contention; they chose instead to make their case solely through cross-examination of the applicant and staff witnesses. LBP-82-100, *supra*, 16 NRC at 1560 n.12

At the close of the hearings, the Licensing Board found the record on the contested emergency planning issues complete, except for part (a) of contention 17/26(1), concerning provisions for notifying residents about evacuation.²⁷ Otherwise, the Board concluded that, subject to four specified conditions, applicant's emergency plans comply with the Commission's regulations and provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. *Id.* at 1592.²⁸ In reaching this determination, the Board reviewed the evidence

²⁷ See note 1, *supra*.

²⁸ The four conditions concern: (1) designation of the applicant's official responsible for providing protective action recommendations to offsite authorities; (2) submission of letters of agreement with appropriate authorities for vehicles and drivers necessary to implement the evacuation plans; (3) evacuation of prisoners; and (4) information about evacuation pickup points. LBP-82-100, *supra*, 16 NRC at 1592-93, LBP-82-112, 16 NRC 1901 (1982).

and found each part of Joint Intervenors' emergency planning contentions to be without merit. *See id.* at 1560-68, 1571, 1574-89.

On appeal from LBP-82-100, Joint Intervenors object principally not to the emergency plan itself, but rather to certain of the Licensing Board's procedural rulings during the hearing.²⁹ Specifically, most of Joint Intervenors' arguments relate to the denial of cross-examination on various issues. We will address these arguments together first, before turning to Joint Intervenors' other claims of error.

A. Denial of Cross-Examination

Because Joint Intervenors had no emergency planning witnesses of their own, cross-examination of applicant and staff witnesses was crucial to the development of the Joint Intervenors' case.³⁰ Thus, the emphasis they give this matter on appeal is understandable.

Cross-examination must be limited to the scope of the contentions admitted for litigation and can appropriately be limited to the scope of direct examination. *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-673, 15 NRC 688, 698, *affirmed*, CLI-82-11, 15 NRC 1383 (1982); *Prairie Island*, ALAB-244, *supra* note 30, 8 AEC at 867, 869 n.16. In exercising its discretion to limit what appears to be improper cross-examination, a licensing board may insist on some offer of proof or other advance indication of what the cross-examiner hopes to elicit from the witness. *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-461, 7 NRC 313, 316 (1978); *San Onofre*, ALAB-673, *supra*, 15 NRC at 697; *Prairie Island*, ALAB-244, *supra*, 8 AEC at 869. Even if cross-examination is wrongly denied, however, such denial does not constitute prejudicial error per se. *San Onofre*, CLI-82-11, *supra*, 15 NRC at 1384. The complaining party must demonstrate actual prejudice — *i.e.*, that the ruling had a substantial effect on the outcome of the proceeding. *San Onofre*, ALAB-673, *supra*, 15 NRC at 697 & n.14. In each instance here, Joint Intervenors have failed to prove either error in the Board's rulings or actual prejudice to their case.

²⁹ Joint Intervenors' only objection to the plan itself relates to its "single mode" method of evacuation. Joint Intervenors' Br. at 44-45. (The part of Joint Intervenors' brief devoted to emergency planning is not paginated; we have continued numbering the pages following the first part of the brief accordingly.)

³⁰ In *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-244, 8 AEC 857, 868 (1974), *reconsideration denied*, ALAB-252, 8 AEC 1175, *affirmed*, CLI-75-1, 1 NRC 1 (1975), we recognized that "[p]roper cross-examination can be an especially valuable tool in the [development of a full record]." Moreover, the Commission's rules and case law have long recognized an intervenor's right to make its case defensively. *Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-463, 7 NRC 341, 356 (1978).

1. Joint Intervenors contend that they were wrongly denied an opportunity to cross-examine certain witnesses about people who might refuse to evacuate in an emergency. Joint Intervenors' Br. at 35-37. Specifically, Joint Intervenors claim that, although the Licensing Board permitted applicant's counsel to pursue similar questions, they were not allowed to ask applicant's witness, John M. Lucas, Director of the St. Charles Parish Department of Emergency Preparedness, how much of his resources would be devoted to picking up persons who refused to evacuate. See Tr. 2724. Joint Intervenors' argument seems to be that many people will refuse to leave their homes in a nuclear emergency, and substantial state and local resources will have to be devoted to their forcible removal — leaving fewer resources to carry out the overall emergency plan. See Tr. 2722, 2724-25. Instead of letting Joint Intervenors pursue this matter, the Licensing Board "relied completely on the unsupported opinion of . . . [Mr.] Lucas that few people would refuse to evacuate and there would be no diversion of Parish resources." Joint Intervenors' Br. at 35. See LBP-82-100, *supra*, 16 NRC at 1561, 1575. In Joint Intervenors' view, extensive publicity "downplaying the hazards of radiation" and the fact that one-third of the people refused to evacuate during a recent chemical spill in St. Charles Parish, as demonstrated in the record, show the fallacies in Mr. Lucas' reasoning. Joint Intervenors' Br. at 36-37.

Contrary to Joint Intervenors' assertions, the Board's finding that few people would disregard an evacuation order and that therefore there would be no diversion of resources, is amply supported by the record. Three experts in emergency planning³¹ testified that this was not expected to be a problem that could not be handled under the existing plans. Tr. 2723-24, 3034, 3036-39, 3800-02.³² Moreover, in their view, increased publicity and education about nuclear plants have heightened public awareness so that people will be more — not less — likely to cooperate with officials. Tr. 2723-24, 3801-02. Joint Intervenors have not directed our attention to any part of the record that would undermine the testimony of these experts.³³

In any event, it is by no means clear what part, if any, of contention 17/26(1) relates to persons who might refuse to evacuate, and Joint Inter-

³¹ Mr. Lucas; Bertram Paul Madere, St. John the Baptist Parish Civil Defense Director; and Brian K. Grimes, then-Director of the NRC Division of Emergency Preparedness.

³² As an example of how such a matter would be handled, Mr. Lucas referred to a recent tank car chemical spill, in which three out of nine families in a small subdivision refused to evacuate. Tr. 2717-19. He later elaborated on the peculiar facts of this incident, which lasted about a week. On the first day, pursuant to "advice," all families evacuated. They subsequently returned, only to be advised to leave again. At this point, three families (one with a kennel of dogs) refused to go. The Parish eventually physically moved them (and the dogs). Tr. 3035-36, 2718.

³³ In fact, counsel for Joint Intervenors explicitly acknowledged the expertise of one of these witnesses, Mr. Lucas. Tr. 2245.

venors do not tell us here. Thus, because this matter is apparently beyond the scope of their contention, the Licensing Board acted well within its discretion in denying Joint Intervenor's single inquiry about the amount of resources to be devoted to persons refusing to evacuate. *See* p. 1096, *supra*. Indeed, far from foreclosing this matter completely, the Board was rather generous in letting Joint Intervenor pursue this line of questioning. *See* Tr. 2714-25.³⁴ As for the questioning by applicant permitted by the Board, it was largely repetitive of the matters raised by Joint Intervenor's cross-examination and thus was within the scope of permissible redirect. *See* Tr. 3034-39.

2. Joint Intervenor's claim that the Board erroneously denied their right to question four key emergency personnel about the consequences of a severe nuclear accident. *See* Tr. 2189-98, 2236-43, 2253-55, 2269-83, 2710-12.³⁵ As Joint Intervenor sees it, lack of education about the consequences of such an event contributes to poor emergency response. They cite the Kemeny Commission Report on the Three Mile Island accident; testimony by NRC staff witness Grimes (Tr. 3760); NUREG-0654; and NUREG-0396/EPA 520/1-78-016, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants" (December 1978), as support for their view. Joint Intervenor's Br. at 37-38.

The Licensing Board gave three grounds for precluding Joint Intervenor from asking various emergency planning witnesses about the consequences of a nuclear accident: (1) this matter is beyond the scope of the very specific contention at issue; (2) the questions are beyond the scope of the direct examination; and (3) severe accidents have already been taken into account in NUREG-0654. Tr. 2276-77, 2712. We see no prejudicial error in the Board's ruling. This is not to say that we disagree with Joint Intervenor's argument that individuals with emergency planning duties should have some knowledge about the consequences of a nuclear accident. The nature of the incident is a key determinant of the type of response to be ordered. Thus, several witnesses (including Mr. Grimes) testified that it was important for emergency response personnel to have a *general appreciation* of the consequences of a nuclear accident; a technical background and intimate knowledge of detailed accident sequences, however, are not necessary. Tr. 3761, 3846-47, 3886-87, 2883, 2908.

³⁴ The Licensing Board, too, doubted that this was within the scope of the contention, but nonetheless allowed cross-examination and discussed the matter under contention 17/26(1)(b). LBP-82-100, *supra*, 16 NRC at 1561, 1575.

³⁵ The witnesses involved were: Robert G. Azzarello, Engineer-Nuclear, Louisiana Power & Light Project Support Group; Robert William Myers, Environmental Program Specialist, Louisiana Department of Natural Resources, Office of Environmental Affairs, Nuclear Energy Division; Mr. Madere; and Mr. Lucas.

Appendix E, §IV.F, to 10 CFR Part 50, in fact, requires an applicant's emergency plans to include a radiological orientation training program for offsite emergency workers, such as civil defense and law enforcement personnel. See also NUREG-0654, *supra*, at 75-77. Moreover, as the Board noted and Mr. Grimes testified, NUREG-0654 is consequence-oriented, in that it is designed to provide a framework for response to a wide range of accidents. Tr. 2277, 2360-61, 3765, 3848-50. This document also requires both onsite and offsite emergency personnel to participate in accident assessment and monitoring functions, which necessarily require some familiarity with accident consequences. NUREG-0654, *supra*, at 56-58. Finally, each of the four witnesses involved has had various radiological training courses or other background that would provide general familiarity with the consequences of a nuclear accident. See Resume of Robert G. Azzarello, fol. Tr. 2218; Testimony of Bertram Paul Madere, fol. Tr. 2243, at 2; Testimony of John M. Lucas, fol. Tr. 2246, at 2; Testimony of Robert William Myers, fol. Tr. 2258, at 2. In these circumstances, we cannot say that Joint Intervenor were prejudiced by the Board's ruling and, indeed, they have made no attempt to demonstrate any such harm.

3. Joint Intervenor object to the Licensing Board's denial of cross-examination on the present command structure. In particular, they sought to determine whether two individuals in important offsite emergency planning positions have conflicts of interest arising from family and financial relationships.³⁶ According to Joint Intervenor, such conflicts have a bearing on whether "adequate protective measures . . . will be taken in the event of a radiological emergency" (10 CFR §50.47(a)(1)). Joint Intervenor's Br. at 41-42.

The Licensing Board properly denied this line of questioning.³⁷ The Board concluded that inquiry about the incumbents in state and local offices with emergency planning responsibilities was beyond the scope of the contention. See Tr. 2962-66. As pertinent, contention 17/26(l)(d) stated that "there is not an adequate command decision structure, including appropriate guidance, for commencing evacuation." Construing this wording as favorably as possible to Joint Intervenor, the focus of the contention is nonetheless on the command *structure*, not the particular individuals with

³⁶ Joint Intervenor allege that the president of St. Charles Parish "has both familial and financial interest in the well-being of . . . Louisiana Power & Light," and that Mr. Madere (Civil Defense Director of St. John the Baptist Parish) is an employee of DuPont, which has a financial interest in the Savannah River Nuclear Plant. Joint Intervenor's Br. at 41-42.

³⁷ In point of fact, however, the Board did permit cross-examination of Mr. Madere concerning his employment with DuPont. Tr. 2234-35. Thus, Joint Intervenor cannot be heard to complain that they were prevented from pursuing this matter with witness Madere.

duties within that structure.³⁸ But even if incumbents were within the scope of the contention, Joint Intervenors have failed to explain (to us as well as to the Licensing Board) exactly how the alleged conflicts of interest would impair evacuation within the plume EPZ in the event of a serious nuclear accident. *See* Tr. 2963-66; App. Tr. 41-47.³⁹ In the absence of such an offer of proof, the Board was amply justified in refusing permission to cross-examine on this matter. *See* p. 1096, *supra*.

4. According to Joint Intervenors, the Board prevented them from cross-examining a witness (Mr. Myers) on the adequacy of the telephone system in time of a nuclear crisis, on the ground that this was not relevant to contention 17/26(1) (c). Joint Intervenors' Br. at 42. *See* Tr. 2820. They contend that "the adequacy of the phone system is clearly linked to the evacuation warning system," which contention 17/26(1) (c) addresses. Joint Intervenors' Br. at 42.

We note at the outset a discrepancy in Joint Intervenors' argument. At the hearing, they asserted that the adequacy of the phone system relates to parts (a) and (d) of contention 17/26(1), which concern, respectively, notifying residents of evacuation procedures and the command decision structure. Tr. 2819-20. Hence, their argument about part (c) appears to be raised for the first time on appeal and could be dismissed summarily on that basis. *Hartsville, supra* note 30, 7 NRC at 348. It also appears that, despite the Licensing Board's ruling (Tr. 2820), Joint Intervenors asked the witness essentially the same question again, he answered, and one of the Board members pursued it himself, with no further attempts by Joint Intervenors' counsel to press this line of questioning. Tr. 2820-21. Thus, they have no legitimate complaint on appeal. Nevertheless, because we believe some clarification of the record is in order, we address the merits of Joint Intervenors' argument as it relates to contention 17/26(1), parts (a), (c), and (d).

As to part (a), notification of evacuation procedures, the Licensing Board recently dealt with that matter in a separate partial initial decision. *See* note 1, *supra*. During the hearing, however, the Board ruled that the adequacy of the telephone system is not relevant to part (a). We agree. Contention 17/26(1)(a) concerns primarily the dissemination — in written

³⁸ Joint Intervenors point out that a staff witness testified that key *individuals* in the applicant's *onsite* planning program would be evaluated (*see* Tr. 3916-20), and imply that this reflects an inconsistency in approach. Joint Intervenors' Br. at 42. On the contrary, it is a manifestation of the fact that the NRC has ongoing regulatory responsibilities vis-a-vis a licensee's activities that do not exist with respect to state and local emergency planning officials, who are elected or appointed through the political process.

³⁹ Counsel for Joint Intervenors stated that the "pretty heavy decision . . . to evacuate . . . could affect the financial interest of the utility company." Tr. 2964-65. Counsel did not elaborate, so we are uncertain as to his point. We note, however, that although the final judgment on protective action (*i.e.*, evacuation or lesser measures) is made by the parish presidents, numerous other state officials (including the Governor) have significant input into such decisions. *See* Applicant's Testimony of Robert G. Azzarello, *et al.*, fol. Tr. 2218, at 12-17. In these circumstances, it is quite unlikely that an elected official like a parish president would forgo the evacuation recommendations of other knowledgeable sources because of the uncertain effect evacuation might have on the utility's financial condition.

form, not by telephone — of evacuation information well in advance of an emergency. See Applicant's Testimony of Robert G. Azzarello, *et al.*, fol. Tr. 2218, at 6-9; Testimony of Robert William Myers, fol. Tr. 2258, at 4-5.

Contrary to applicant's statements on brief (at 82 & n.50), the evacuation warning system at issue in contention 17/26(1)(c) does rely to some extent on the telephone system to notify persons working in major industries. See Applicant's Testimony of Robert G. Azzarello, *et al.*, fol. Tr. 2218, at 11; Applicant's Supplemental Testimony of Ronald J. Perry, fol. Tr. 2262, at 11-12; Applicant's Exh. 8 at 1-2; LBP-82-100, *supra*, 16 NRC at 1563, 1577-78. Mr. Myers testified, however, that, if commercial phone lines are overloaded (as in an emergency), the telephone company will assign emergency operations centers priority and cut off other users. Tr. 2820-21.

The command structure (contention 17/26(1)(d)), as well, relies somewhat on the telephone system. But it is an "operational hotline," providing continuous communication during an emergency between the utility and involved state and local agencies. As such, it is a dedicated system with radio as a backup. See Testimony of Robert William Myers, fol. Tr. 2258, at 7-8; Applicant's Testimony of Robert G. Azzarello, *et al.*, fol. Tr. 2218, at 15; NRC Staff Testimony of Donald J. Perrotti, fol. Tr. 3229, at 13; Tr. 2800, 2802, 3008-13; LBP-82-100, *supra*, 16 NRC at 1564, 1580, 1581.⁴⁰

Thus, to some extent the Licensing Board erred in finding Joint Intervenor's concerns about the adequacy of the telephone system not relevant to the issues under litigation. But assuming *arguendo* that Joint Intervenor has preserved this as a legitimate point on appeal, the record demonstrates that the phone system is adequate and that the error is harmless. See p. 1096, *supra*.

5. Joint Intervenor complains that the Licensing Board improperly ended their "potentially fruitful line of questioning" on the relationship between hysteria and the "evacuation shadow phenomenon." Joint Intervenor's Br. at 43. See Tr. 2918-20.⁴¹ The overall record shows otherwise.

The isolated ruling to which Joint Intervenor object must be put in context. Earlier they asked Messrs. Madere and Lucas if they were familiar with the evacuation shadow phenomenon and the witnesses answered "no." Tr. 2798. The next day Joint Intervenor's counsel asked a panel of two FEMA witnesses, John W. Benton and Albert L. Lookabaugh, if they

⁴⁰ Commercial telephone apparently will also serve as a backup to the hotline. Applicant's Exh. 8 at 1. But as noted above, in an emergency the telephone company will give priority to the involved emergency response organizations. Tr. 2820-21.

⁴¹ In referring to this matter, the Licensing Board notes that, while most of the witnesses (and parties) spoke of "hysteria," "fears," and "panic," it preferred the term "anxiety." LBP-82-100, *supra*, 16 NRC at 1562 n.14.

"Evacuation shadow phenomenon" — also characterized as "spontaneous evacuation" — happens when there is "an evacuation by portions of the public that occurs when they have not been directed to evacuate." Tr. 3837-38.

had considered the possibility of hysteria occurring during an evacuation. The Board overruled several objections to the question and directed Mr. Benton to respond — which he did, in the negative. Tr. 2886-92. The Board itself subsequently pursued the matter. Mr. Benton testified that he personally had not considered hysteria in evaluating the Waterford evacuation plans. He pointed out, however, that it is implicitly taken into account insofar as NUREG-0654 (the joint NRC/FEMA document relied on as guidance) covers the full range of accident sequences, including a “worst case” public response. Tr. 2913-15. *See* NUREG-0654, *supra*, at 6-7.

At this point, Joint Intervenors’ counsel asked the panel several questions about hysteria, received little additional information, and then posed the question at issue on appeal, concerning hysteria and the evacuation shadow phenomenon. This time the Board sustained several objections, essentially on the grounds that no relationship between the two concepts had been demonstrated and that this inquiry had nothing to do with the FEMA panel’s direct testimony. Tr. 2917-20. Nevertheless, a short time later the Board advised staff counsel that staff witness Mr. Grimes should be prepared to address in his upcoming testimony five Board questions, all relating to the hysteria issue. Tr. 3014-17.⁴² Mr. Grimes subsequently testified extensively on the questions posed by the Board and was cross-examined by Joint Intervenors on, among other things, hysteria and the evacuation shadow phenomenon. Tr. 3794-3820, 3828-39, 3844-46.

Joint Intervenors’ argument that the Board ended a potentially fruitful line of questioning thus is without merit.⁴³ The matter was pursued, at length, with the witness who appeared to be the most knowledgeable on that subject.

⁴² The Board later clarified an earlier ruling (at Tr. 2890) to indicate it regarded hysteria to be relevant to only contention 17/26(1)(b), which involves the adequacy of roads and highways for evacuation, and it modified its questions accordingly. Tr. 3274-75.

⁴³ Joint Intervenors do not take issue with the Board’s findings and conclusion that, “although there will be some hysteria and spontaneous evacuation, these reactions will not interfere with the evacuation scheme.” LBP-82-100, *supra*, 16 NRC at 1562. *See also id.* 1576. The record bears this out.

Mr. Grimes, who co-chaired the NRC/FEMA committee that drafted NUREG-0654, confirmed that the complications arising from public hysteria after an accident were taken into account, though without express mention, in NUREG-0654. Tr. 3794-95. He also noted other documents that referred to the related area of public perception of risk. Tr. 3795-96, 3798-3800. *See, e.g.*, NUREG-0396, *supra*, at Appendix I; 45 Fed. Reg. at 55403 (Commission statement of consideration for final emergency planning rules). Mr. Grimes added further that the evacuation time estimates were based on models that assume the roads and highways are loaded with people all leaving at the same time. Tr. 3802-03, 3844-45.

According to Mr. Grimes, following the guidance in NUREG-0654 will minimize the possibility that people will panic in an emergency. Tr. 3805-06, 3811. In other words, the establishment of a coherent decisionmaking structure and a good public education and information program will help to assure an orderly response to an emergency. Tr. 3796-97, 3801-02, 3806-07, 3818-19. In Mr. Grimes’ words, “One cannot rule out spontaneous evacuation, but we believe that the more competence that is gained in emergency plans, the less likely that sort of thing would be.” Tr. 3803.

B. Reliance on Predictive Findings and Post-Hearing Verification

In another claim of essentially procedural error, Joint Intervenors contend that the Licensing Board's reliance on "predictive" findings and "post-hearing verification" has deprived them of their right to a hearing on five contested and litigable issues. Specifically, those issues (and the contentions to which Joint Intervenors allege they relate) are: (1) installation and testing of the siren warning system (17/26(1)(c)); (2) agreements with surrounding parishes for buses, ambulances, drivers, and vans (17/26(1)(f)(i-v)); (3) installation of communication systems between onsite and offsite authorities (17/26(1)(c)); (4) all implementing procedures (17/26(1)(f)(i-vi)); and (5) full testing of evacuation procedures with grading (17/26(1)(a)-(f)). Joint Intervenors argue that these matters involve material issues of fact, the resolution of which may not be delegated by the Board to the staff. Joint Intervenors' Br. at 39-41.

We are in agreement with the basic principles upon which Joint Intervenors rely. The Commission, in fact, has long held that, "[a]s a general proposition, issues should be dealt with in the hearings and not left over for later (and possibly more informal) resolution." *Consolidated Edison Co. of New York* (Indian Point Station, Unit No. 2), CLI-74-23, 7 AEC 947, 951 (1974). "[T]he 'post-hearing' approach should be employed sparingly and only in clear cases" — for example, where "minor procedural deficiencies" are involved. *Id.* at 952, 951 n.8. *Accord, Marble Hill, supra*, 7 NRC at 318; *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-298, 2 NRC 730, 736-37 (1975); *Washington Public Power Supply System* (Hanford No. 2 Nuclear Power Plant), ALAB-113, 6 AEC 251, 252 (1973).

With respect to emergency planning, however, the Commission takes a slightly different course. At one time, the agency's regulations required a finding that "the *state* of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." 10 CFR §50.47(a)(1) (1982) (emphasis added). In July 1982, the Commission amended this provision by clarifying that "the findings on emergency planning required prior to license issuance are predictive in nature" and by eliminating the reference to the "state" of emergency preparedness. 47 Fed. Reg. 30232, 30235 (July 13, 1982), *petition for review pending sub nom. Union of Concerned Scientists v. Nuclear Regulatory Commission*, No. 82-2053 (D.C. Cir. filed Sept. 10, 1982). The notice of proposed rulemaking that preceded this amendment expressed the Commission's intent that "full-scale emergency preparedness exercises [be] part of the operational inspection process and [be] required prior to operation above

5% of rated power but not for a Licensing Board, Appeal Board or Commission licensing decision.” 46 Fed. Reg. 61134 (Dec. 15, 1981) (emphasis added). See also 47 Fed. Reg. at 30232. The Commission emphasized, however, that “there should be reasonable assurance prior to license issuance that there are no barriers to emergency planning implementation or to a satisfactory state of emergency preparedness that cannot feasibly be removed.” 46 Fed. Reg. at 61135. Thus, while the plan need not be “final,” it must be sufficiently developed to permit the board to make its “reasonable assurance” finding in a manner nonetheless consistent with the guidance of *Indian Point, supra*, and its progeny. See *Zimmer, supra* note 24, 17 NRC at 770, 773; *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-717, 17 NRC 346, 380 n.57 (1983).

To the extent that Joint Intervenors complain that the regulations are “so ambiguous as to allow licensing boards to remove litigable contentions” (Joint Intervenors’ Br. at 40), their argument constitutes a challenge to the regulations themselves, prohibited by 10 CFR §2.758.⁴⁴ Insofar as Joint Intervenors assert that, in each of the five areas specified, the Licensing Board delegated decisionmaking authority to the staff beyond that permitted by Commission rule or case law, we reject their claims, as discussed below.

1. Installation and Testing of the Siren Warning System

The Board stated that implementation of the system was not yet complete but that this did not constitute an infirmity in the plan. Noting the predictive nature of its findings in this area and the requirement that the plans be completed and fully “exercised” before authorization of full power operation,⁴⁵ the Board was able to find that “the plans are sufficiently detailed and concrete to provide us with reasonable assurances that they can and will be implemented in the event of an emergency.” LBP-82-100, *supra*, 16 NRC at 1563. See *id.* at 1578. We agree with the Board that these

⁴⁴ This rule provides that, unless the Commission has granted a waiver, NRC regulations “shall not be subject to attack by way of discovery, proof, argument, or other means in any adjudicatory proceeding involving initial licensing.”

It is noteworthy that when the Commission adopted its latest amendments to the emergency planning regulations, it explicitly addressed arguments that the rule changes would impair public participation in this important area. See 47 Fed. Reg. at 30233-34 (especially “Issues 3, 5, and 10”). The Commission stressed, in response, its intent not to issue any full-power license if a full-scale exercise raises “serious and significant deficiencies which have not been compensated for and which go to the fundamental nature of the emergency plan itself.” *Id.* at 30234. See Tr. 3919.

⁴⁵ FEMA withholds final approval of the warning system until it is installed, tested, and evaluated, and the staff verifies compliance with the regulations. FEMA Testimony, fol. Tr. 2864, at 7; NRC Staff Testimony of Donald J. Perrotti, fol. Tr. 3229, at 10-11.

details "can properly be overseen by the Staff." *Id.* at 1563. In our view, installation and testing of the siren system is precisely the type of matter for which the Commission believes predictive findings can suffice at this stage. Joint Intervenors make no challenge to the adequacy of the warning system itself or to the staff and FEMA review process. Further, there is no reason on this record to assume that the system will not function as proposed. If serious deficiencies in this part of the plan are revealed by the pre-full power exercise, the Commission will have to defer full power license issuance until the problems are cured. *See* 47 Fed. Reg. at 30234. *See also* Tr. 3919.⁴⁶

2. Agreements with Surrounding Parishes for Buses, Ambulances, Drivers, and Vans

The Licensing Board found that, while the Parish emergency plans address the special needs of the six categories of people described in contention 17/26(1) (f), "the Parishes lack sufficient resources to implement the plan." LBP-82-100, *supra*, 16 NRC at 1566. Neighboring parishes have the required number of vehicles, but letters of agreement with these entities, ensuring that vehicles and drivers will be provided if necessary, are not yet finalized. Thus, the Board formally conditioned the issuance of an operating license for the Waterford facility upon completion and submission to the staff of such letters of agreement. *Id.* at 1566, 1583-84, 1592, *as modified*, LBP-82-112, *supra*, 16 NRC 1901.⁴⁷

The Board characterized this matter as involving "only a purely objective determination . . . appropriate for post-hearing ministerial resolution by the Staff." *See id.* at 1567. But, in fact, there is nothing for the staff to resolve. Joint Intervenors do not dispute that the record establishes the number of each type of vehicle needed and the fact that the surrounding parishes have the ability to provide these vehicles. Negotiations for support from these parishes are already under way. Tr. 2507-09, 2522. All that is needed are the formal agreements, and the license condition imposed by

⁴⁶ In *Zimmer, supra* note 24, the Licensing Board found and this Board affirmed that the adequacy of applicant's communication system had not been demonstrated and thus neither Board was willing to leave the matter to post-hearing staff verification. Applicant proposed an alternative system but, because it was not incorporated in the emergency plan, the Boards could not make even a predictive reasonable assurance finding. 17 NRC at 771-72, 773-74. By contrast, in the case before us, the siren warning system is fully described in the emergency plan and, as noted in text, has not been challenged. *See also Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-729, 17 NRC 814, 894-95 (1983) (monitoring by staff of pressurizer heaters).

⁴⁷ The Board imposed other license conditions designed to enhance the evacuation of the special groups of people identified in contention 17/26(1) (f). *See* LBP-82-100, *supra*, 16 NRC at 1566-67, 1592-93. *See also* note 28, *supra*. None of these is addressed by Joint Intervenors' appeal.

the Board assures that no license will issue until the agreements are executed. In these circumstances, we find no merit to Joint Intervenors' claim. *See* Tr. 2517.⁴⁸

3. Installation of Communication Systems Between Onsite and Offsite Authorities

It is not clear what Joint Intervenors are referring to by this particular point. They cite to contention 17/26(1)(c), but that pertains to the system for *warning the public* to evacuate. We therefore assume Joint Intervenors meant to cite to part (d) of the contention (command structure), the only part that has any relevance to communication between onsite and offsite emergency officials.

Again, because of their failure to elaborate, we must assume that Joint Intervenors are concerned about several deficiencies in applicant's Emergency Support Organization identified by the staff. As pertinent, the staff determined that it needed more information about distinguishing between the primary and backup means of emergency communication, and a description of the "offsite emergency notification system" (including a diagram showing the relationships among the various response organizations). NRC Staff Testimony of Donald J. Perrotti, fol. Tr. 3229, at 13-14. Applicant has committed to providing this additional clarifying information to the staff for its review. Applicant's Exh. 8; Tr. 2269. In any event, the staff stated that it does not regard these deficiencies in the plan as significant, and the Licensing Board concurred. *See* Tr. 3894-3901; LBP-82-100, *supra*, 16 NRC at 1565, 1580, 1581.

We agree that overseeing the clarification of these minor details in applicant's plan is a proper subject for post-hearing resolution by the staff. This is particularly so in the circumstances of this case, where Joint Intervenors had the opportunity to explore this further at hearing, but failed to do so. *See* Tr. 3862-68, 3872, 3877-78, 3883-87, 3889-90.

4. All Implementing Procedures

Joint Intervenors apparently object to the fact that, at the time of the hearing, the "implementing procedures" for applicant's emergency plan

⁴⁸ Again, *Zimmer* is distinguishable. The applicant in that case failed to establish even the availability of buses and drivers to evacuate certain schools. The imposition of a license condition could not have remedied this deficiency in the record. Thus, further hearing to explore this and related issues was found necessary. *Zimmer, supra* note 24, 17 NRC at 772-74.

were not yet in final form and were not made part of the record. As explained by Mr. Madere (Tr. 2585, 2591):

The implementing procedures are really not part of the plan. It tells you how you're going to go about doing it. It's the type of interagency procedures.

* * *

[They are p]robably never finalized because they're always undergoing changes. Telephone numbers are added; fire trucks are added and deleted. Radios are added and deleted. This is a resource list. This is a how-to and what-to-do list. This is a list of mapping requirements, hotline procedures, notification, message flow, diagrams, et cetera.

In other words, the implementing procedures supplement the plans with all the details that will be necessary in the event of an actual emergency.

To be sure, this is important information that the utility must submit to the appropriate NRC Regional Administrator "[n]o less than 180 days prior to the scheduled issuance of an operating license." 10 CFR Part 50, Appendix E, §V.⁴⁹ The timing of this submission, however, convinces us that the Commission never intended the implementing procedures to be required for the "reasonable assurance" finding and thus to be prepared and subject to scrutiny during the hearing.⁵⁰ Although there is little "administrative history" on implementing procedures,⁵¹ we believe the Commission did not want licensing hearings to become bogged down with litigation about such details. Instead, the focus should be on whether an applicant's emergency plan itself satisfies the 16 more broadly drafted standards of 10 CFR §50.47(b). Thus, because Joint Intervenors' complaint about the nonfinality of the implementing procedures amounts to a challenge to the Commission's regulations, we must reject it. See 10 CFR §2.758, *supra* note 44.

5. Full Testing of Evacuation Procedures with Grading

Once again, we are forced to intuit the gist of Joint Intervenors' argument. Presumably, they object to the fact that actual emergency

⁴⁹ The same provision requires a licensee to submit any changes in implementing procedures within 30 days of such changes.

⁵⁰ We note that at the hearing in this case, the implementing procedures were available in draft form (but were not offered into evidence). Joint Intervenors' counsel, however, declined to question Mr. Madere about them. Tr. 2588-89.

⁵¹ The reference at 45 Fed. Reg. at 55405 is all we have been able to locate.

preparedness exercises are not required for an initial licensing decision, or that public participation in such exercises is not mandatory. In either case, the argument is yet another impermissible attack on the Commission's regulations. *See* 10 CFR §2.758.

10 CFR §50.47(a)(2) states unequivocally that “[e]mergency preparedness exercises (required by paragraph (b)(14) of this section and Appendix E, Section F of this part) are part of the operational inspection process and are not required for any initial licensing decision.”⁵² Similarly, Section IV.F.1 of Appendix E to 10 CFR Part 50 states that full-scale exercises are to test as much of the emergency plans “as is reasonably achievable without mandatory public participation.” In adopting these provisions, the Commission considered that the actual exercises might reveal fundamental defects in the emergency plans. In such a case, a party's recourse is to “seek to reopen a concluded hearing or file a petition for action pursuant to 10 CFR 2.206 as appropriate.” 47 Fed. Reg. at 30233. The Commission also pointed out that these rules “do not preclude public observation of and participation in the exercises themselves (to the extent consistent with the rules and policies of the Commission and the objectives of the exercise) and in the review and assessment critique meetings held after the exercise.” *Ibid.* Thus, there are other ways in which Joint Intervenors can pursue their concerns.

C. Single Mode Evacuation

Joint Intervenors' only objection to the emergency plan itself is that it calls for “single mode evacuation” from each Parish — *i.e.*, movement from St. John the Baptist Parish only to the west, and movement from St. Charles Parish only to the east. According to Joint Intervenors, there are other good alternative routes that should have been considered in order to comply with NUREG-0654. Further, by their account, under the existing plans some residents would have to move closer to the plant before evacuating. Although the Licensing Board found flexibility in the parish plans, Joint Intervenors argue that the record does not support this finding. Joint Intervenors' Br. at 44-45. *See* LBP-82-100, *supra*, 16 NRC at 1562-63, 1576.

Joint Intervenors' arguments are without merit. The testimony and maps in the parish plans, upon which the Board relied, show that there is flexibility as to evacuation routes. For example, Mr. Madere testified that,

⁵² They are required, however, prior to operation above five percent of rated power. 10 CFR Part 50, Appendix E, §IV.F.1.b.

while the major part of the plan for St. John the Baptist Parish calls for evacuation to the west, people can be moved out to the north and northwest as well, depending on conditions such as prevailing winds. Tr. 2671. See Applicant's Exh. 3 at 342-44. Further, evacuation to the east may be an additional option when certain highways and interchanges are completed. Tr. 2672. Mr. Lucas' testimony reflects a similar flexibility in the St. Charles Parish plans; prevailing conditions will largely determine the judgment of his organization on how an evacuation is to proceed. Tr. 2796. See Applicant's Exh. 3 at 179-82. The Licensing Board thus did not "[create] a record where none existed," as Joint Intervenors charge. Joint Intervenors' Br. at 44.

Furthermore, there is nothing in the Commission's emergency planning regulations or in the guidance provided by NUREG-0654 that requires any particular "evacuation route capacity." NRC Staff Testimony of Donald J. Perrotti, fol. Tr. 3229, at 7-8. See NUREG-0654, *supra*, at 61, 63. NUREG-0654 is written in general terms and provides only that "[t]he entire road network shall be used but local routes shall be carefully selected and analyzed to minimize their impact on the major routes should queuing or cross traffic conflicts occur." *Id.*, Appendix 4 at 4-5. The testimony of Messrs. Madere and Lucas that their basic plans call for evacuation in opposite directions in order to avoid confusion and minimize traffic problems is fully consistent with this guidance. See Tr. 2673, 2795.

D. Classification of the "Four Omissions"

The final argument we address is Joint Intervenors' complaint that the Licensing Board improperly "classified" what they term "four omissions." Joint Intervenors' Proposed Findings of Fact and Conclusions of Law (June 19, 1982) stated that the time estimates for evacuation were deficient in failing to consider (1) the refusal of some people to evacuate, (2) additional collisions, (3) hysteria, and (4) the drawbacks of single mode evacuation. Joint Intervenors assert that they "categorized" these four omissions under contention 17/26(1)(f) "because they deal with unforeseen drains on resources and poor evacuation routing which affects [people who are (i) without vehicles, (ii) school children, (iii) aged or crippled, (iv) sick and hospitalized, (v) imprisoned, and (vi) transient workers] greater than the general population." Joint Intervenors' Br. at 34. By addressing the four omissions in its discussion of contention 17/26(1)(b) — which involves the adequacy of roads and highways — the Licensing Board "has relegated the strongest arguments of the Joint Intervenors into the weakest category." *Ibid.* See LBP-82-100, *supra*, 16 NRC at 1561 n.13.

Joint Intervenors' argument is frivolous. The important consideration is *whether* the Licensing Board addressed all of the parties' relevant arguments, not *where* in the opinion it addressed them. Significantly, Joint Intervenors do not claim that the Board ignored their arguments on either the four omissions or part (f) of contention 17/26(1). Nor could they. The Board, in fact, fully considered these points, as raised by Joint Intervenors in their proposed findings. *Compare* Joint Intervenors' Proposed Findings, *supra*, at 9-15, 20-22, with LBP-82-100, *supra*, 16 NRC at 1561-63, 1566-67, 1575-76, 1582-85.⁵³ From a substantive standpoint, the rubric under which the Board's discussion falls is of no moment.⁵⁴

III. DECAY HEAT REMOVAL

The last matter to which we devote our attention is shutdown decay heat removal, identified in Staff Exh. 2, "Safety Evaluation Report" (SER), as an "unresolved generic safety issue."⁵⁵ This was not a contested issue at the hearing. The Licensing Board, however, reviewed the staff's treatment of decay heat removal pursuant to our decision in *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-491, 8 NRC 245 (1978). In that case, we discussed a board's obligation in an operating license proceeding to search the record (especially the SER) to determine whether the staff has dealt "appropriately" with the unresolved generic issues, even where they are not contested. *Id.* at 247-49.

The Licensing Board here was not particularly satisfied with the staff's evaluation of how the Waterford 3 facility would handle the decay heat removal problem. Initially, the Board considered the SER. There the staff concluded — apparently on the basis of the reliability of the auxiliary (emergency) feedwater system and, alternatively, the "feed and bleed" process — that the plant could be safely operated before ultimate resolution of this issue. *See* Staff Exh. 2, SER, at C-16 - C-17. The Board correctly noted, however, that the feed and bleed option is not possible at Waterford; without pumps capable of injecting core cooling water at the safety valve pressure, this method of decay heat removal requires the release of reactor coolant through power-operated relief valves (PORVs), which are not

⁵³ Joint Intervenors claim that they never classified the four omissions under contention 17/26(1)(b). Yet the first time they mention the omissions is in fact under the heading of their discussion of contention 17/26(1)(b). Joint Intervenors' Proposed Findings, *supra*, at 5-6. The Board's characterization of the four omissions is thus understandable.

⁵⁴ Moreover, given that the Board did not find "unforeseen drains on resources and poor evacuation routing" caused by the "four omissions," the underlying premise of Joint Intervenors' claim of greater impact on the six special categories of people was not proven.

⁵⁵ For a discussion of decay heat removal, *see generally* TMI-1 Restart, *supra* note 46, 17 NRC at 829-31.

included in the Combustion Engineering (CE) design of Waterford 3. LBP-82-100, *supra*, 16 NRC at 1557-58. The Board received additional comments from both the staff and applicant on the asserted adequacy of the emergency feedwater system to remove decay heat, but remained "personally skeptical." *Id.* at 1559.⁵⁶ Nonetheless, believing it was barred from pursuing this matter further by our opinion in *North Anna*, ALAB-491, *supra*, and the Commission's decision in *Cincinnati Gas and Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit No. 1), CLI-82-20, 16 NRC 109 (1982), *as clarified*, CLI-83-4, 17 NRC 75 (1983), the Board accepted the staff's evaluation "with great reluctance." In addition, it urged the assessment of the reliability of the Waterford 3 decay heat removal system by an independent laboratory. LBP-82-100, *supra*, 16 NRC at 1559-60.

This matter has not been raised on appeal.⁵⁷ But pursuant to our long standing practice, we review the entirety of licensing board decisions on significant safety and environmental issues. *See Offshore Power Systems (Manufacturing License for Floating Nuclear Power Plants)*, ALAB-689, 16 NRC 887, 890 (1982). Thus, because we are concerned that the Licensing Board's reading of our *North Anna* opinion may be too restrictive, we take this opportunity to clarify what we held there.

In a footnote in *North Anna*, we stated:

We wish to say precisely what we have and have not done. In view of the limitations imposed by regulation, and the fact that our review was necessarily unaided by any of the parties, we have not probed deeply into the substance of the reasons put forth by the staff for allowing operation to go forward. Rather, we have only looked to see whether the generic safety issues have been taken into account in a manner that is at least plausible and that, if proven to be of substance, would be adequate to justify operation. Scrutiny of the substance of particular explanations will have to await a contested proceeding.

8 NRC at 248 n.7. According to the Licensing Board, this language prevents it from exploring the decay heat removal question in greater depth. But, in our view, no such meaning is implied or intended. The excerpted passage

⁵⁶ The Board referred to the concern of the NRC's Advisory Committee on Reactor Safeguards (ACRS) about decay heat removal in CE plants and the ACRS' suggestion that the addition of PORVs to such plants be considered. The Board also noted, however, that the ACRS has not recommended licensing conditions for interim operation. LBP-82-100, *supra*, 16 NRC at 1558 & n.4, 1559.

⁵⁷ Joint Intervenors did file several exceptions directed to the Board's treatment of decay heat removal, but did not address the matter on brief. Assuming *arguendo* that Joint Intervenors could have legitimately raised this on appeal (*cf. Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-728, 17 NRC 777, 807 (1983)), they have waived the issue through their failure to brief it. *See* note 2, *supra*.

from *North Anna* merely acknowledges the inherent limitations on a board's review of a matter not in contest and therefore not subject to the more intense scrutiny afforded by the adversarial process. It does not override a licensing board's authority under 10 CFR §2.760a to raise and decide, *sua sponte*, "a serious safety, environmental, or common defense and security matter." Thus, if a board determines that such a serious issue exists, it may invoke 10 CFR §2.760a and explore it further. Indeed, that is precisely what we did, pursuant to comparable appeal board authority under 10 CFR §2.785(b)(2), in that same *North Anna* proceeding when we were dissatisfied with the staff's treatment of another unresolved generic safety issue (turbine missiles). See ALAB-529, 9 NRC 153 (1979); ALAB-676, 15 NRC 1117 (1982).

Nor do we read the Commission's decision in *Zimmer*, CLI-82-20, *supra*, as erecting an insurmountable barrier to invocation of a licensing board's *sua sponte* authority under 10 CFR §2.760a. In that case, the Commission directed the Licensing Board to dismiss certain contentions the Board sought to admit as Board issues pursuant to Section 2.760a. The Commission took this action because it had already initiated a separate investigation into the same issues. In our view, the Commission did not tacitly or otherwise repeal 10 CFR §2.760a, especially insofar as other cases are concerned.⁵⁸

Thus, if the Licensing Board here was genuinely concerned that shutdown decay heat removal presents a "serious safety" issue, it could — and should — have invoked its *sua sponte* powers under 10 CFR §2.760a. Ordinarily we would remand the case to the Board so that it could decide if that, in fact, is the appropriate course for it to take. But as discussed below, circumstances have changed somewhat since the issuance of the Licensing Board's partial initial decision, making remand unnecessary.

Lest there be any doubt, while we disagree with the Board's reading and application of *North Anna*, we share its concern that the problem of decay heat removal has not been adequately addressed by the staff. The one-page discussion in the original SER consists of generalized boilerplate language applicable to many pressurized water reactors — except, of course, for the part on the feed and bleed process, which does *not* apply to Waterford 3. See Staff Exh. 2, SER, at C-16 - C-17. It falls far short of the type of information about unresolved generic safety issues that we have suggested should appear in an SER. See *North Anna*, ALAB-491, *supra*, 8 NRC at 249; *Gulf*

⁵⁸ In 1981 the Commission did, however, instruct the boards to advise the General Counsel and the Commission of any future determinations to invoke the *sua sponte* authority of 10 CFR §2.760a. See *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), LBP-81-54, 14 NRC 918, 922-23 & n.4 (1981). This affords the Commission an early opportunity, on a case by case basis (as in *Zimmer*), to relieve the boards of any obligation to pursue uncontested issues.

States Utilities Co. (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760, 775 (1977). The staff's additional submissions to the Licensing Board (see, e.g., Staff Exh. 9) were more specific but, understandably, did not engender much more confidence in the staff's position on the part of the Board.

Unfortunately, the staff's more recent filings with us concerning decay heat removal do not show marked improvement. At oral argument in this case, we called to staff counsel's attention an April 6, 1983, memorandum from the Commission's Secretary to the Executive Director for Operations. App. Tr. 101. This memorandum reflects an apparent change in the staff position on the need for feed and bleed capability in CE plants. It states that, on April 4, "[t]he staff briefed the Commission on decay heat removal systems in CE plants and recommended that PORVs be required on such plants." It also notes the Commission's request that the staff accelerate its study of backfitting PORVs into already constructed plants and solicit and address the views of the ACRS on this matter. In response to our inquiries, staff counsel indicated that a board notification "with appropriate discussion" would be sent to us "immediately." App. Tr. 103, 102. Approximately one month later (and six weeks after the April 4 briefing) we received Board Notification BN-83-63 (May 18, 1983) — a document that is wholly inadequate, both as to content and timeliness.

BN-83-63 consists of a one-page cover memorandum; a five-page service list; another, briefer memorandum from one staff director to another (dated 24 days after the Commission briefing), requesting (nine days after we requested it at oral argument) preparation of a board notification; the April 6 memorandum from the Secretary (to which we referred at oral argument); and a one-page memorandum to the Secretary repeating the salient points of the April 6 memorandum and adding that the staff will conclude its "investigation" by June 30, 1983, and present its recommendations to the Commission in August-September 1983. This Board Notification told us what we already knew and provided little else. It is noteworthy more for what it does not say than for what it says. For example, we expected at least a summary of the staff's April 4 briefing of the Commission, with a statement of the staff's current position on the need for PORVs in CE plants generally. But, more importantly, we hoped to learn how the staff's current views affect the position it took before the Licensing Board on decay heat removal at *Waterford 3*. In each instance, our expectations have

gone unfulfilled. BN-83-63 is virtually useless due to its failure to meet the minimal criteria for board notifications.⁵⁹

Consequently, we have undertaken our own review of the transcript of the April 4 Commission briefing on "Decay Heat Removal Studies on CE Plants."⁶⁰ It is still not clear to us from reading the entire transcript what the staff's position on this matter is.⁶¹ The Director of the NRC's Division of Systems Integration stated that there is a "need for PORVs to manage steam generator tube ruptures," and that "I think our bottom line technical judgment today is that we still think we should have PORVs on this [CE] design." C.Tr. 5, 9. Yet the same day as this briefing, another board notification issued by the staff suggested that, because CE plants (unlike Westinghouse and Babcock and Wilcox (B&W) facilities) have a safety-grade auxiliary pressurizer spray to provide the capability for rapid primary system depressurization to mitigate a design basis steam generator tube rupture, the backfitting of PORVs to CE plants would not be necessary. See Board Notification BN-83-47 (April 4, 1983), Enclosure at 1-2, 3. Scattered references to Westinghouse and B&W plants throughout the April 4 transcript, among other things, have added to the confusion. One thing, however, does seem clear. An independent laboratory (Sandia) is studying the decay heat removal problem in CE plants, and the staff expects to be able to advise the Commission by late summer of this year as to Sandia's findings and the staff's evaluation of them. See C.Tr. 81-83, 93. This is essentially the action that the Licensing Board recommended in this case. See LBP-82-100, *supra*, 16 NRC at 1559-60, 1572.

In order to facilitate the fulfillment of our responsibilities on such safety matters, we would have appreciated a clearer expression of the staff's position and intention specifically with respect to the licensing of the Waterford 3 plant. Nevertheless, we do not believe that a better or faster determination of the capability of Waterford 3 to deal with decay heat removal could be obtained through further adjudicatory proceedings on this uncontested

⁵⁹ In *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-551, 9 NRC 704, 710 (1979), we stated that "if the notification is to serve its intended purpose a board must be supplied with an exposition adequate to allow a ready appreciation of (1) the precise nature of the addressed issue and (2) the extent to which the issue might have a bearing upon the particular facility before the board."

⁶⁰ References to the transcript of this briefing will be "C.Tr."

⁶¹ We recognize, as well, that the transcript is "unofficial," and that the opinions expressed therein "do not necessarily reflect final determinations or beliefs." Disclaimer, fol. C.Tr. 1.

issue. We therefore leave the ultimate resolution of this matter to the staff and the Commission.

For the reasons set forth in this opinion, the Licensing Board's partial initial decision (LBP-82-100, *as modified*, LBP-82-112) 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 BOARD

Before Administrative Judges:

James P. Gleason, Chairman
Dr. Oscar H. Paris
Frederick J. Shon

In the Matter of

Docket Nos. 50-247-SP
50-286-SP
(ASLBP No. 81-486-03-SP)

CONSOLIDATED EDISON COMPANY
OF NEW YORK
(Indian Point, Unit No. 2)

POWER AUTHORITY OF THE STATE
OF NEW YORK
(Indian Point, Unit No. 3)

June 8, 1983

The Licensing Board denies Licensee's motion for reconsideration of an order denying admission into evidence of the deposition of the Deputy Director, Office of Emergency Service, Rockland County, New York.

RULES OF PRACTICE: ADMISSIBILITY OF EVIDENCE

The Federal Rules of Civil Procedure provide guidance to Licensing Boards in interpreting the Commission's Rules of Practice. *Boston Edison Co.* (Pilgrim Nuclear Generating Station, Unit 2), LBP-75-30, 1 NRC 579, 581 (1975).

RULES OF PRACTICE: ADMISSIBILITY OF EVIDENCE

Federal Rules of Civil Procedure 32(a)(2) provides, *inter alia*, that the deposition of an officer of a government agency which is a party may be used by an adverse party for any purpose. To determine the meaning of the term "officer," "regard must be had to the intention of the statement and the specific matter in reference to which the term is used." 63 Am. Jur. 2d §1 (1972). The term "officer" is inseparably connected with an office — a public station, permanent in character, created by law, whose incidents and duties are created by law (*Metcalf v. Mitchell*, 269 U.S. 515, 520 (1926)) — and Fed. R. Civ. P. 32(a)(2) contemplates an officer who, by designation or position, can speak with authority on behalf of the party being deposed.

MEMORANDUM AND ORDER

(Denying Licensees' Motion for Reconsideration of Ruling on Admissibility of Deposition)

MEMORANDUM

On April 29, 1983, the last day of the public hearings, Licensees moved for the admission into evidence of a deposition of Donald P. McGuire, Deputy Director, Office of Emergency Service, County of Rockland. Tr. 15184. The Board denied the motion as being prejudicial to the other parties. Tr. 15190. On May 9, 1983, Licensees filed a motion for reconsideration of that ruling. Responses were filed by Rockland County and by the NRC Staff on May 24 and May 31, respectively. For the reasons stated below, the Board denies Licensees' motion.

The thesis of Licensees' motion is that the Board erred as a matter of law in excluding the McGuire deposition. Licensees' assert that under Rule 32(a)(2) of the Federal Rules of Civil Procedure the deposition is admissible. Rule 32(a)(2) states:

(a) Use of Depositions. At the trial or upon the hearing of a motion or an interlocutory proceeding, any part or all of a deposition, so far as admissible under the rules of evidence applied as though the witness were then present and testifying, may be used against any party who was present or represented at the taking of the deposition or who had reasonable notice thereof, in accordance with any of the following provisions:

* * *

(2) The deposition of a party of anyone who at the time of taking the deposition was an officer, director, or managing agent, or a

person designated under Rule 30(b)(6) or 31(a) to testify on behalf of a public or private corporation, partnership or association or governmental agency which is a party may be used by an adverse party for any purpose.

Licensees also assert that the Federal Rules of Civil Procedure provide guidance to Licensing Boards in interpreting the Commission's Rules of Practice and cite *Boston Edison Co.* (Pilgrim Nuclear Generating Station, Unit 2), LBP-75-30, 1 NRC 579, 581 (1975).

This Board agrees with Licensees that the Federal Rules provide guidance. However, the Board does not find that Rule 32(a)(2) is applicable in this instance. Licensees assert that Mr. McGuire was designated to testify; but they do not assert that he was designated to testify under Rule 30(b)(6) or 31(a),¹ or under analogous circumstances. Similarly, Licensees assert that Mr. McGuire is an "official" of Rockland County, but they do not assert that he is an "officer" of the County. Licensees' Motion at 5.

The term "officer" has "vague and variant import, the meaning of which necessarily varies with the connection in which [it is] used, and to determine it correctly in a particular instance, regard must be had to the intention of the statement and the specific matter in reference to which the terms are used." 63 Am. Jur. 2d §1 (1972 ed). In *Metcalf v. Mitchell*, 269 U.S. 514 (1926), the Supreme Court found the term "officer" inseparably connected with an "office," and found the following to be essential elements of an office: a public station, permanent in character, created by law, whose incidents and duties are prescribed by law. *Id.* at 520.

Licensees have not shown that Mr. McGuire holds an "office" as defined above, and they, as the proponent of the motion, have the burden of proof. 10 CFR 2.732. Furthermore, Licensees have not shown that Mr. McGuire was an officer in the context of Rule 32(a)(2); that rule contemplates an officer who, by designation or position, can speak with authority on behalf of the party being deposed.² Mr. Reisman, the Chairman of the County Legislature, is such an officer, but Mr. McGuire has never been characterized as other than an expert *witness*.

Accordingly, the Board concludes that Rule 32(a)(2) does not apply, and that Licensees have not shown such exceptional circumstances as would warrant admitting the deposition of an unavailable witness. *See* Fed. R.

¹ The Sections cited in Rule 32(a)(2) are provisions permitting discovery against parties who are not natural persons (*i.e.*, corporations and government agencies). Pursuant to these actions, a discovery request may be directed toward a corporation or agency, and that corporation or agency must then designate an official spokesman to respond. It is apparent that Mr. McGuire was not deposed under such circumstances.

² The issue whether a deponent is an officer authorized to speak on behalf of a party is independent from the issue whether the statement of that deponent is a vicarious admission under Fed. R. Evid. 301(d)(2). *See* 4A *Moore's Federal Practice* §32.04 at 32-23 (1981 ed).

Civ. P. 32(a) (3). In addition, the Board rejects the assertion made by both the Licensees and the NRC Staff that admission of the deposition would not be prejudicial to the parties. Licensees' Motion at 10; Staff Response at 5. Cross-examination, though subject to restriction, is a fundamental right conferred on parties to formal adjudication in NRC proceedings by the Administrative Procedure Act and by the Commission's Rules of Practice. Cross-examination during a deposition, which might suffice under truly exceptional circumstances, is not otherwise a ready substitute for cross-examination before the presiding officer.

ORDER

Based on the foregoing, it is this 8th day of June,
ORDERED

1. That Licensees' Motion for Reconsideration of Ruling on Admissibility of Deposition is *denied*.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

James P. Gleason, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland
June 8, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**James L. Kelley, Chairman
Dr. A. Dixon Callihan
Dr. Richard F. Foster**

In the Matter of

**Docket Nos. 50-413-OL
50-414-OL
(ASLBP No. 81-463-01-OL)**

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

June 20, 1983

The Licensing Board grants certain motions of the Applicants and Staff for sanctions against the Intervenor Palmetto Alliance for failure to respond in discovery. Certain contentions are dismissed from the proceeding altogether; another contention is reduced in scope. Motions for sanctions concerning certain other contentions are denied.

**MEMORANDUM AND ORDER
(Ruling on Applicant and Staff Motions for Sanctions)**

I. Background

On May 13, 1983, the Licensing Board issued a Memorandum and Order granting in part Applicants' motion to compel Palmetto Alliance to answer certain interrogatories concerning Contentions 6, 7, 8, 16 and 44, and granting the NRC Staff's Motion to Compel answers to certain interrogatories concerning Palmetto's Contention 7. The Board found that

“Palmetto’s responses to many key questions have been vague, evasive, incomplete or nonexistent,” and set a deadline of May 31, 1983 for Palmetto to furnish responsive answers. We emphasized that, if these responses were not adequate, we would consider the following sanctions:

- (1) Narrowing a contention to areas where specifics have been given.
- (2) Rejecting a contention altogether.

Board Order at 4.

Palmetto’s responses, along with responses to Applicant and Staff follow-up interrogatories, were filed on May 27. On June 3, the Staff filed a “Motion for Sanctions Based on Palmetto Alliance Failure to Make Discovery on Contentions 7 and 44,” asking for dismissal of those two contentions. On June 6, Applicants filed a motion for sanctions requesting dismissal of Palmetto’s Contentions 6, 7, 8, 16 and 44, as well as CESH’s Contention 18 (which is identical to Palmetto’s Contention 44). On June 10, Palmetto and CESH filed a response to Applicants’ and Staff’s motions for sanctions asking that the motions be denied.

II. AUTHORITY AND STANDARDS FOR SANCTIONS

Pursuant to 10 CFR §2.707, the failure of a party to comply with a Board discovery order constitutes a default for which a Board “may make such orders in regard to the failure as are just.” In addition, the Commission has given Licensing Boards guidance on the imposition of sanctions in its *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 454 (1981):

When a participant fails to meet its obligations, a board should consider the imposition of sanctions against the offending party. A spectrum of sanctions from minor to severe is available to the boards to assist in the management of proceedings. For example, the boards could warn the offending party that such conduct will not be tolerated in the future, refuse to consider a filing by the offending party, deny the right to cross-examine or present evidence, dismiss one or more of the party’s contentions, impose appropriate sanctions on counsel for a party, or, in severe cases, dismiss the party from the proceeding. In selecting a sanction, boards should consider the relative importance of the unmet obligation, its potential for harm to other parties or the orderly conduct of the proceeding, whether its occurrence is an isolated incident or a part of a pattern of behavior, the importance of the safety or environmental concerns raised by the party, and all of the circumstances.

The Appeal Board has interpreted the Commission’s *Policy Statement* to require that a Board consider the factors enumerated above in order to select

an appropriate sanction. *Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-678, 15 NRC 1400, 1416-20 (1982). We have considered these factors in imposing the sanctions which we next discuss. We have concluded that Palmetto, by consistent refusal or inability to provide responsive answers to basic questions about the contentions we are now rejecting (in whole or in part), despite repeated requests and a Board order compelling responses, has made it virtually impossible for the opposing parties to prepare for hearing on those contentions. The "unmet obligation" is extremely important; indeed, it is a prerequisite to a fair hearing. Palmetto's failures here are not isolated; they are part of a pattern of behavior exhibited in all of their responses to interrogatories on the contentions in question. The sanctions we impose will not have the effect of excluding any important and litigable safety or environmental issue from the hearing. Finally, we are convinced that the sanction of narrowing or rejecting contentions is the only appropriate sanction available to us. No other sanction fits the circumstances.

Contention 6

The Applicants maintain that Palmetto has failed to meet its discovery obligations under Contention 6, which concerns quality assurance. They argue that these failures warrant complete dismissal of this contention or, in the alternative, a narrowing to those areas where Palmetto has provided specifics. We agree that this contention must be narrowed, in the respects and for the reasons that follow.

Contention 6, as revised and admitted by the Board, raises broad questions about quality assurance at the Catawba facility. It states that:

Because of systematic deficiencies in plant construction and company pressure to approve faulty workmanship, no reasonable assurance exists that the plant can operate without endangering the health and safety of the public.

In their initial interrogatories, the Applicants posed numerous questions to Palmetto designed to elicit basic information about this contention, particularly the meaning of its terms, the specific evidence supporting the broad allegations, and the particular regulations involved. *See Applicants' First Set of Interrogatories* dated April 9, 1982, pp. 6-20. All but a few of Palmetto's initial responses to these interrogatories lacked specifics or, in many cases, any answer at all. *See Palmetto's Responses to Applicants' Interrogatories* dated April 28, 1982, pp. 7-17. The Board nevertheless ruled that Palmetto would not be required to provide specific answers until after it had had a first opportunity at discovery against the Applicants and the Staff. Following rather extensive discovery, Palmetto filed its

“Supplemental Responses” to the Applicants’ initial interrogatories. Dissatisfied with these responses, the Applicants filed a motion to compel. We granted that motion in major part, directing Palmetto among other things to provide additional responses with respect to some thirty interrogatories on Contention 6. In so doing, we stated that:

Palmetto must now give complete and detailed answer to those interrogatories . . . or face the prospect of sanctions. . . . Palmetto must state factual specifics. For example, in detailing an alleged quality assurance problem, it should state the nature of the problem, where in the plant it was found, when it occurred and who was involved. Where regulatory violations are alleged, the specific regulation or criteria must be given.

With specific reference to the interrogatories on Contention 6, we stated that:

If Palmetto does not provide any significant additional information in response to these questions, the Board will entertain a motion to revise Contention 6 to include only the matters on which Messrs. Hoopingarner and McAfee have information and new matters first surfacing at a later date.

One further development bears upon the appropriateness of sanctions on Contention 6. Palmetto recently moved for a several-month extension of discovery rights under Contention 6. Our Memorandum and Order of June 13, 1983 (unpublished) denied the full relief requested, but authorized a more limited time for Palmetto to take depositions concerning quality assurance in welding. We took that approach largely because the rather extensive documentation on welding concerns appeared to “raise serious safety questions.” On the other hand, apart from those welding concerns, Palmetto had not pointed to anything specific to justify its broader discovery request. Thus the action we are taking now in narrowing Contention 6 is consistent with that related discovery ruling.

The analysis which leads us to narrow Contention 6 is facilitated by separated consideration of four areas: (1) the Hoopingarner and McAfee concerns; (2) the welding concerns; (3) concerns first surfacing between now and the hearing; and (4) any other presently unspecified concerns. We are narrowing Contention 6 by retaining areas (1) - (3) and excluding (4). Our reasons are as follows:

(1) *Messrs. Hoopingarner and McAfee*

The Applicants argue that their depositions show a lack of specific knowledge about matters relevant to Contention 6. Applicants’ Motion, pp. 40-41. We are not presently considering the weight of the evidence. We assume that these depositions (which we do not have) brought out the extent of the personal knowledge of

Messrs. Hoopgarner and McAfee about matters relevant to Contention 6, at least sufficient for the Applicants to prepare for hearing.

(2) *Welding*

As described in our June 13 Order, the welding concerns are reflected in a number of documents, most of which were attached to Palmetto's motion for extended discovery. The major defect in Palmetto's "Further Supplementary Responses" on Contention 6 is that they do not provide clear and separate answers to many questions. *See, e.g.*, Responses 35, 52, 57 and 114.¹ That is notably true of the welding concerns, where Palmetto refers to them without giving names, places, dates, etc. Two considerations mitigate this defect, however. First, both the Applicants (in the "MAC" report) and the Staff (*see* Van Doorn memorandum dated February 1, 1983) say that they have already undertaken investigations of these same concerns. It thus appears that they are already in a position to address them. Beyond that, details of time, place and circumstance can be filled in during the upcoming depositions.

(3) *New Information*

Concerns based on information first becoming available to Palmetto between May 27, 1983 and the time of hearing that are within the scope of Contention 6 may be litigated. However, pursuant to 10 CFR §2.740(c)(3), the Board is imposing a duty on Palmetto to supplement promptly its interrogatory responses under Contention 6 to the Applicants and the Staff as to any such new areas of concern under that contention, other than welding concerns and concerns of Messrs. Hoopgarner and McAfee.

(4) *Other Possible Concerns*

Concerns not encompassed in the preceding three categories are now excluded from Contention 6, except upon a showing of overriding public interest. As we stated in granting the motion to compel:

Any information that Palmetto does not include in it[s] answers to these questions and which it knew or reasonably could have known at this point may, upon a timely objection,

¹ We disagree with Palmetto's assertion (Response at p. 12) that its identification of documents on this question was sufficient to meet "its obligation for specificity" on these questions. Document references may be a sufficient answer to a broad, "dragnet" question. They are not usually sufficient for more specific questions, such as many of those involved here.

be excluded from any later hearing, unless an overriding public interest requires otherwise.

The Applicants made available to Palmetto information on a range of quality assurance matters. In fact, the *only* specificity Palmetto provided in its responses concerned welding.² This means that information already made available to Palmetto in discovery that might have otherwise been relevant to Contention 6 — hypothetically, a particular quality assurance deficiency in concrete pouring or cable spreading — will be excluded upon a timely objection, unless an overriding public interest requires otherwise.

Contention 7

Contention 7 alleges that the Applicants have “consistently failed” to adhere to required operating and administrative procedures at their facilities. Both Staff and Applicants have repeatedly sought to elicit from Palmetto the specific violations of regulations and other incidents constituting such “consistent failure.” Our May 13 Order granted motions to compel ordering Palmetto to particularize what it means by this contention. In doing so, we warned Palmetto that it must specify “[j]ust which regulations the Applicants have consistently failed to meet. . . . General references to NRC documents are insufficient.” Order at 8.

The Staff’s interrogatories sought “the facts and law upon which (Palmetto) was relying in formulating its contention.” Despite a Board order directing Palmetto to furnish this information, Palmetto candidly admits that it “relies entirely on the findings made by the NRC Staff with respect to Duke Power’s track record”; that it has “no independent knowledge of the rules and regulations not adhered to except as concluded by the NRC Staff” and “no independent knowledge of the NRC Staff’s findings.” Palmetto Supplementary Responses at 28-29. This lack of independent knowledge of any facts to back up its contention is reiterated on page 15 of Palmetto’s June 10, 1983 Response to Staff’s and Applicants’ Motions for Sanctions, where Palmetto admits that its “efforts to collect independent information on the facts behind the violations uncovered by the NRC Staff were largely unsuccessful.” Palmetto’s responses to the Applicants’ interrogatories are similarly uninformative. A few examples will serve to illustrate the problem.

In response to Interrogatory 25, we ordered Palmetto to cite which NRC regulations Applicants have failed to meet. We warned Palmetto that failure

² Thus we have no occasion to analyze Palmetto’s Further Supplementary Responses on Contention 6, point by point. Apart from welding, those responses were not merely insufficient; they provided no information at all.

to supply this information could result in rejection of the contention for failure to make discovery. Palmetto responded as follows:

Thus, the only specific regulatory violations upon which Palmetto relies in support of its track record contention are those documented by the NRC and AEC in their own reports which have been previously identified. Palmetto believes that these identified reports of the NRC reflect the time, place, and details of the incidents of non-compliance. No further information regarding these incidents is now known to Palmetto Alliance. Palmetto Supplementary Responses at 12.

The Supplementary Responses to Interrogatories 1, 2, 12, 14, 27, 45, 48, 49, 50 and 52 all disavow independent knowledge of the subject of its contention. Despite this Board's admonition that "this is Palmetto's contention, not the Staff's" (Order at 8), Palmetto still relies on responses such as "it is the Staff's findings on these matters which are significant in establishing Duke's track record." Palmetto Supplementary Responses at 15.

Palmetto has admitted that it "has disclosed all of the information it has regarding Contention 7 and has candidly admitted that it has no further specific information." Response to Motions for Sanctions at 16. In sum, Palmetto has nothing to back up its charges of mismanagement except some quotations from NRC Staff reports, the material from which Contention 7 was fabricated. While such quotations may form an adequate contention, they are far from an adequate basis for litigation. Palmetto's responses to interrogatories on this contention reflect that it did essentially no work on this contention in discovery. Basic terms remain undefined. Palmetto did not even perform the irreducible minimum task of specifying rule or procedure violations which, in its view, evidence a lack of management capability. In the present state of the record, it would be grossly unfair to the Applicants and Staff to require them to defend further against this contention. Contention 7 is rejected.

Contention 8

Contention 8 maintains that Catawba reactor operators and shift supervisors lack "sufficient levels of operating experience" with large pressurized water reactors to operate Catawba safely. It does not specify what Palmetto considers to be "sufficient" experience. Despite several requests from Applicants, culminating in the May 13 Board Order which sent a clear directive to Palmetto to "define terms like 'sufficient' or face the prospect that its contention may be dismissed" (Order at 3), Palmetto continues to refuse to commit itself to a specific definition. It holds to the position that "it is reasonable to expect the Applicants, and not the Palmetto Alliance, to

articulate a meaningful definition of nuclear power plant experience and assure the public that its personnel are qualified.” (Palmetto Supplementary Responses at 16.) In its latest response, Palmetto reveals the reason for its reluctance: it concedes that it does not have sufficient information to specify a standard. (Response to Motions for Sanctions at 17.)

We have made it clear that we will not force the opposing parties to go to hearing on a contention whose key terms are undefined. Order at 3-4. In granting the motion to compel, we stated that: “. . . in the absence of a clear definition of ‘sufficient’ — *e.g.*, two years, three years — the opposing parties cannot be expected [to] defend against this amorphous contention.” *Id.* at 9.

No claim is made here that the Applicants proposed operators do not meet existing Commission regulations. Palmetto’s legal position is that there is a “gap” in existing regulations which will preclude the safety finding required by 10 CFR 50.57(a)(3). Supplementary Responses at 20. But a position of that sort is not litigable unless its proponent can be reasonably specific about the size and nature of the “gap.” Here, some reasonably specific definition of what is “sufficient” hands-on operating experience is necessary. Absent such specification, this generic issue (if it is a serious issue) should be handled in rulemaking. We therefore grant Applicants’ motion to dismiss Palmetto’s Contention 8.

Contention 16

Contention 16 addresses the health and safety consequences of the storage of spent fuel from other Duke nuclear facilities at Catawba. In our May 13, 1983 motion, we instructed Palmetto to address each specific design criterion that it alleges the Applicants have not met, and to explain specifically why it alleges that these criteria are not being met. *Id.* at 10. Palmetto’s filing of May 27 is responsive to this directive.

Applicants’ motion argues that Palmetto’s response does not meet the Commission’s discovery requirements and that the sanction of dismissal is appropriate. We disagree. Applicants find fault with Palmetto’s “failure to provide specificity to support its contention.” The motion cites as an illustration Palmetto’s response to Applicants’ Interrogatory 46, which was not a subject of the Board’s order, and proceeds to argue the merits of the scenarios Palmetto has presented in support of its contention.

The above argument does not support the imposition of sanctions for failure to comply with a Board order. In our May 13 order, Palmetto was merely requested to respond to Interrogatory 13. It has done so, citing specific design criteria and setting forth specific scenarios which it believes

show that Applicants have not met these criteria. If Applicants have determined that these concerns are groundless, they may now move for summary disposition or present their position later. Applicants' motion to dismiss Contention 16 is denied.

Contention 44/CESG 18

Palmetto Contention 44 and CESG 18 are identical technical contentions concerning reactor embrittlement. Both Staff and Applicants have asked that the Board dismiss Palmetto Contention 44 for failure to comply with the Board's discovery order. Palmetto has conceded that it has no independent basis for this contention; that it relies on the position of CESG. (*See, e.g.,* Response to Motions for Sanctions at 23.) CESG filed answers to Staff's interrogatories on March 21, 1983 which Palmetto's April 19, 1983 discovery responses adopted as its own. Nevertheless, Staff has made a motion to dismiss Palmetto's contention for failure to provide discovery, taking the position that Palmetto must make an independent contribution as to its own contention. Staff Motion for Sanctions at 10-11. The interrogatories addressed to Palmetto were identical to those answered by CESG. Palmetto is free to adopt CESG's position on this contention without pursuing answers independently. Staff has apparently received all the information it needs from CESG. For this reason, Staff's motion is denied.

Applicants are in a different position with regard to this contention. They have not received any responses to their interrogatories from CESG, while Palmetto's responses merely cross-referenced CESG's responses to *the Staff's* interrogatories. Applicants now move to dismiss both Palmetto Contention 44 and CESG Contention 18.

CESG has failed to respond to interrogatories which were due by the close of discovery. Applicants chose not to file a motion to compel responses, but immediately requested the sanction of dismissal of the contention. The Board, uncertain as to the status of matters between Mr. Riley of CESG and Applicants, contacted Mr. Riley by telephone on June 14 to determine whether he planned to file the requested responses. Mr. Riley informed the Chairman that, because of conflicting obligations, he had not yet completed his responses, but that he intended to do so promptly. Mr. Riley committed to mail his responses to the parties no later than June 20. We note that since Palmetto has adopted CESG's position on this contention, any defect found now in Palmetto's responses may be cured by information furnished by CESG. In these circumstances, the Applicants' motion to dismiss Contentions 18 and 44 is premature, and it is denied.

The Commission's *Policy Statement* advises that, "in accordance with 10 CFR 2.715a, intervenors should be consolidated and a lead intervenor designated who has substantially the same interest that may be affected by the proceedings and who raises substantially the same questions . . ." 13 NRC at 455. Since Palmetto's and CESG's information about and interests in this contention are, by Palmetto's own admission, identical, we are, in the interest of more efficient hearing management, consolidating the two intervenors with regard to Contention 44, and are designating CESG as lead intervenor on this contention.

III. SCHEDULING

When the Board adopted a hearing schedule in its Prehearing Conference Order of February 2, 1983 (LBP-83-8A, 17 NRC 282), it was premised on a May 20, 1983 date for the close of discovery on Contentions 6, 7, 16, 17 and 44. This has not turned out to be the case. Consequently, Applicants have moved for an extension of time within which to file motions for summary disposition on certain contentions. The Staff filed a response in support of the Applicants' position.

In addition to the delay in the close of discovery, this Order and our Order of June 13 have impacts on the schedule. Therefore we would in any event have established tentative new schedule dates on our own motion. In these circumstances, we are not acting on the Applicants' motion. Instead, we are adopting a tentative revised schedule — retaining the October 4, 1983 date for commencement of hearings — as follows:

Tentative Schedule

Summary Disposition Motions on Palmetto Contentions 16, 27, 44 (CESG 18); CMEC 1-4	July 8 ³
Summary Disposition Motions on DES 11, 17, 19	August 1
Responses to Summary Disposition Motions on 16, 27, 44 (18) and CMEC 1-4	August 5
Final Prehearing Conference pursuant to §2.751(a)	August 17-18
Board Rulings on Summary Disposition Motions on 16, 27, 44 (18) and CMEC 1-4	August 26

³ We have not included a summary disposition date for Contention 6 because, as indicated in our Order of June 13, 1983 (p. 8, n.2), it does not appear to be answerable to that procedure.

Responses to Summary Disposition Motions on
DES 11, 17, 19 August 26
Prefiled Testimony on 6, 44 (18); CMEC 1-4 September 23
Board Rulings on Summary Disposition Motions on
DES 11, 17, 19 September 23
Hearings Commence on 6, 44 (18); CMEC 1-4..... October 4
Prefiled Testimony on 16, 27; DES 11, 17, 19 October 31

The Board will consider the parties' comments on the tentative schedule. Any comments should be served by June 27, 1983.

The Board Chairman will not be available from June 20 until July 13, 1983. Should any party believe that Board action or guidance is needed during that time, the matter should be taken up initially with the Board's law clerk, Carole Kagan, at (301) 492-8343.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

James L. Kelley, Chairman
ADMINISTRATIVE JUDGE

June 20, 1983,
Bethesda, Maryland

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Lawrence Brenner, Chairman
Dr. James H. Carpenter
Dr. Peter A. Morris**

In the Matter of

Docket No. 50-322-OL

**LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station,
Unit 1)**

June 22, 1983

The Licensing Board grants in part and denies in part Suffolk County's motion to admit a new contention concerning the emergency diesel generators, which was filed after the close of the record on all issues except offsite emergency planning issues. The Board held that the standards both for admitting a late-filed contention and for reopening the record apply to the proposed contention in the posture of the proceeding. This is true even where the movant is an interested governmental entity with rights arising under 10 CFR §2.715(c).

CONTENTIONS: LATE-FILED

A party seeking to add a new contention after the close of the record, must satisfy both the standards for admitting a late-filed contention, set forth in 10 CFR §2.714(a)(1), and the criteria established by case law for reopening the record. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-82-39, 16 NRC 1715 (1982), citing *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-5, 13 NRC 361, 364 (1981); *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC 1763 n.3, 1764-65, 1766 (1982).

RULES OF PRACTICE: REOPENING THE RECORD

The standards for reopening the record apply no later than the completion of litigation of an issue where a party seeks to adduce new evidence for the purpose of supplementing the record on an issue which has been litigated. This is so, even if other unrelated contentions remain to be litigated in the hearing.

RULES OF PRACTICE: REOPENING THE RECORD

The criteria for reopening the record apply where a party seeks to place a truly new subject in contention (rather than add evidence on a previously litigated contention), and the subject matter of the new contention would fall within the completed major segment of the hearing leading to a separate appealable partial initial decision. In the circumstances of this case, the record on all issues except offsite emergency planning has been closed, and a separate appealable partial initial decision is being prepared on all such closed issues. Therefore, a new non-emergency planning radiological health and safety contention must meet the criteria for reopening the record in addition to the criteria applicable to the admission of late-filed contentions.

RULES OF PRACTICE: PARTICIPATION OF INTERESTED GOVERNMENTAL ENTITY

There is no express time requirement for a petition to participate as an interested governmental entity pursuant to 10 CFR §2.715(c), or an express time requirement for a party who would qualify as an interested governmental entity to file contentions. However, the Board may require an interested governmental entity to specify, *in advance of the hearing*, the issues on which it desires to participate. 10 CFR §2.715(c). Also, the circumstances of the posture of the proceeding, could indicate that a government participant seeking to advance a new issue must satisfy the criteria for late-filed contentions: The circumstance that the record has closed clearly would require that the criteria for late-filed contentions be met (as well as the criteria for reopening the record). *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-82-39, 16 NRC at 1714 (1982); *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-728, 17 NRC 777 at 801, 803-04 (1983); *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC at 1763-64 (1982); *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725 (1982).

RULES OF PRACTICE: REOPENING THE RECORD

The reopening factor of whether the new evidence might materially affect the outcome can be applied in advance of a partial initial decision. However, the ease with which this factor can be applied will vary, in part, depending on whether a decision has issued and also depending on the extent to which the subject matter of the motion to reopen is related to an issue which has been litigated. To the extent a motion to reopen is not related to a litigated issue, then the outcome to be judged is not that of a particular issue, but that of the action which may be permitted by the outcome of the licensing proceedings. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973).

RULES OF PRACTICE: REOPENING THE RECORD

If the first two reopening factors of timeliness and significance of the issue are resolved in favor of the movant, the Board must then proceed to consider whether the issue requires the receipt of further evidence for its resolution, *i.e.*, whether the issue presents a genuine triable issue in controversy. In other words, the support for the motion to reopen must be strong enough in light of any opposing filings either to avoid summary disposition or to demonstrate that the movant cannot now present facts essential to show a triable issue, but that discovery would enable it to do so. *Id.* at 523-24.

RULES OF PRACTICE: REOPENING THE RECORD

The additional test of the criteria for reopening the record adds little, if anything, of practical import to the application of the factors for a late-filed contention. This is because the reopening factors of significance of the issue, and whether the issue presents genuine triable facts, are inherently part of the calculus of factors for ruling on the admissibility of a late-filed contention.

RULES OF PRACTICE: REOPENING THE RECORD

The factors to be applied in reopening the record are not necessarily additive. It is true that even if timely, a motion to reopen may be denied if it does not raise an issue of major significance. However, "a matter may be of such gravity that the motion to reopen should be granted notwithstanding that it might have been presented earlier." *Vermont Yankee, supra* ALAB-138, at 523; *Vermont Yankee Nuclear Power Corp.* (Vermont

Yankee Nuclear Power Station), ALAB-124, 6 AEC 358, 365 and n.10 (1973). See also *Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 2)*, ALAB-474, 7 NRC 746 (1978).

MEMORANDUM AND ORDER RULING ON SUFFOLK COUNTY'S MOTION TO ADMIT NEW CONTENTION

On May 2, 1983, Suffolk County filed a motion to admit a new contention concerning the emergency diesel generators. The motion is opposed by the Applicant Long Island Lighting Company (LILCO) and the NRC Staff. For the reasons stated below, the motion is granted in part and denied in part.

LEGAL PRINCIPLES

The record in this operating license proceeding has been closed with the exception of two subjects unrelated to the County's proposed new contention.¹ Proposed findings have been filed on all issues for which the record has been closed and this Board is currently preparing a partial initial decision (P.I.D.) on all such issues. We have estimated that the P.I.D. will be issued the end of July 1983, subject to the possible effect on that estimate of a reopening of the record. The County's motion is properly cast as one to advance a new contention, because the matters which the County now seeks to litigate were not part of any previously admitted contention.²

¹ "Phase II" emergency planning issues (a category of remaining offsite emergency planning issues) have yet to be litigated. At the request of this Board, a separate Licensing Board has been appointed to preside over the Phase II issues. The only other issue on which the record may not have been fully closed as of May 2, 1983 involved a sub-issue of the operational quality assurance ("OQA") program contention regarding the adequacy of the description in LILCO's written instructions, of how the program will be implemented. This OQA issue had been at least partially litigated. Pursuant to the approved settlement agreement, and actions thereafter, the County might have requested by June 20, 1983, that any remaining disagreements over the wording of a number of OQA procedures be litigated before the Board. If the County had so requested, the Board might have first decided whether the remaining disagreements were within the scope of the litigation and then whether they need be litigated prior to the possible authorization of a low-power testing license. In any event, on June 20, 1983, the parties reached full agreement on the wording of the OQA procedures and related documents. The record on all other issues was closed on April 8, 1983. Indeed, except for four hearing days in April 1983, occasioned by our grant of requests by the NRC Staff and the County to reopen the record on a contention unrelated to the present motion, the evidentiary hearing, on issues other than the two specified above, was completed on February 24, 1983.

² Suffolk County Contention 2, which was settled by the parties prior to litigation, involved the narrow issue of dirt accumulation in the diesel generator relays. This issue is unrelated to the diesel generator issues which the County now seeks to advance. To the extent any part of the new contention appears broad enough to invite revisiting QA/QC issues which have been extensively litigated, we reject such issues below.

A party seeking to add a new contention after the close of the record must satisfy both the standards for admitting a late-filed contention set forth in 10 CFR §2.714(a)(1) and the criteria, as established by case law, for reopening the record. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-82-39, 16 NRC 1715 (1982), citing *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-5, 13 NRC 361, [364], (1981) (applied both to contentions raised by a private intervenor and to separate issues advanced by the Governor of California as an interested state participant). See also *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC 1760, particularly at 1763 n.3, 1764-65, 1766 (1982) (applied to a County).

The Criteria for Reopening the Record Apply to the County's Contention

The County asserts, without explicating discussion, that because the record is still open on Phase II emergency planning matters (which the County labels a "health and safety" and "Part 50" issue), it does not have to satisfy the criteria for reopening the record. On the other hand, LILCO, *inter alia*, argues that the Board previously applied the reopening standard in denying LILCO's request to supplement a then-completed record on a particular health and safety contention (7B) while the record remained open on other health and safety issues. To LILCO, this precedent *a fortiori* mandates application of the reopening standard to the County's new contention now that the entire health and safety record has been closed.

NRC adjudicatory proceedings are often long and procedurally complex. They involve, as has this proceeding, litigation of many contentions, contention by contention. The multiple contentions can be grouped into separate segments of the evidentiary hearing by licensing boards for purposes of being able to issue separate partial initial decisions, each of which decide a major segment of the case. Many cases would be unmanageable for the multiple parties, as well as by the presiding board, without such segmentation. For example, where the hearing on all contentions in one major category (*e.g.*, environmental, radiological health and safety, or emergency planning) can be completed, it serves no legitimate interest to allow the record to wither on the vine during periods of inattention because contentions in another major category remain to be litigated. Licensing boards can and do flexibly adjust the need to litigate a lengthy case in different segments to the circumstances of particular cases, depending on the number and interrelationship of the contentions, and at times, the different subject areas of contentions raised by different parties.

This process of issuing multiple partial initial decisions in one proceeding has been recognized in the context of appealability by the appeal board. The appeal board has held that partial initial decisions which decide a major segment of the case or terminate a party's right to participate are final, appealable licensing board decisions on the issues decided, even where the decisions do not authorize the issuance of a permit or license. See *Boston Edison Co.* (Pilgrim Nuclear Power Station, Unit 2), ALAB-632, 13 NRC 91, 93 n.2 (1981); *Duke Power Co.* (Perkins Nuclear Station, Units 1, 2 and 3), ALAB-597, 11 NRC 870, 871 & n.1 (1980); *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Units 1 and 2), ALAB-301, 2 NRC 853, 854 (1975); *Toledo Edison Co.* (Davis-Besse Nuclear Power Station), ALAB-300, 2 NRC 752, 758 (1975). In addition, as recognized in the regulations, partial initial decisions on certain contentions favorable to an applicant can authorize issuance of certain permits and licenses, such as a low-power testing license (or, in a construction permit proceeding, a limited work authorization), notwithstanding the pendency of other contentions. Such decisions clearly involve segmentable major portions of a case and are appealable.

Where a party seeks to provide or otherwise adduce new evidence for the purpose of supplementing the record on a contention on which the evidentiary hearing has been completed, such evidence must meet the standards for reopening the record. This is so even if other unrelated contentions remain to be litigated in the evidentiary hearing. The rationale that litigation must end sometime and that, therefore, timely presented significant new evidence which might change the outcome must be shown to exist in order to justify revisiting a contention already litigated applies no later than the completion of litigation of the pertinent issue. This was the circumstance in which this Board denied LILCO's request to admit further evidence on Contention 7B. Similarly, the County properly cast its recent (April 7, 1983) motion to add evidence on its Contention 11 (Passive Mechanical Valve Failure), as a motion to reopen the record. That motion, which will be ruled on in the P.I.D., was filed after completion of the hearing on the affected contention and, in the same circumstance as presently exists, before the commencement of the evidentiary hearing segment on Phase II emergency planning issues.

Where, rather than add evidence on a previously litigated contention, a party seeks to place a truly new subject in contention after the completion of the litigation of only some of the contentions, there may be close questions of whether the standards for reopening the record must be met in addition to the applicable test for admission of a nontimely contention. It follows from the description of NRC hearings given above, that the analysis would depend on whether a major segment of the evidentiary hearing has

been completed, and if so, whether the subject of the new contention would fit under the completed segment or a segment which is still pending.

The County's new diesel generator contention does not present a close question of whether the standards for reopening the record apply. In the posture of this case, they clearly do. All issues have been litigated with the exception of Phase II emergency planning issues.³ The pending emergency planning litigation is totally unrelated to the new contention. Moreover, the Phase II emergency planning issues comprise a separate major segment of the case which has been long recognized as such by the Board and the parties in the scheduling of the litigation. A separate, appealable partial initial decision will be issued on the completed evidentiary hearing issues, and a later one will be issued on the Phase II emergency planning issues. This procedure was in place before it was known that a separate Licensing Board would be convened to hear the Phase II emergency planning segment of the case. It would remain a separate segment of the case even if there was not a separate Licensing Board, but the fact that a separate Board could be appointed with no practical difficulties of overlapping subject matter still existing between two Boards demonstrates the lack of connection of the Phase II issues to any non-emergency planning issues. Moreover, although not an essential element, under the normal application of the regulations, the pending Phase II emergency planning segment of the case need not be completed prior to possible issuance of a low-power operating license.⁴ This reinforces the conclusion that the pendency of the emergency planning segment of the case does not absolve the County from having to meet the standards for reopening the completed hearing on all other radiological health and safety issues in order to raise a new non-emergency planning contention.⁵

³ The circumstance that an approved settlement agreement on an unrelated OQA procedures issue permitted the County to seek further litigation of that issue, if such disagreements had remained, does not affect the question of whether the County's new diesel generator contention must meet the reopening standards.

⁴ The Board has recommended that the regulations not be automatically applied to the special circumstances of this case in a certification to the Commission. LBP-83-21, 17 NRC 593 (1983). However, the Commission may disagree. Moreover, our recommendation, even if accepted, does not necessarily mandate completion of the Phase II emergency planning segment of the case prior to possible issuance of a low-power license. In any event, the proposed new contention clearly falls within the completed segment of all non-emergency planning contentions on which a separate partial initial decision will be issued in advance of any initial decision on Phase II emergency planning contentions.

⁵ As will be seen below, the extent to which we find that portions of this contention are not significant for low-power, relatively short term operation prior to issuance of a full-power license does influence the application to this contention of the standards for reopening and for admitting a nontimely contention.

The Criteria for Late-Filed Contentions Also Apply to the County's Contention

The County also argues that interested governmental agencies participating pursuant to 10 CFR §2.715(c) need not satisfy the standards for admitting a nontimely contention set forth in Section 2.714(a)(1). Suffolk County was admitted as a full intervenor party in this proceeding pursuant to Section 2.714, and, in fact, has taken a position and advanced many contentions. This does not affect the analysis, which is the same when considering a governmental entity irrespective of whether it is participating pursuant to Section 2.714 or 2.715(c). As we have ruled in this case, "the County does not lose its right to participate as an interested governmental agency pursuant to Section 2.715(c) because it has elected to participate as a full intervenor on specified contentions." LBP-82-19, 15 NRC 601, 617 (1982), citing *Project Management Corp.* (Clinch River Breeder Reactor Plant), ALAB-354, 4 NRC 383, 392-93 (1976). We added, however, that in the then existing posture of the case less than two months before the start of the hearing, the County, even under Section 2.715(c), could not raise new issues in the case not already embraced within the scope of admitted contentions without satisfying the test for late-filed contentions.⁶ LBP-82-19, *supra*, 15 NRC at 617, citing *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760, 768-70 (1977). Perforce, at this point over a year later, and *after* the pertinent segment of the hearing has been completed, the County must satisfy the criteria for late-filed contentions.

This does not mean that we agree with the inference which may be drawn from the NRC Staff's filing that an interested governmental participant must raise any issues not already in the case on which it seeks to participate at the same time as the filing of contentions by Section 2.714 intervenors. *River Bend*, *supra*, 6 NRC at 768-70, does not stand for such a proposition, since the time was well past for contentions by private parties when the *River Bend* Licensing Board directed the State of Louisiana to specify, in advance of the hearing, any issues which it might seek to raise in addition to those already admitted in the case. Furthermore, the last sentence of Section 2.715(c), enacted after and in apparent agreement with the *River Bend* decision, implies the contrary, since it states permissively that "The presiding officer *may* require [an interested governmental entity] to indicate with reasonable specificity, *in advance of the hearing*, the subject matters on

⁶ We excluded, *inter alia*, emergency planning issues from having to meet the nontimely contention test since contentions for that segment of the hearing were not ripe for filing. This is another of many acknowledgments in the case that emergency planning issues, and certainly Phase II ones, constituted a separate, later segment of the case. LBP-82-19, *supra*, 15 NRC at 617 n.24.

which [it] desires to participate.” (Emphasis added.)⁷ However, once the time for identification of new issues by even a governmental participant has passed, either by schedule set by the Board or by circumstances (*see e.g.*, the discussion in this case in LBP-82-19, *supra*, 15 NRC at 617), any new contention thereafter advanced by the governmental participant must meet the test for nontimely contentions.

Manifestly, even under a liberal interpretation of the last sentence of Section 2.715(c), the circumstance of the hearing being completed requires that any governmental participant seeking to advance a new contention or issue, whether or not it be a participant already in the case or one seeking to enter, must satisfy the criteria for late-filed contentions (as well as the criteria for reopening the record). The cases so hold. *Diablo Canyon*, CLI-82-39, *supra*, 16 NRC at 1714 (applies to Governor Brown’s motion to reopen to the extent it raises a new issue for litigation); *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-728, 17 NRC at 777, 801, 803-04 (1983); *Enrico Fermi*, ALAB-707, *supra*, 16 NRC at 1763-64; *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725 (1982).

The current situation may be readily distinguished from our recent ruling permitting the Town of Southampton to enter belatedly the Phase II emergency planning case as an interested governmental entity. LBP-83-13, 17 NRC 469 (1983). Southampton was not belatedly advancing contentions, but was seeking to enter the case in order to be able to participate in issues and perhaps advance its own contentions on the same time schedule as all other parties. As discussed above, Phase II emergency planning issues are a separate segment of the case. Contentions on these issues were not filed or even scheduled to be filed by any party at the time Southampton was admitted. Consistent with our view just expressed above, we noted in LBP-83-13, issued in the context of the pertinent segment of the hearing not having commenced, that there is no explicit time requirement for a request to participate pursuant to Section 2.715(c).

In sum, neither a schedule requirement of the Board nor circumstances in the case supported a determination that the request of Southampton to participate as an interested government had come late enough to trigger the application of the criteria for late intervention to it. However, Southampton was admitted with restrictions involving discovery and coordination with other intervenors and governmental participants to avoid any disruption to the proceeding and prejudice to other parties. Restrictions to assure that

⁷ There is no hint in this language or in the statement of considerations (43 Fed. Reg. 17,798 (1978)), or by analysis of the *River Bend* case or other cases, that this sentence is limited to issues already advanced by other parties in the case.

Southampton "take the proceeding as it finds it" were easily devised given the pre-contention posture of the Phase II emergency planning segment of the case.

Application of the Criteria

For convenience, we set forth the factors which must be balanced in determining whether to admit a late-filed contention pursuant to Section 2.714(a) (1):

- (i) Good cause, if any, for failure to file on time.
- (ii) The availability of other means whereby the petitioner's interest will be protected.
- (iii) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.
- (iv) The extent to which the petitioner's interest will be represented by existing parties.
- (v) The extent to which the petitioner's participation will broaden the issues or delay the proceeding.

Although the test for reopening the record in an NRC proceeding has been variously stated, it requires that (1) the motion be timely, (2) new evidence of a significant safety (or environmental) question exists, and (3) the new evidence might materially affect the outcome. *See e.g., Diablo Canyon, CLI-81-5, supra*, 13 NRC at 364-65; *Detroit Edison Co. (Enrico Fermi Atomic Power Station, Unit 2), ALAB-730, 17 NRC 1065 n.7 (1983); Diablo Canyon, ALAB-728, supra*, 17 NRC 800 n.66.

Through a series of pleadings in addition to the legal pleadings, we have before us the affidavits of technical personnel filed on behalf of Suffolk County, LILCO and the NRC Staff. In addition, to aid us in our determination of whether to reopen the record to admit the County's new contention for litigation, we held an all day on the record conference of parties. (June 10, 1983, Tr. 21,179-438.) At the conference, we heard directly from the parties' technical personnel, including those who had filed affidavits, and from the NRC Staff inspectors who prepared the pertinent inspection reports. This was not an evidentiary hearing since the witnesses were not subject to cross-examination by the parties. The Board, however, questioned the technical personnel at length, in order to obtain supplementary information in addition to the affidavits to assist in our application of the reopening and late-filed contention factors to the proposed contention. We found this procedure to be very helpful to this decision.

We note that the County believes the reopening factor of whether the new evidence might materially affect the outcome cannot be applied in advance of a partial initial decision. This is not fully correct. However, the

ease with which this factor can be applied will vary, in part, depending on whether a decision has issued and also depending on the extent to which the subject of the motion to reopen is related to an issue which has been litigated. Where the motion to reopen is related to a litigated issue, the effect of the new evidence on the outcome of that issue can be examined before or after a decision. Of course, the degree of certainty of the effect on the outcome, all other things being equal, will increase after proposed findings have been filed, and again after a decision has been issued. To the extent a motion to reopen is not related to a litigated issue, then the outcome to be judged is not that of a particular issue, but that of the action which may be permitted by the outcome of the licensing proceedings. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973).

As the Appeal Board well explained this factor, if the first two reopening factors of timeliness and significance of the issue are resolved in favor of the movant,

the Board must then proceed to consider whether one or more of the issues requires the receipt of further evidence for its resolution. If not, there is obviously no need to reopen the record for an additional evidentiary hearing. As is always the case, such a hearing need not be held unless there is a triable issue of fact.

In other words, to justify the granting of a motion to reopen the moving papers must be strong enough, in the light of any opposing filings, to avoid summary disposition. Thus, even though a matter is timely raised and involves significant safety considerations, no reopening of the evidentiary hearing will be required if the affidavits submitted in response to the motion demonstrate that there is no genuine unresolved issue of fact, *i.e.*, if the undisputed facts establish that the apparently significant safety issue does not exist, has been resolved, or for some other reason will have no effect upon the outcome of the licensing proceeding. (Footnote omitted.)

Id. See also and compare *Cerro Wire and Cable Co.*, 677 F.2d 124, 128-29 (D.C. Cir. 1982); *Independent Bankers Association of Georgia v. Board of Governors of the Federal Reserve System*, 516 F.2d 1206, 1220 and cases discussed at n.57 thereof (D.C. Cir. 1975), explained by *Costle v. Pacific Legal Foundation*, 445 U.S. 198, 341-42, 343 n.12 (1980).

The Appeal Board went on to note that the utilization of principles akin to those involved in summary judgment includes the right of the movant seeking to reopen not only to rely on showing that there is a triable issue in the face of opposing facts, but also or in the alternative to demonstrate

with particularity that it cannot now present facts essential to show a triable issue but that discovery would enable it to do so. *Id.* at 524, *relying on* 10 CFR §2.749(c) and Fed. R. Civ. P. 56(f). If the Board agrees, it could defer ruling on the motion to reopen until after discovery (or it could grant the motion to reopen the record without precluding a later standard motion for summary disposition of the contention or other resolution short of a full evidentiary hearing).

The Appeal Board added that,

while it is useful from an analytical standpoint to keep separate the factors to be considered on a motion to reopen, it will not always be possible, in passing upon the motion, to give them separate consideration. The questions of whether the matter sought to be raised is significant and whether it presents a triable issue may often be intertwined, and can be so treated, . . .

Vermont Yankee, ALAB-138, *supra* at 524.

Contrary to the implication of LILCO's pleadings, as recognized by LILCO at the conference (Tr. 21,204, Ellis), the factors to be applied in reopening the record are not necessarily additive. It is true that even if timely, the motion may be denied if it does not raise an issue of major significance (in this case, to plant safety). However, "a matter may be of such gravity that the motion to reopen should be granted notwithstanding that it might have been presented earlier." *Id.* at 523, *citing Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-124, 6 AEC 358, 365 and n.10 (1973). *See also Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 2), ALAB-474, 7 NRC 746 (1978).

We add that, in our view, the additional test of the criteria for reopening the record adds little, if anything, of practical import to the application of the factors for a late-filed contention in the circumstance of a truly new contention. This is because the reopening factors of significance of the issue and whether the issue presents genuine triable facts are inherently part of the calculus of factors for ruling on the admissibility of a late-filed contention. For example, the extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record is only meaningful when the proposed participation is on a significant, triable issue. In addition, even where a contention is measured solely under Section 2.714(a)(i), the extent to which the petitioner's participation will broaden the issues or delay a proceeding is properly balanced against the significance of the issue. If significance and triability of the issue were not inherently part of the overall balancing test for late-filed contentions, the illogical result would be that the significance of an issue could not weigh the balance in favor of admitting a late-filed contention before the record closes, but could weigh in favor of admitting the same contention filed even

later, after the close of the record. In our view, our reasoning and result below in denying some parts and admitting other parts of the contention would apply equally under either the reopening or the late-filed contention test, or under both of them.

THE COUNTY'S DIESEL GENERATOR CONTENTION

A copy of the County's entire contention, as it was filed as Exhibit 1 to the County's motion of May 2, 1983, is attached to this order. As we stated at the conference (Tr. 21,220), we find that the first two unnumbered paragraphs comprise a broad, nonspecific preamble alleging generally that LILCO violates broad General Design Criteria applicable to diesel generators and broad Quality Assurance criteria. The preamble understandably was not meant by the County to stand alone. However, if allowed to remain at all it appears that the boundaries of the contention are not ascertainable and, therefore, do not put the Board or the parties on sufficient notice of what the County would seek to litigate. This is particularly impermissible at this stage. Indeed, it is impossible to analyze the application to the contention of the criteria for reopening the record and late-filed contentions if the first two paragraphs are part of it. Accordingly, these first two paragraphs of the contention are rejected. The contention must rise or fall on the third unnumbered paragraph which alleges that LILCO has failed to assure required rapid starting and reliable operation of the emergency diesel generators, and on the five numbered subparagraphs alleging the reasons in support of the allegation.

The numbered paragraphs must be parsed separately to analyze whether they each meet the tests discussed above for admission as an issue in controversy at this stage of the proceeding.

Paragraph 1 (Preoperational Diesel Test Procedures)

Paragraph 1 of the proposed contention alleges that LILCO cannot assure reliable operation of the diesels because it has failed to conduct tests and review and approve test procedures and results adequately. The contention cites, as basis, IE Reports 82-35, 83-02, 83-07 and 83-08, and IE Enforcement Action ("EA") 83-20.

A brief and simple overview of the diesels may be useful at this point. There are three diesels of the same model at Shoreham, manufactured by the Transamerica Delaval Company. Each diesel is very large, rated at 3,500 KW (for the "100%" rating at 450 RPM), and has eight cylinders. This basic model has been manufactured for about thirty years by the vendor. It has been used for applications other than nuclear power plants,

e.g., for marine engines. The diesels are required, in the event of a loss of offsite electrical power, to provide the essential A.C. electrical power for the plant, including for emergency equipment necessary to safely shut down the plant in the event of a design basis accident. Even in the event of a design basis accident at 100% power and maximum core fission product inventory, only two out of the three diesels are required for safe shutdown. However, it is required by the NRC's "single-failure criterion" that there be three operable diesels in the event of a failure of one of them upon demand. Among other tests, the diesels are pre-operationally tested for a two hour run at their overload rating (nominal 3,900 KW, minimum 3,881 KW for Shoreham), which could be required for a short time period upon the occurrence of a maximum design basis accident, for a 22 hour run at the 100% rating, and a 72 hour run at the load required for relatively longer term maintenance of a safe shutdown condition after a design basis accident. In addition to load, the diesels must operate within other specified parameters (*e.g.*, coolant temperature) during these preoperational tests.

When filed on May 2, 1983, paragraph 1 was based on a number of violations identified by Staff inspectors in the 22 hour load and two hour overload test for one diesel. County Motion, at 6-7, County Response (May 31, 1983), at 19; Goldsmith Affidavit (attached to County Response and thereafter formally executed June 2, 1983), at 7-10. The crux of the violation is the failure, in the Staff's view, of LILCO to run the test either at the minimum of the full overload rating for the two hours, or to justify a range falling below that rating, and the failure of several layers of LILCO review (although short of still-pending final LILCO review) to note the deficiencies. There were also secondary matters noted involving means and intervals of data recording of the load, and also questions regarding the range of other monitored parameters of the diesels.

The request to reopen the record to admit this contention is very late, particularly in the circumstances of this case. After February 1, 1983, the only remaining items in the non-emergency planning segment of the evidentiary hearing were one portion of QA/QC held open and heard on February 22-24, 1983, to permit inquiry into particular QA violations set forth in the Staff's so-called RAT (Readiness Assessment Team) inspection, and the reopened hearing on Contention 7B held on April 5-8, 1983. Indeed, proposed findings on most issues were filed in January and the first half of February 1983, and were filed on all remaining issues except the reopened April hearing from late March through April 1983. This then was a time period in which the hearing was complete on many issues and essentially complete on remaining issues. In such circumstances, as the parties well knew, a time delay of even a few weeks more than necessary in filing a new contention, which delay would have little effect in a prehearing or perhaps

even a hearing phase, has a great effect after the hearing. This is particularly true where there were many weeks in March and even April 1983, during which timely raised significant issues could have been litigated with much less impact, if any, on the estimated date for issuance of our P.I.D.

A reopening of the record now (anytime after the May 2, 1983 date of the County's motion) to litigate a new contention would cause an extensive, significant delay in the completion of the non-emergency planning segment of the proceeding. Therefore, the County's showing on all of the other factors, particularly timeliness, significance of the issue (and whether there are genuine facts in dispute requiring litigation), and expected contribution of the County to developing a sound record, must be very substantial in order to find the balance in favor of reopening. It is the delay of the proceeding, not possible operation of the facility, which is pertinent. 10 CFR §2.714(a)(1)(v); *Enrico Fermi*, ALAB-707, *supra*, 16 NRC at 1766. However, as described above, if the Commission disagrees with our recommendation that a low-power license not issue in the present circumstances of offsite emergency preparedness, reopening the record now to litigate a new contention would also substantially delay (by at least several months) the possible issuance of a low-power license in August 1983 (in the event the upcoming P.I.D. finds that there is no other bar to issuance of a low-power license).

Against this background, paragraph 1 is very late. The diesel test violations were discovered by Staff inspectors in December 1982, and were noted without details in the January 20, 1983 cover letter to the RAT inspection (IE Report 83-02). Significantly, however, the diesel test was discussed at a January 25, 1983 management meeting between Region I of the NRC Staff and LILCO, which was attended by the County. On the record of January 27, 1983, the County's counsel discussed the NRC Staff finding of the diesel test violations in sufficient detail to disclose that the County then knew about the essential elements of the failures to run the two hour test at full overload and that several stages of the LILCO review process had not discovered this. Tr. 19,422-23 (Miller). We believe it fair and accurate to hold that the County had knowledge as of January 25, 1983, sufficient to raise the same paragraph 1 of the contention.

Even if we give the County every benefit, IE Report 82-35, dated February 24, 1983, was received by the County on or about March 8, 1983. This is the report which contains the formal NRC Staff inspection findings on the subject diesel test. A delay of almost two months in filing a contention based on this report is too long. The County's argument that it could not be expected to file the contention until the Staff issued its enforcement action on April 12, 1983 (EA Letter 83-20), which proposes to assess a fine of \$40,000 against LILCO, is fallacious. This enforcement

action adds no facts; the County has suggested none. The only knowledge added by EA 83-20 is the seriousness with which the Staff viewed the failure of LILCO's test engineer and reviewers to pay attention to required detail of the diesel test.⁸

LILCO has rerun the 22 hour and two hour load tests (among other pre-operational tests) for all three diesels. There is no remaining question requiring litigation on whether the diesels meet these tests. Tr. 21,233 (Higgins); Tr. 21,229-31, 21,244-46 (Goldsmith). Although the Staff had not completed its review of the tests as of the June 10, 1983 conference of parties, all parties agree on the now specified criteria. Whether the diesels satisfied the criteria is a readily ascertainable fact which the Staff can and will verify. The Staff's preliminary review was favorable to LILCO. IE Report 83-10, at 13 (May 27, 1983); IE Report 83-11, at 8-9 (May 27, 1983).

At the June 10, 1983 conference, the County stated it wants to litigate broadly the conduct by LILCO of all aspects of all diesel preoperational tests. The County had no specifics beyond the test violations noted in IE 82-35 other than: (1) A Staff noted test violation for LILCO's failure to have a recent written change notice to the diesel test procedure at the location where the tests were rerun (on April 27, 1983). IE Report 83-10, at Appendix A and 13 (May 27, 1983) (received after the County's written filings); and (2) a Staff follow-up item in IE Report 82-35 at 6-7, never previously cited in the County's motion or reply, involving a generic Staff circular regarding surveillance and maintenance of the corrosion inhibitor in the diesel lube oil coolant. Tr. 21,225-28 (Goldsmith). The inspection logically notes that the NRC Staff will require a corrosion inspection if LILCO's present failure to document past maintenance of the corrosion inhibitor cannot be resolved. Tr. 21,266 (Higgins).

It does not denigrate the importance of adherence to procedures to hold, as we do, that paragraph 1, even when supplemented with the two additional instances, does not give rise to a common pattern of failure to test the diesels properly (even if one can label the corrosion circular item as a test procedure). This is particularly true at this stage where the matter must be significant. Further, there is no concern for the reliability of the diesels based on the testing items. (To the extent the County believes the corrosion inhibitor item *may* have affected the cracked heads *if*, in fact, it was not

⁸ IE Report 83-07 (March 24, 1983) cited by the County in paragraph 1 is not pertinent to that contention on adequacy and review of testing. That report is the focus of paragraph 2. IE Report 83-08 (April 15, 1983), at pp. 17-18, continues to note the Staff's concern with "negative tolerances" in the range for the load tests, albeit in this instance as LILCO proposes in written procedures to rerun the tests.

maintained (Tr. 21,259, (Goldsmith)), it is subsumed by our treatment of the cracked heads issue under paragraph 3 of the contention.)

The County has not indicated what it would contribute to the record under paragraph 1, other than its desire to commence discovery and then *possibly* litigation of any diesel tests it has a question about. (Tr. 21,248-49 (Dynner)). This proposition patently is not an identified, specific significant safety concern for which a late contention should be admitted or the record be reopened.

To the extent any part of paragraph 1 may be construed not as a new contention concerned with the reliability of the diesels, but rather as a request to reopen and continue the QA/QC litigation, it is rejected. In addition to being out of time,⁹ the diesel test violations would not materially affect the result of the QA/QC contention on construction defects. The diesel pre-operational test procedures are collateral to the construction QA contentions (albeit not totally irrelevant) and, therefore, not worth the extensive inquiry which would take place (even if there were no delay to completion of the proceeding, which there would be on a reopening at this time). We have had a truly extensive litigation of QA/QC audit and inspection items, allowing the County to use its best examples. One or two more items at this late date, particularly collateral ones, would not change the result either way.

Paragraph 2 (Vibration)

This paragraph alleges that the diesels vibrate excessively, thereby preventing them from reliably performing, and that such vibration may reflect design and/or fabrication/erection deficiencies. The contention cites IE Report 83-07 for basis.

The cited IE Report is dated March 24, 1983 and was received by the County on or about April 4, 1983.¹⁰ The report (at 5-7) records the inspector's concern that the number and type of diesel incidents during preoperational testing, listed in IE 83-07, which were reported in LILCO deficiency reports over the past year, indicates "an apparent overall excessive vibration problem" with all three diesels, and that "the reliability for continuous operation and for standby electric power is questionable at this point," and

⁹ It is late for reconsideration as well if construed as raised initially on May 2, 1983. On January 27, 1983, we rejected the County's desire to expand the litigation of RAT inspection violations to include the diesel test as another example of why LILCO's final inspections could not be relied upon to uncover construction defects. Tr. 19,533 (Brenner).

¹⁰ Such a time-lag has been typical for receipt by the Board and parties of Staff IE Reports (and of LILCO technical "SNRC" letters to the Staff, including deficiency reports). For example, the Board received IE Report 83-07 on or about April 1, 1983 (a Friday).

that further trend analysis of the incidents is required to resolve the concern.

LILCO and, to a lesser extent the NRC Staff, argue that the County is untimely, because it should have known of the same past occurrences compiled by the inspector. If we were left with this, the question of good cause for the County's failure to file on time would be a close question. LILCO has not identified which of its deficiency reports to the Staff (which it claims the County had access to on discovery as early as the spring of 1982) should have alerted the County to file its vibration contention. All correspondence after the spring of 1982 between LILCO and the Staff, including deficiency reports, have been served on the parties (including the County). LILCO has not specified which of these should have alerted the County to file its vibration contention. The NRC Staff attached some deficiency reports to its pleading, but did not indicate which ones should have disclosed a vibration problem. As we read them, none of them discuss vibration. The one which arguably comes closest, involving a fatigue crack on a water pump impeller shaft caused by cyclic movement on an improperly tightened nut, does not imply, or even on reflection now, appear to be related to a diesel vibration problem. (Indeed, this item was closed out by the Staff itself in IE Report 83-11 (May 27, 1983), notwithstanding the fact that the Staff is still reviewing the items it considers possibly pertinent to vibration). In sum, the parties claiming sufficient prior knowledge by the County have not carried their burden. On the other hand, it does appear generally that the County had access on discovery (and, since the spring of 1982, by receipt) to the reported diesel occurrences. The County arguably should have been able to do what the NRC Staff inspector commendably did, that is, look at the number and type of occurrences and become concerned over the possibility of an overall common-cause vibration problem.

However, the balance on timeliness for a vibration contention shifts more clearly in the County's favor as a result of recent events. IE Report 83-10 (May 27, 1983), received by the Board on June 8, 1983, and discussed at the conference on June 10, 1983, reports (at 14) new "unresolved items" observed during testing on April 27, 1983 of all three diesels. A large amount of small diameter tubing (lube oil, fuel oil, water and air) was either loose, vibrating and/or not clamped properly. In addition, various lube oil and fuel oil leaks were observed while the diesels were running. Also, the exhaust lines had missing, torn and crushed insulation and flashing where the lines enter a concrete section outside the diesel rooms.

On May 20, 1983, LILCO reported (the oral report was made to the Staff on or about April 20, 1983), the failure of two high pressure fuel oil injector lines (on one cylinder each for two of the diesels) attributed to "fatigue induced by cyclic loading" from the pulsations of the fuel injector pump.

In addition, one of the incidents of cracking of components which are the subject of paragraph 3 of the contention (and are discussed under that sub-heading below) could be vibration related. This incident involves partial cracking of a rocker arm assembly bolt, also attributed to fatigue induced cyclic loading in LILCO's written report to the Staff, dated May 4, 1983 (reported orally to the Staff on March 30, 1983 and known to the County before the written report as stated in the contention). We do not, at this stage, completely dismiss the possibility that the occurrences of cracking of the cylinder heads, discussed under paragraph 3, may be related to vibration. However, as there is presently no apparent reason to connect it, we assume it is unrelated for the sole purpose of ruling on the admissibility of paragraph 2.

Dated from receipt of IE Report 83-07, the County was not unreasonably untimely (about 1 month), although the contention could have been filed by mid-April. Furthermore, IE Report 83-10 adds items of apparent concern regarding vibration, as arguably, does the rocker arm bolt written deficiency report of May 4, 1983, and the fuel line cracking failure written report of May 20, 1983. After initial events were solved, in the late 1981-fall of 1982 period, there was a relatively long time-lag before the newer events were disclosed, raising the concern which depends on the cumulative nature of all the events with an apparent nexus to vibration. We believe that a reasonable basis to allege a possible common-cause vibration problem for many events, disparate in time and precise nature, only became reasonably apparent in the April 1983 time frame.

Even if the County could have acted with greater alacrity before the issuance of IE Report 83-07, the later reported events would have affected either preparation for any litigation (LILCO's review of the vibration question, including these events, is expected to be complete the end of June 1983; the Staff's review is estimated to be complete by the end of July 1983), or the completion of any litigation on vibration. In addition, as discussed below, we find that at this juncture there is a genuine, triable issue of possible safety significance related to vibration of the diesels for the long term, but not for the short term, and therefore: (a) any arguable untimeliness by the County is ameliorated since litigation of the vibration contention would not affect the possibility of low-power testing; and (b) for the long term, the other factors, including significance of the issue and contribution of the County, weigh sufficiently in the County's favor.

The conference of parties was of great assistance in understanding the facts and positions of the parties on the vibration issue. It is not necessary to set forth at length all of the facts; it would approach a "mini-decision" on

the merits to do so. We have taken all of the affidavits, written arguments, and statements at the conference into account. We summarize the most important aspects in sufficient detail to disclose our rationale.

Diesels, such as the ones at Shoreham, vibrate normally. It would not be unexpected that problems of vibration of at least appurtenances attached to the diesels appeared during preoperational testing. Tr. 21,329-30 (Nicholas). However, the number and timing of the occurrences at Shoreham was of concern to the Staff. The County believes that the nature of some of the occurrences, involving components of the diesel itself, rather than appurtenances, also support a basis for concern. LILCO, for its part, believes that only the earlier problems in the late 1981-fall of 1982 period (*i.e.*, vibration of turbocharger, exhaust bolting, and the coolant system funnel) were related to vibration. LILCO asserts they were isolated, typical instances requiring localized support or modification of the item, and not caused by excessive vibration of the diesels themselves. The Staff agrees that there are many subsequent running hours on the diesels showing that those earlier problems are solved, and that there are no later occurring uncorrected items vibrating at this time (tubes noted in IE Report 83-10 have been attached securely). There have been substantial testing hours with the new rocker arm bolts, at least, and no further internal high pressure fuel line problems have occurred since the two early March 1983 cracking failures. *See e.g.*, Tr. 21,272-77, 21,323-30 (Nicholas, Higgins); Tr. 21,282-84, 21,288-91 (Youngling); Tr. 21,345-48 (Goldsmith); Youngling Affidavit (May 16, 1983, attached to LILCO's Opposition of May 16, 1983), at 10-14.

Importantly, LILCO has provided measurements showing that the baseline diesel vibration is well within the desired normal level. Tr. 21,278-79 (Youngling). This is a readily ascertainable level, which the Staff will verify by examining LILCO's data (to be presented the end of this month). Tr. 21,322 (Higgins). The Staff inspector never observed the diesels appearing to vibrate excessively. Rather, he based his concern on all the summarized occurrences. Tr. 21,323 (Nicholas). The Staff inspector also agrees with LILCO that his observations regarding vibration of the small diameter lines in IE Report 83-10 is not related to a diesel vibration problem, but to inadequate clamping of the lines, since corrected by LILCO. Tr. 21,318-21 (Higgins, Nicholas). The Staff also states that the fuel leaks and crushed insulation items in that report are unrelated to vibration (although the Board neglected to ask the bases for this view by the inspectors). *Id.*

In sum, any main baseline excessive diesel vibration does not appear to exist. The Staff will verify this, pursuant to the stated measurement criteria prior to any operation of the reactor. The Staff will not permit low-power testing, if the measurements do not satisfy the criteria. As with the load

tests, the readily ascertainable nature of the item allows it to be left for Staff verification outside of the litigation. See e.g., *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), LBP-82-46, 15 NRC 1531, 1535-36 (1982) (straightforward and objective decibel measurements of sirens). Cf. *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-530, 9 NRC 261 (1979), citing *Consolidated Edison Co. of New York* (Indian Point, Unit 2), CLI-74-23, 7 AEC 947, 951-52 (1974) ("minor procedural deficiencies" may be left for post-hearing resolution by the Staff, but not controversial questions in controversy in the proceeding).

The required demonstration that the baseline vibration meets the criteria, combined with the fact that all identified vibration-related items have been remedied, and that they have not recurred with substantial, additional testing hours, give reasonable assurance that any induced vibration problems (occurring even though the baseline diesel vibration is normal) would be a problem developing only from long term operation failure mechanisms. Tr. 21,348-49 (Goldsmith). The diesels, given their emergency standby function, will operate for only relatively short periods (including monthly surveillance tests), even if needed for emergency service, during any low-power testing.

However, we cannot go further and conclude there is nothing of significance to litigate in the long term either. It is not a readily ascertainable matter to say that there will be no vibration problems which could cause, in the long term, significant failures. Failures such as fuel injector lines, rocker arm bolts, and fuel, air and water tubing, could fail at least individual cylinders in the diesel. Failure of even one cylinder could prevent the diesel from starting or running at all, or could degrade needed power output. Tr. 21,296 (Youngling). If needed, at least two of the three diesels are required to start up very rapidly, and at least one must operate briefly in an overloaded condition, at least when the reactor is operating at substantial power. There could be, therefore, safety significance in the long term.

We cannot now find that there are no genuine, material issues to litigate unless we accept all of LILCO's position. Among other things, we are unable to accept LILCO's distinction between excessive diesel vibration and cyclic loading-induced fatigue as causes of the bolt and the high pressure fuel line failures, at least in advance of discovery by the County. Tr. 21,291-92 (Youngling). The Staff does not make the same easy distinction as LILCO. Tr. 21,336-39 (Higgins). We do not, of course, preclude a successful motion for summary disposition after discovery, or a settlement approved by us, in advance of an evidentiary hearing.

Similarly, it does no disservice to the Staff's efforts in pursuing the diesel concerns, which preliminarily appear to us to have been commendably excellent to date, to hold that such efforts do not replace the forum of an adjudicatory hearing, if merited by other applicable factors, when there remain genuine, significant issues in controversy which do not preliminarily appear resolvable for the long term by readily ascertainable criteria.

In addition, the extent to which the County's participation may reasonably be expected to contribute to a sound record weighs heavily in its favor. Its consultant, Mr. Goldsmith, has nuclear experience and education, along with marine engineer diesel engine experience (including a U.S. Coast Guard license for diesel engines awarded after an examination). Significantly, the County also proposes to retain, to the extent appropriate to the issues, two identified individuals with substantial credentials regarding diesel engines. *See* qualifications of Messrs. Meulengracht and Christensen, furnished by counsel's letter to the Board of June 15, 1983. Concomitant with the level of such independent, professional expertise, we expect that if further investigation discloses no remaining vibration problem, the record will benefit from that view by the County's experts.

Paragraph 3 (Cracking of Components)

As discussed under paragraph 2, this paragraph includes the rocker arm bolt crack deficiency report. All the rocker arm bolts have been changed for ones that are much sturdier (now being used for the vendor's new, 40% more powerful, "R-5" diesel). Youngling Affidavit, at 15-16; Tr. 21,295 (Youngling). The new bolts, unlike the old ones, were tested ("mag particle") for structural irregularities at the factory. Substantial testing hours have been accrued on the Shoreham diesels since the new bolts were installed with no problem. Tr. 21,384-85 (Youngling (agreeing with Ellis)); Tr. 21,387 (Youngling); Youngling, Affidavit, at 16. We conclude that the only remaining triable significance of the bolt issue is its possible connection with the vibration contention, and it may be considered under any paragraph 2 litigation. Goldsmith Affidavit, at 12. The one remaining long term question regarding the bolts directly should be easily resolved without resort to litigation. That question is the scope of LILCO's plans (undecided at the time of the conference of parties, Tr. 21,385-89 (Youngling)), if any, to prudently inspect a sample of the new bolts at reasonable intervals of operation of the diesels (not too soon or too long), perhaps including before any fuel-loading given the substantial testing hours accrued with the new bolts. Tr. 21,368-69 (Goldsmith). We direct LILCO to discuss such a testing proposal with the Staff and the County, reporting any agreement or disagreements. Subject to our approval of such

surveillance, or approval of any position by LILCO as to why such sampling should not be done, we find there is nothing left to litigate regarding the reliability of the rocker arm bolts.

Paragraph 3 also includes a LILCO deficiency report of cracking in one cylinder head in each of the three engines and concomitant water jacket leaks into the affected cylinders. LILCO's written report to the Staff is dated April 15, 1983, and the oral report was made on March 8, 1983. Although the County knew of the occurrences as early as its counsel's March 23, 1983 letter to LILCO's counsel, there is no reason to assume, based on the brief reference in that letter, that sufficient details were known to form a properly based contention. Although this issue could delay issuance of a low power license, it will only do so if LILCO cannot establish its lack of significance for low power in summary procedures. If LILCO cannot readily establish its lack of significance for low-power, the issue is significant enough to counterbalance the delay in the proceeding, including any delay engendered by the County arguably filing the contention about five weeks later than it could have. Moreover, based on the same experts discussed above, the County may be expected to assist in developing a sound record if the issue cannot be disposed of summarily.

The safety question is significant because water in the cylinders could prevent start-up, or at least necessary rapid start-up, of the diesel, or could reduce power if a leak occurs while the diesel is operating. The deficiency report does not give a reason for the cracked heads. Three out of 24 cylinder heads, 12.5%, exhibited cracking. Goldsmith Affidavit, at 15-16. At the conference, LILCO identified the cause as flaws in the vendor's manufacturing casting process which could cause hot tears resulting from inclusions and thinning of walls resulting from floating of the core pattern of the heads. LILCO plans to replace all the heads with new heads with some minor design changes. However, LILCO stresses that the big advantage of the new heads is the improved casting technique and other changes in manufacturing, testing, and quality control of the process by the vendor. Tr. 21,297-305 (Youngling, Kammayer); Youngling Affidavit, at 16-19. However, LILCO may not be able to change all the old heads before start-up since the new heads may not be available when LILCO might otherwise be permitted to begin low-power testing. The three cracked heads and some additional heads have been replaced. Tr. 21,310-11 (Youngling).

In the interim, LILCO has proposed a surveillance procedure after every test run of the diesels to assure there is no water in the cylinders. LILCO believes this to be acceptable because it asserts the crack in the cylinder head is non-propagating and will only open when hot (*e.g.*, during a test run). Therefore, LILCO reasons, if there is no water leakage after a test run, there will be no water leakage during the period of cold standby

of the diesels. LILCO also believes the crack won't affect operability if it occurs while the diesels are being depended upon in a non-test situation because the amount of water leakage is too small (the larger of the three leaks was 9.25 gallons per hour). Tr. 21,307-10 (Youngling).

The NRC Staff is still reviewing this matter and is not in a position yet to agree or disagree with LILCO's premises regarding the cause of the problems or the lack of effect on necessary diesel functions. Therefore, the Staff does not yet agree that the new heads need not be put in before low-power testing. Tr. 21,331-35 (Higgins). At the conference, the Board raised the question of whether the diesels had to operate at full power, and how many diesels would be required, in the event of a loss of offsite power during a low-power (up to 5%) test program. This analysis had not been performed.

We cannot say that there is no material issue of fact, or that this issue is not significant, even for a low-power testing program. LILCO's views on the nature and characteristics of the cylinder head cracks, and that the interim testing program will prevent any problem may be correct. However, they are not based on readily ascertainable facts such that there is nothing in genuine controversy. Accordingly, we admit a contention that the diesels may not start or operate as required unless and until the cylinder head cracking problem is resolved for the Shoreham diesels.

The parties are, of course, free to agree, subject to our approval, that facts set forth in the agreement resolve the contention totally, or at least for any period of low-power testing. In addition, LILCO and/or the NRC Staff is free to move for summary disposition of the contention. To achieve a finding by us that this contention has no effect at least on possible low-power testing, the movants are advised to establish that there is no genuine issue of material fact that:

- (1) a surveillance procedure or alternative will be employed which will detect any water leakage in quantities of concern for needed diesel start-up and operation from the old heads (and from the new heads unless and until it is established that the new heads will not crack given the established causes of the cracks in the old heads) after the diesels have been run; and
- (2) that there will be no water leakage of concern for the needed function of the diesels during shutdown periods after the last operation and surveillance for water leakage of the diesels; and
- (3) that there will be no water leakage of concern for the needed function of the diesels during operation when needed in a non-test situation if proposition (1) and (2) are established.

See Tr. 21,362, 21,365-66 (Youngling); Tr. 21,331-35 (Higgins). We do not preclude the possibility of a showing under these propositions, if

LILCO believes it must rely on it, that the needed function of the diesels during low-power testing of the reactor is different than during normal full-power operation.

The Board is concerned, concededly based on the incomplete, preliminary information from LILCO, that the diesel vendor may not have informed LILCO of problems in cylinder heads which occurred in other diesels of the same model because of faulty vendor manufacturing and quality testing processes. Presumably as a result of problems elsewhere, the vendor had changed its process years ago, albeit apparently after the Shoreham diesels were manufactured. Tr. 21,302-306 (Youngling). The NRC Staff commendably is looking into this reporting aspect. Tr. 21,306-07 (Higgins). Our concern is limited to the required reliability of the Shoreham diesels; the Staff may rightly be concerned also with diesels at other nuclear plants. Some elements of any vendor reporting concerns may become pertinent to the portions of the County's contention which we are admitting although, if so, the focus will be on identifying the causes of any past failures within the scope of the contention, as admitted, so as to assure that changes, in fact, eliminate the problems of the past.

The Board wishes to know whether further problems of significance may be known to the vendor and have not been corrected for the Shoreham diesels. Such concern will be heightened or lessened by whether, in fact, past cylinder head cracking events (and past rocker arm bolt cracking and high pressure fuel injector line cracking) were known by the vendor and unreported to LILCO. Tr. 21,293-95 (Youngling, Kammayer); Tr. 21,314-15 (Youngling). (As noted, the basic model diesel used at Shoreham has been in use for about thirty years in various applications.) Accordingly, in order to determine our further course, if any, for Shoreham diesel issues beyond the vibration and the cylinder head cracking concerns, we direct the NRC Staff to perform an inquiry into the process and criteria in place and employed by the vendor for reporting deficiencies to nuclear power plant owners using its diesels, and whether the Staff identifies other past defects of significance for the design and use of the Shoreham diesels which the vendor has not reported to LILCO and/or the Staff. LILCO may also furnish such a report to us if it wishes to do so, based on its asserted inquiries to the vendor subsequent to and in light of the apparent examples of non-reporting. Tr. 21,304-05 (Youngling).

We view this as a report which need not be furnished to us prior to any possible low-power testing. If a specific problem presently unknown to us is discovered in the course of the Staff's inquiry, the Staff is free to take any direct action deemed necessary by it, along with reporting the matter to the Board and the parties. We request the Staff (and LILCO if it wishes to file a report) to furnish, as soon as practicable, an approximate schedule for its

report of this vendor inquiry to us. We emphasize that our interest at this juncture is in a report of the facts which may bear on the needed reliability of the Shoreham diesels, and not with any enforcement action which the Staff may or may not wish to consider outside of this hearing.

Paragraph 4 ("Lock-out" on Hot Restart)

This paragraph may be summarily rejected. All parties agree that it was based on a misunderstanding by the County of an oral conversation with the NRC Staff. In fact, the diesel did not "lock-out" or fail to start as required during the hot restart test because of a diesel problem. Rather, although apparently not realized by the test personnel, the electrical power for the diesel start signal was not in service. The diesels have successfully been tested for hot start-up. Youngling Affidavit, at 19-21; Goldsmith Affidavit, at 16-17.

However, the County wants to include this item as another example to litigate within paragraph 1 of the contention on diesel test procedures. Tr. 21,399 (Goldsmith); Goldsmith Affidavit, at 16-17. The County's belated attempt to convert this non-problem into an example of significance for the conduct of the test program as it would bear on the assurance of reliability of the diesels borders on the frivolous. It is not consistent with the County's desire that we view its participation as being motivated by serious professional concern over significant safety issues related to the diesels. Where warranted, we have given the County's proposed diesel contention serious consideration, as discussed at length in this order. Paragraph 4, on the other hand, warrants no such consideration. It is rejected.

Paragraph 5 (Trend Analysis)

The County here embraces the NRC Staff inspector's recommendation, in IE Report 83-07, that all past diesel problems be analyzed for trends to assure identification of any underlying problems. LILCO is performing a trend analysis and will present it at a public meeting with the NRC Staff now scheduled for the end of June 1983. Youngling Affidavit, at 21-24; Tr. 21,392-94 (Nicholas).

To the extent pertinent to the vibration contention (paragraph 2), the trend analysis may provide material evidence, but it will be litigated under the vibration subject. The County has not provided any specific contention in paragraph 5. We do not permit a possible broad inquiry into each and every diesel problem (because the problems are charted in a trend analysis) in the absence of any showing of significance and a contention with known boundaries and bases. *See* Tr. 21,404-08 (Goldsmith, Dynner). The scope

of admissible issues, even in a normal time frame and perform at this stage requiring reopening, does not automatically expand to the entire spectrum of NRC Staff IE inspections and reviews which the Staff may properly think prudent to conduct in the performance of its wide-ranging responsibilities. This paragraph is rejected.

LILCO's presentation to the NRC Staff is scheduled for June 30, 1983, at a meeting open to the public. We expect the County to attend. In addition, we direct the parties to confer on a schedule for discovery (to be expedited by informal access to information and documents, and depositions if desired), the filing of any settlement agreements or motions for summary disposition, and any necessary testimony and hearing sessions. The parties shall file a schedule report, noting agreements or disagreements, so that it is received by the Board by July 6, 1983. The Board would not hold a hearing on the vibration contention, paragraph 2, earlier than mid-September 1983. Due to its possible impact on issuance of a low-power license, the Board will consider holding a hearing on any low-power aspects of the cylinder head cracking issue as soon as practicable, if such a hearing is necessary due to failure to settle or obtain summary disposition of at least the low-power aspects of this issue.

For the reasons stated above, the County's motion to reopen the record and admit a new contention regarding the diesel generators is granted in part and denied in part.

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**Lawrence Brenner, Chairman
ADMINISTRATIVE JUDGE**

Bethesda, Maryland
June 22, 1983

Attachment: (County Contention)

ATTACHMENT TO LBP-83-30

Diesel Generator Contention

Suffolk County contends that LILCO has failed to comply with NRC regulatory requirements designed to assure the rapid starting and reliable operation of the Shoreham emergency diesel generators. The specific regulations violated by LILCO are 10 CFR Part 50, Appendix A, GDC 1, 17, 18, 33-35 and 38 and 10 CFR Part 50, Appendix B, Criteria III, V, X, XI and XIV.

GDC 17 requires LILCO to establish an onsite electric power system that permits the functioning of structures, systems and components important to safety. As further specified in GDC 33-35 and 38, the system required by GDC 17 must be sufficient to provide capacity and capability to assure that (1) acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents. Further, under GDC 18, the system must also be designed with a capability to test periodically the operability of the system under conditions as close to design as practical. Under GDC 1, the emergency diesel generators must be designed, fabricated, erected and tested to quality standards commensurate with the safety functions to be performed. Further, the Shoreham emergency diesel generators are subject to the specific Appendix B requirements set forth in Criteria III, V, X, XI and XIV, all of which are intended to ensure reliable operation of the diesels.

In violation of regulatory requirements, LILCO has failed to ensure rapid starting and reliable operation of the Shoreham emergency diesel generators. The data supporting this contention are:

- (1) LILCO has failed to test adequately the emergency diesel generators, and has failed to ensure adequate review and approval of test procedures and test results, as documented in I&E Reports 82-35, 83-02, 83-07 and 83-08 and I&E Enforcement Action 83-20. Without adequate testing, reliable operation cannot be assured.
- (2) The diesels have been subject to excessive vibration, as documented in I&E Report 83-07. Such vibration may reflect a design defect or a fabrication/erection deficiency or a combination thereof. In any event, such vibration prevents the diesels from reliably performing their intended functions.
- (3) The diesels have suffered from cracking of components, as documented by LILCO's verbal reports to NRC Region I on March 8

and 30, 1983, and LILCO's written report, SNRC-873, dated April 15, 1983.¹ These deficiencies have included water jacket leaks which have the potential to decrease power output and interfere with rapid startup of the diesels.

- (4) One of the diesels "locked-out" (*i.e.*, would not restart) when hot restart was attempted during testing.²
- (5) LILCO has failed to prepare an adequate trend analysis of the diesel problems and occurrences, as documented by I&E Report 83-07. Such failure means that there can be no assurance that these diesels have been adequately analyzed to ensure reliable performance of required functions.

The County contends that the foregoing deficiencies document that LILCO has failed to comply with the aforementioned regulatory requirements as they pertain to the Shoreham emergency diesel generators.

¹ LILCO's written report concerning the deficiencies verbally reported to Region I on March 30, 1983 has not yet been filed.

² I&E Bulletin Nos. 83-03 and 83-17, issued in March, indicate that there might be a generic problem with the ability of the emergency diesel generators to perform a hot restart.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Peter B. Bloch, Chairman
Dr. Oscar H. Paris
Mr. Frederick J. Shon**

In the Matter of

**Docket No. 50-155
(Spent Fuel Pool Amendment)**

**CONSUMERS POWER COMPANY
(Big Rock Point Plant)**

June 24, 1983

Intervenor's allegation of misrepresentation is dismissed pursuant to a previous decision by the Director of Nuclear Reactor Regulation. Parties are cautioned not to make serious allegations without first inquiring into possible explanations.

**RULES OF PRACTICE: MISREPRESENTATION
ALLEGATIONS**

Before a party makes a charge of misrepresentation, it should first attempt to obtain an explanation for the inconsistency that it suspects is a misrepresentation.

**MEMORANDUM AND ORDER
(Allegation of Misrepresentation)**

On May 17, 1983, Christa-Maria, *et al.* (Christa-Maria) filed a "Motion Concerning Misrepresentations by Licensee." The motion stated that in a November 16, 1982, affidavit David J. VandeWalle, Nuclear Licensing Ad-

ministrator for Consumers Power Company (applicant), had alleged that a required inspection of the Big Rock reactor vessel and internals could not be completed unless Consumer Power's operating license were amended, permitting storage of a full reactor core in the spent fuel pool. Christa-Maria's motion also stated that Consumers Power is now accomplishing the required inspection without an amendment, by shifting fuel around rather than utilizing the fuel pool for a full-core offload.

Christa-Maria inferred from these facts that applicant had engaged in a "continuing misrepresentation" and it published its allegations broadly, to the Commission, the Appeal Board and the Licensing Board. At this Board's suggestion it also filed a request for action by the Director of the Office of Nuclear Reactor Regulation under 10 CFR §2.206.

On June 16, 1983, the Director issued his decision under 10 CFR §2.206, exonerating Mr. VandeWalle and applicant entirely, based on facts presented in affidavit form in response to the allegations. We have reviewed our own record in light of the Director's reasoning and decision and we adopt his conclusions as our own.

In the context of our responsibilities as a Licensing Board, we have two footnotes of our own to add. First, the VandeWalle affidavit was filed by applicant in support of a motion that the Board expedite its calendar to accommodate applicant's operational needs. When the facts in that affidavit changed, we would have preferred that we receive timely notice of that fact; however, there is no harm to this proceeding from this particular delay in informing us. All parties have accepted a leisurely pace for this proceeding because of a continuing dialogue between applicant and the Staff of the Commission concerning safety issues.

Second, we are concerned that Christa-Maria may have been ill-advised to characterize applicant's conduct as "misrepresentation" without first requesting an explanation. Christa-Maria could have requested a Director's decision about whether or not there was an inconsistency in our record, without characterizing the inconsistency in advance as "misrepresentation." We urge all parties to conduct themselves with restraint so that no person's reputation will be unduly affected by the filings in this proceeding.

ORDER

For all the foregoing reasons and based on consideration of the entire record in this matter, it is this 24th day of June, 1983,
ORDERED

Christa-Maria, *et al.*'s Motion Concerning Misrepresentations by Licensee, filed on May 17, 1983, is *denied*.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Dr. Oscar H. Paris
ADMINISTRATIVE JUDGE

Mr. Frederick J. Shon
ADMINISTRATIVE JUDGE

Bethesda, Maryland

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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)

June 27, 1983

A State government which has been working closely with county governments on the emergency planning process cannot gain late admission for an emergency planning contention because it was "surprised" to learn at a hearing about inadequacies in those county plans. However, the Licensing Board reserved the question of whether it would raise a question *sua sponte* concerning the adequacy of the emergency plans if the review conducted by the Federal Emergency Planning Agency was not performed in sufficient depth.

RULES OF PRACTICE: LATE CONTENTION (GOOD CAUSE)

A State which has been working closely with county governments on the emergency planning process cannot gain late admission for an emergency planning contention because it was "surprised" to learn at a hearing about inadequacies in those county plans.

RULES OF PRACTICE: *SUA SPONTE* ISSUES

The Federal Emergency Planning Agency's review of emergency plans should establish that the criteria of NUREG-0654 have been satisfied or that alternative means of meeting those criteria have been provided. Failure to conduct such a review, in enough depth to assure conformance of the plans, could cause the Licensing Board to raise the issue *sua sponte*.

MEMORANDUM AND ORDER (Late-Filed Contention on Emergency Planning)

On June 9, 1983, the State of Texas filed a motion for the admission to the proceeding of a late-filed contention on emergency planning. We have decided to deny this contention for failure to meet the late-filing criteria of the procedural rules (10 CFR §2.714(a)(1)).

We reject the State's claim that it had good cause for late filing. When the State's claim of good cause is distilled, it amounts to a claim that it was surprised by the May 20, 1983 testimony of Mr. Larry J. Skiles and Clarence L. Born, particularly those portions of the testimony appearing on Tr. 7237 and 7264. The State alleges that this testimony alerted it to the fact that there were irremediable deficiencies in the counties' emergency plans. So alerted, the State also came to question whether there has been testimony in this concerning the commitment, expertise and resources that Somervell and Hood counties may marshal in order to implement adequate emergency response plans.

We find this claim of good cause for late filing to be unacceptable. An agency of the State of Texas is guiding the local planning process. That agency, the Division of Emergency Management, Texas State Department of Public Safety, presented extensive testimony in our proceeding. We consider that the agency's knowledge about planning in Somervell and Hood counties is the knowledge of the State. Consequently, we conclude that the State of Texas has had continuing knowledge of the adequacy or inadequacy of county plans. To hold otherwise would require us to honor a hypothetical communications barrier between two state agencies, the Office of the Attorney General and the Division of Emergency Management. This we cannot do. The Attorney General represents the State; the knowledge possessed by the State is knowledge attributable to the Attorney General.

Likewise, we find that the State of Texas has other means to ensure the adequacy of emergency planning. If the local counties lack resources, the State can supplement them. If local plans fail to meet federal standards, the State can exercise its considerable powers of persuasion to upgrade those

plans. Should the local counties prove to be intransigent to State entreaties (and there is no evidence of intransigence), the State can bring these matters to the attention of the Federal Emergency Management Agency and to the attention of the Staff of the Nuclear Regulatory Commission.

There also is no question that admission of the State's contention at this late date would broaden the issues and risk delay of the proceeding. The other two factors do not, in our opinion, outweigh the factors we have explicitly addressed. Consequently, the balance of the factors governing the admission of late contentions weighs against the late-filed contention of the State of Texas. While we are heartened that the Attorney General of the State of Texas has demonstrated a serious interest in upgrading the emergency plan, we must deny this particular forum as a means for accomplishing his purposes.

Having rejected this late-filed contention does not necessarily end the interest of this Board in the issues raised by the State. It is our impression that the Federal Emergency Planning Agency divides its responsibilities into two parts. With one portion of its responsibilities, the evaluation of local planning exercises, we have no grounds for dissatisfaction. However, the other portion of FEMA's review is to determine the compliance of state and local plans with the NUREG-0654 criteria. It is our concern that FEMA's review tends to be conclusory, failing to inquire adequately into whether local jurisdictions have planned sufficiently or have summoned sufficient resources to meet their planning obligations. There also does not seem to be any systematic evaluation of whether deviations from NUREG-0654 criteria, based on local law or other planning exigencies, are adequate to satisfy the Appendix B criteria that govern planning.

As an example of our concern about the conclusory nature of FEMA review, we offer the following excerpts from our transcript:

JUDGE BLOCH: . . . Does this plan contain an assessment of which people participating in the plan require training?

WITNESS BENTON: No.

JUDGE BLOCH: How do you know that the people who require training will receive it? If you don't know who the people are who require it from the plan, how do you know that there are plans so that the people who require training will get the training?

WITNESS BENTON: I guess by them [the people who need the training] asking us, or telling us, or there is evidence in the implementation of the plan that training is necessary.

* * *

JUDGE BLOCH: Are there criteria on training that require that the people who need training will receive it?

WITNESS BENTON: No.

JUDGE BLOCH: There are no evaluation criteria — this is your specialty now—on training that require that the people who need training to implement the plan will receive it?

WITNESS BENTON: No. The criteria does not address the specifications for training of those individuals who have to implement the plan. . . .

* * *

JUDGE BLOCH: Page 75 [of NUREG-0654], evaluation criterion 1: “each organization shall assure the training of appropriate individuals.” What does that mean?

WITNESS BENTON: It implies to me anyway that there will be some training done, but it does not indicate what training or to what extent.

JUDGE BLOCH: It says, “assure the training of appropriate individuals.” Don’t you need to start with a list of appropriate individuals and then compare the training that is to be provided to the list of appropriate individuals?

* * *

JUDGE BLOCH [continuing, later in the transcript]: Don’t you have to list the off-site response organizations, find out who is in them, and see that they are going to receive training?

WITNESS BENTON: No more than simply listing police department, fire department.

JUDGE BLOCH: In other words, if they offer the course to those people and no one takes it, then they “participate in and receive training”?

WITNESS BENTON: I would say that we have no mechanism for following-up to determine how many people in those organizations have had what might be considered to be appropriate training.

JUDGE BLOCH: Why not at least see that the plan states that they have been identified and that the facilities, that the training that is being provided, is adequate for the number of people involved?

WITNESS BENTON: I think the plan is to say that they will receive the training, but we do not have a tool for measuring to what extent this training might have been accomplished.

JUDGE BLOCH: How large is the training operation that is anticipated with respect to the Comanche Peak plant? How many individuals will be given training?

WITNESS BENTON: Again we would have to rely pretty much on the utility to do the training for those people. FEMA, while having a responsibility for that area of expertise, really does not have all of the training available to those individuals who need it.

JUDGE BLOCH: We have a plan. What is provided in the plan about the number of individuals who will be given training?

WITNESS BENTON: I don't know that the plan really addresses a specific number.

JUDGE BLOCH: And how many people are involved in the organization that are supposed to receive training?

WITNESS BENTON: I don't know.

Tr. 7435-7441.

Following this dialogue with the witness, FEMA's lawyer attempted to demonstrate that the adequacy of training will be assessed during the emergency planning exercise. However, this appears to us to be a highly unreliable way to assess training, since the exercise will not involve any actual releases of radioactive materials and FEMA will have only a limited ability to observe the use of training during the exercise. Tr. 7441-7451.

We cite this passage as an illustration of FEMA's approach to the evaluation of a written plan. It is our conclusion that FEMA's use of this level of review of a plan does not adequately assure that a paper plan will work and that a review of an exercise of the plan does not adequately fill the gap left by inattention to planning details. Consequently, we are uneasy about the planned review of emergency planning.

It is not clear at this point whether we would consider a final FEMA review at this level of detail to be cause for us to declare this issue to be part of this case, *sua sponte*. When FEMA finishes its review, we may consider whether possible inadequacies in the emergency plan give rise to a serious safety issue. A determination on our part that deficiencies are "serious," given the sparse population of the emergency planning zone, would be difficult for us to reach; but we expect to face this issue squarely if the time comes while the record of this case is still open. We do not now decide whether it would be appropriate to keep the record open solely for the purpose of being able to consider the significance of the FEMA final report. Any responsiveness of FEMA to our concerns obviously would be significant at the time such an issue may be raised.

ORDER

For all the foregoing reasons and based on consideration of the entire record in this matter, it is this 27th day of June, 1983,

ORDERED

That the June 9, 1983 motion of the State of Texas for the Admission of a New Contention Regarding the Adequacy of Emergency Planning is *denied*.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Walter H. Jordan
ADMINISTRATIVE JUDGE

Kenneth A. McCollom
ADMINISTRATIVE JUDGE

Bethesda, Maryland

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Helen F. Hoyt, Chairperson
Emmeth A. Luebke
Jerry Harbour**

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)**

June 30, 1983

The Licensing Board rules on two motions for summary disposition and grants in part and denies in part these motions.

RULES OF PRACTICE: SUMMARY DISPOSITION

When a proper showing for summary disposition has been made by the movant, the party opposing the motion must aver *specific* facts in rebuttal. 10 CFR §2.749(b). Moreover, where the movant has satisfied his initial burden and has supported his motion by affidavit, the opposing party must proffer countering evidential material or an affidavit explaining why it is impractical to do so. *Id.*; Fed. R. Civ. P. 56(e) and Advisory Committee Note; *See Adickes v. Kress & Co.*, 398 U.S. 144, 160-61 (1970).

RULES OF PRACTICE: SUMMARY DISPOSITION

Answers to interrogatories can be used to counter evidentiary material proffered in support of a motion for summary disposition, but only if they

are made on the basis of personal knowledge, aver facts that would be admissible as evidence, and are made by a respondent competent to testify to those facts.

**REGULATIONS: INTERPRETATIONS
EMERGENCY PLANS: EVACUATION TIME ESTIMATES**

NUREG-0654, FEMA-REP-1 (Rev. 1): "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (Nov. 1980) may be given considerable weight in determining what must be included in the evacuation time estimates required by the NRC regulations (10 CFR §50.47, and 10 CFR Part 50, App. E). Evacuation estimates should consider adverse conditions and simultaneous evacuation, but need not include an estimate of notification preparation time.

**MEMORANDUM AND ORDER
(Ruling on Motions for Summary Disposition)**

MEMORANDUM

As discussed below, the Board grants in part and denies in part Applicants' Twenty-First Motion for Summary Disposition and restates New England Coalition Against Nuclear Pollution (NECNP) Contentions III.12 and III.13. The Board also grants Applicants' Seventh Motion for Summary Disposition to the extent that motion has not been withdrawn.

I.

On February 14, 1983, Applicants filed their Seventh Motion for Summary Disposition, which addressed *inter alia* New Hampshire (NH) Contention 21, and their Twenty-First Motion for Summary Disposition, which addressed NECNP Contentions III.12 and III.13. NH 21, NECNP III.12, and NECNP III.13 relate to Applicants' on-site emergency plans and evacuation time estimates.

By Order of March 16, 1983 (unpublished), the Board deferred until further notice the due date for answers to motions for summary disposition

of on-site emergency planning contentions.¹ Nevertheless, answers to Applicants' motions were received from the Seacoast Anti-Pollution League (SAPL)² and from NH.³ Then, on May 11, 1983, the Board ruled that answers or supplemental answers to the pending motions for summary disposition were due within 20 days after service of the SER Supplement addressing Applicants' on-site emergency plan, and that pursuant to 10 CFR §2.749(a), parties opposing any answer filed in support of a pending motion for summary disposition would have 10 days from service of that answer to respond to any new facts or arguments presented in the answer. *Memorandum and Order* (Memorializing Prehearing Conference and Ruling on Motions for Summary Disposition), at 7 (May 11, 1983).

On May 11, 1983, the Staff served the parties with the SER Supplement addressing on-site emergency plans. On June 1, NECNP filed its answer opposing Applicants' Twenty-First Motion for Summary Disposition; and on June 6, the Staff filed an answer opposing Applicants' Seventh Motion for Summary Disposition and supporting Applicants' Twenty-First Motion for Summary Disposition. New Hampshire did not supplement its previous answer to Applicants' Seventh Motion, and NECNP did not respond to the NRC Staff's answer in support of Applicants' Twenty-First Motion. The Applicants, however, subsequently withdrew part of their Seventh Motion, owing to the Staff's opposition. Applicants' Letter to the Board (June 13, 1983); Applicants' Letter to the Board (June 20, 1983).

II.

NH-21 states:

Protective Action

The State contends that the Applicant's emergency plan does not demonstrate how, in case of an accident resulting in a site area or general emergency, the large numbers of people in the zone of danger may be protected or evacuated. Until there is reasonable assurance that adequate on-site and off-site protective measures can and will be taken, the Board should not issue an operating license.

¹ The Board's Order ruled on NECNP Motion for Deferral of Motions for Summary Disposition or for Dismissal (March 3, 1983). Answers to this NECNP Motion were filed by Applicants and NH on March 8, 1983, and by the NRC Staff on March 10, 1983.

² SAPL Objection to Applicants' Twenty-First Motion for Summary Disposition (March 15, 1983).

³ NH Answer to Applicants' Seventh Motion for Summary Disposition (March 23, 1983).

In admitting this contention, the Board limited it to on-site protective measures. Memorandum and Order, LBP-82-76, 16 NRC 1029, 1046 (1982).

In their Seventh Motion for Summary Disposition, Applicants asserted that all requirements related to on-site emergency protective measures have been addressed and described. On the other hand, NH in its Answer, *supra* note 3, avers generally (1) that Applicants have not adequately described the measures to be employed in minimizing personnel exposure to radiation and (2) Applicants have not adequately described the arrangements for medical services.

The Board finds that NH's averments, although generalizations, are supported by and not inconsistent with the specific issues the Staff raises in opposition to Applicants' Seventh Motion. According to the Staff, Applicants' on-site emergency plan is deficient in the following respects:

- a. Updated letters of agreement with local fire, hospital and ambulance services must be submitted to the NRC;
- b. The Applicants must describe their capability for monitoring and decontamination of plant evacuees and their vehicles at the plant and at the off-site assembly area;
- c. The Applicants must list equipment and its location for individuals remaining or arriving on-site for respiratory protection, protective clothing and radioprotective drugs; and
- d. A further description of first aid facilities including supplies, layout, capacity and access to decontamination capabilities must be provided.

NRC Response to Applicants' Seventh and Twenty-First Motions for Summary Disposition, at 3 (June 6, 1983).

To these four specific issues, Applicants no longer object, but Applicants continue to seek summary disposition of any other issues within the scope of NH-21. Applicants' Letter to the Board (June 13, 1983); Applicants' Letter to the Board (June 20, 1983). In particular, Applicants believe that NH's first averment, that the on-site plan does not adequately describe measures to control exposure to radiation, exceeds the scope of the Staff's conclusions (which is coextensive with Applicants' partial withdrawal of their Seventh Motion) and should be dismissed.

Underlying NH's first averment is NH's belief that Applicants' use of the terms "measures" and "programs" in section 10.3 of the on-site emergency plan is too imprecise. However, Applicants have stated — and it is clear from NH's Answer — that these terms are being used to describe situation-specific responses. The Board finds that the detail NH is seeking in this instance is not required by the regulations and would not be conducive to a flexible and effective emergency response capability. In view of the Staff's

specific conclusions accompanied by affidavit, the affidavit accompanying Applicants' motion, the Board's own review of section 10 of the on-site emergency plan, and the lack of specificity in and lack of evidentiary support for NH's Answer,⁴ the Board grants Applicants' Seventh Motion as modified.

Accordingly, NH-21 is restated as follows:

Applicants' Emergency Plan as it relates to on-site protective measures is deficient in the following respects:

- a. Updated letters of agreement with local fire, hospital and ambulance services must be submitted to the NRC;
- b. The Applicants must describe their capability for monitoring and decontamination of plant evacuees and their vehicles at the plant and at the off-site assembly area;
- c. The Applicants must list equipment and its location for individuals remaining or arriving on-site for respiratory protection, protective clothing and radioprotective drugs; and
- d. A further description of first aid facilities including supplies, layout, capacity and access to decontamination capabilities must be provided.

III.

NECNP III.12 states

The evacuation time estimates provided by the Applicants in Appendix C of the Radiological Emergency Response Plan are inaccurate in that they provide unreasonably optimistic estimates of the time required for evacuation. In addition, the estimates provided in the radiological emergency plan are useless to emergency planning because they fail to include bounds of error, to indicate the basis for codes or assumptions used for the time estimates, to indicate whether the model used is static or dynamic, to provide a sensitivity analysis for the estimates or to reveal the underlying assumptions.

⁴ When a proper showing for summary disposition has been made by the movant, the party opposing the motion must aver *specific* facts in rebuttal. 10 CFR §2.749(b). Moreover, where the movant has satisfied his initial burden and has supported his motion by affidavit, the opposing party must proffer countering evidential material or an affidavit explaining why it is impractical to do so. *Id.*; Fed. R. Civ. P. 56(e) and Advisory Committee Note; see *Adickes v. Kress & Co.*, 398 U.S. 144, 160-61 (1970). NH has not supplied a countering affidavit, and while NH has made reference to two interrogatories, the Board finds that those interrogatories and answers do not establish the existence of a genuine issue of material fact.

and NECNP III.13 states

The preliminary evacuation time estimates submitted by the Applicants assume favorable weather conditions and thus fail to account for the worst case situation of adverse weather conditions developing on a busy summer weekend afternoon. Nor do they take into account evacuee directional bias, evacuation shadow, or reasonably expected vehicle mix. As a result, the estimates are unduly optimistic and useless to future planning.

By affidavit of James A. MacDonald, which accompanied Applicants' Twenty-First Motion, Applicants addressed the general adequacy of their preliminary evacuation time estimates and also addressed the specific deficiencies alleged by NECNP in its two contentions.

A. SAPL's Objection

In SAPL's Objection, *supra* note 2, SAPL attacks the legal sufficiency of Applicants' Twenty-First Motion and accompanying affidavit and exhibits. SAPL argues the irrelevancy of the statements by Mr. MacDonald (Applicants' affiant) attesting to the utility of Applicants' evacuation time estimates. According to SAPL, the utility of an evacuation time estimate has no bearing on the accuracy of those estimates — the issue raised by NECNP's contentions.

The Board rejects this premise. Perfection is not the standard against which an evacuation time *estimate* is adjudged; rather, one can only determine whether an estimate is *sufficiently* accurate by considering whether it serves the purposes for which it was computed. The Board has scrutinized Applicants' Twenty-First Motion, accompanying affidavit, and exhibits and concludes that Applicants have made a sufficient showing for summary disposition.

Although SAPL's argument is that Applicants' motion is legally insufficient, SAPL also "incorporates by reference" SAPL's answers to Applicants' interrogatories, in order to demonstrate the existence of litigable issues. SAPL's Objection, *supra* note 2, at 2, 4. The Board has reviewed these answers, but rejects them as countering evidential material. Answers to interrogatories can be used to counter evidential material proffered in support of a motion for summary disposition, but only if they are made on the basis of personal knowledge, aver facts that would be admissible as evidence, and are made by a respondent competent to testify to those facts. SAPL, however, is proffering its own answers made by its attorney. There is no indication that SAPL's attorney was answering on the basis of personal knowledge, or that he is competent to testify as to his assertions; and his assertions would not be admissible as evidence.

B. NECNP's Answer

NECNP, for the most part, has not rebutted Applicants' statements with respect to the specific NECNP allegations. In particular, NECNP makes no mention in its Answer or accompanying affidavit of the need for Applicants to include in their evacuation time estimates: (1) bounds of error, (2) the basis for codes, (3) indication whether Applicants' model is static or dynamic, (4) a sensitivity analysis, (5) proper consideration of evacuee directional bias, and (6) proper consideration of vehicle mix. Accordingly, the Board finds that there exists no genuine issue of material fact with respect to these issues and that Applicants are entitled to a favorable decision as a matter of law; therefore, the Board grants Applicants' Twenty-First Motion to the same extent.

There remain NECNP's general allegation that Applicants' evacuation time estimates are inaccurate and NECNP's specific allegations that Applicants have improperly failed to consider (1) an adverse weather-summer scenario and (2) evacuation shadow. In addition to the two specific allegations, NECNP now avers several further items in support of its general allegation that the evacuation time estimates are inaccurate; these averments are that the evacuation time estimates (1) do not factor in notification/preparation times, (2) do not evaluate simultaneous evacuation of beaches lying from NE to SSE of the site, (3) incorrectly approximate evacuation of only one vehicle per household, (4) fail to account for population growth, and (5) are not yet based on actual, chosen evacuation routes.

The Board accepts NENCP's general allegation only to the extent it is supported by a specific allegation or averment, and accordingly the Board discusses in turn each specification below.

1. Adverse Weather-Summer Scenario

Applicants assert "the postulation of an adverse weather condition simultaneous with peak beach use was rejected as a useful analysis for evacuation traffic plan development purposes." Applicants' Twenty-First Motion (Affidavit of James A. MacDonald). The basis for this conclusion is apparently that "most people do not go to, remain on, or congregate at, beaches during a storm." Applicants' Twenty-First Motion, at 3 (Statement of Material Facts). The Staff, while supporting Applicants' motion, does not address the issue.

As NECNP correctly points out, NUREG-0654, FEMA-REP-1 (Rev. 1): "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"

(Nov. 1980) [hereinafter NUREG-0654, Rev. 1], provides that adverse conditions should be considered, and that "a northern site with a high summer tourist population should consider rain, flooding or fog as the adverse condition. . . ." *Id.*, App. 4, at 4-6, 4-7.⁵ Furthermore, while a large number of people would not generally be on the beaches during foul weather, there might yet remain a considerable additional tourist population in the beachside hotels, summer homes, and rental properties; nor is a sudden summer storm an unforeseeable event. Therefore, the Board denies summary disposition with respect to this issue.

2. *Evacuation Shadow*

Applicants aver that the evacuation shadow phenomena does not affect their time evacuation estimates, because "the transportation corridors serving the overall area would be available for any additional 'evacuation shadow' evacuee use. Such transportation corridors are not taxed to capacity in the evacuation estimate analyses performed by the Applicants." Applicants' Twenty-First Motion (Affidavit of James A. MacDonald). NECNP's expert disputes this assertion, but avers no hard facts in support of his opinion. Accordingly, the Board concludes that NECNP's position with respect to this issue is speculative,⁶ that there exists no genuine issue of material fact, and that Applicants are entitled to a favorable decision as a matter of law. Therefore, the Board grants summary disposition of the issue.

3. *Notification/Preparation Times*

NECNP avers that Applicants' evacuation time estimate should, but does not, include notification and preparation time estimates, and NECNP cites NUREG/CR-1745: "Analysis of Techniques for Estimating

⁵ While a NUREG is normally considered as mere guidance to an applicant, in the case of emergency planning regulations, NUREG-0654 was specifically considered in the rulemaking proceeding and is referenced by the rules. 10 CFR Part 50, App. E, n.4. According to the Commission,

[t]he standards [in the rules] are a restatement of the basic NRC and now joint NRC-FEMA guidance to local governments. See NUREG-0654; FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants for Interim Use and Comment" [January 1980].

Statement of Consideration for Final Rule (Emergency Planning Regulations), 45 Fed. Reg. 55402 (1980).

Accordingly, the Board in this instance gives NUREG-0654 considerable weight in determining what must be included in an evacuation time estimate.

⁶ See Memorandum and Order (Memorializing Prehearing Conference, and Ruling on Motions for Summary Disposition), at 11 (May 11, 1983), citing 6 J. Moore, *Moore's Federal Practice*, ¶56.15[3] at 56-486, 487 (2d ed. 1982).

Evacuation Times for Emergency Planning Zones" 3, 4 (Nov. 1980). NECNP Answer (Affidavit of Philip B. Herr). The Board considers this issue one of law. The Board has examined NUREG/CR-1745, which subdivides evacuation time into decision time, notification time, preparation time, and response time. However, while an analysis from initiating event to completed response might be useful, it is not required by the regulations or by NUREG-0654, as this Board reads those requirements. As stated in the version of NUREG-0654 that was considered by the Commission during its emergency planning rulemaking, "[t]he requested estimates for time required for evacuations relate primarily to the time to implement an evacuation as opposed to the time required for notification." NUREG-0654, FEMA REP-1 (Rev. 0), "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" App. 4, at 4-1 (Jan. 1980) [hereinafter NUREG-0654, Rev. 0].⁷ Although this particular passage is not found in NUREG-0654, Rev. 1, the Board can find no indication that the NRC purposely intended to change the requirement. In addition, the Board finds support for not requiring an estimate of notification times in the regulatory prescription of those times. 10 CFR Part 50, App. E, §D.3.

Accordingly, the Board concludes as a matter of law that Applicants' evacuation time estimates are not deficient in omitting notification/preparation times, and the Board grants summary disposition with respect to this issue.

4. Simultaneous Evacuation

NECNP's expert avers that Applicants' omission of time estimates for simultaneous evacuation of the beach areas lying NE to SSE of the site prevents using the time estimates to realistically assess protective action options. NECNP Answer (Affidavit of Philip B. Herr). Because this is the first time that this specific issue has been raised (to the Board's knowledge), neither Applicants nor the Staff have addressed it.⁸

The Board has reviewed Applicants' evacuation time estimates and finds that Applicants have estimated evacuation times for various EPZ sectors in accordance with NUREG-0654, Rev. 0, App. 4 at 4-3. However, the

⁷ In addition, Appendix 4 to NUREG-0654, Rev. 0, was entitled "Request for Evacuation Time Estimates (After Notification) for Areas Near Nuclear Power Plants." (Emphasis added.)

⁸ The averment is relevant, however, to NECNP's general allegation in NECNP III.12.

revised version, NUREG-0654, Rev. 1, now requires an estimate of the time to evacuate the entire EPZ (in addition to estimates for EPZ sectors).⁹ NUREG-0654, Rev. 1, App. 4 at 4-4. Therefore, Applicants are not entitled to a favorable decision as a matter of law, and the Board denies summary disposition of this issue. However, because neither Applicants nor the Staff have had the opportunity to address this issue (nor the Board the benefit of their advocacy), the Board would consider a timely motion for reconsideration.

5. Vehicles per Household

NECNP cites NUREG/CR-1745, *supra*, in support of its averment that an assumption that approximately one vehicle per household would be used in an evacuation produces a low estimate. NECNP Answer (Affidavit of Philip B. Herr). The Board notes that Applicants estimate that more than one vehicle per household would be used.¹⁰ Moreover, the Board finds this NECNP averment vague and speculative; NECNP avers no facts specific to the Seabrook area and inconsistent with Applicants' assumption. Accordingly, with respect to this issue, the Board concludes that there exists no genuine issue of material fact and that Applicants are entitled to a favorable decision as a matter of law. Therefore, the Board grants Applicants' Twenty-First Motion with respect to this issue.

6. Population Growth

NECNP avers that Applicants' evacuation time estimates are inadequate because they fail to account for growth, and NECNP cites NUREG-0654 in support. NECNP Answer (Affidavit of Philip B. Herr, p. 5). The cited portion of NUREG-0654 states, "[t]he number of permanent residents shall be estimated using the U.S. Census data or other reliable data, adjusted as necessary for growth." NUREG-0654, Rev. 1, App. 4, at 4-2. NECNP misinterprets this provision; NUREG-0654 requires the adjustment of census data that is not current and accurate, and not projected evacuation time estimates for future populations. Applicants

⁹ Although an evacuation time estimate for the entire EPZ is not included in Appendix C to Applicants' Radiological Emergency Plan, NUREG/CR-2903 suggests that Applicants have in fact done such an analysis. See NUREG/CR-2903, "An Independent Assessment of Evacuation Time Estimates for a Peak Population Scenario in the Emergency Planning Zone of the Seabrook Nuclear Power Station," at 20 (Oct. 1980).

¹⁰ Applicants assume an average automobile occupancy factor of 3.0, whereas the average persons per occupied dwelling in Rockingham County is 3.3. Seabrook Radiological Emergency Plan, App. C, at 8 (Applicants' Evacuation Time Estimates).

have made appropriate adjustments. Seabrook Radiological Emergency Plan, App. C, Table 1 (Applicants' Evacuation Time Estimates). And as the population in the Seabrook area changes, Applicants are required to update their estimates. NUREG-0654, Rev. 1, App. 4, at 4-1. Accordingly, with respect to this issue, the Board concludes that there exists no genuine issue of material fact and that Applicants are entitled to a favorable decision as a matter of law. Therefore, the Board grants Applicants' Twenty-First Motion with respect to this issue.

7. *Evacuation Routes*

NECNP's final averment is that Applicants' evacuation time estimates are inaccurate because they are not yet based on the actual evacuation routes chosen by the emergency plans. NECNP Answer (Affidavit of Philip B. Herr, pp. 6-8).

Evacuation time estimates serve two purposes; they provide data which is used to develop specific evacuation plans, and they provide information which can be used by decision-makers in responding to an actual emergency. To date, Applicants' *Preliminary* Evacuation Time Estimates are tailored only to the first purpose. *See* Letter from Arthur M. Shepard, Project Manager, to Darrell G. Eisenhut (August 4, 1980) (submitting Applicants' Evacuation Time Estimates), Seabrook Radiological Emergency Plan, Appendix C. Only after the evacuation routes have been chosen can Applicants revise their estimates to fulfill the second purpose, and this Applicants have stated unequivocally they will do. *Id.* NECNP's last averment simply presents no litigable issue, nor can any adverse legal conclusion be drawn from the present incompleteness of the estimates. Accordingly, the Board grants Applicants' Twenty-First Motion with respect to this issue.

In accordance with the above rulings, NECNP III.12 and NECNP III.13 are restated as follows:

NECNP III.12/III.13: Evacuation Time Estimates

The evacuation time estimates provided by Applicants in Appendix C of the Radiological Emergency Plan are deficient in failing to include an estimate of:

1. the times for evacuation during adverse weather conditions developing on a busy summer weekend; and
2. the times for simultaneous evacuation of beach areas lying NE to SSE of the Seabrook site.

All other issues and averments, including NECNP's professed skepticism as to the accuracy of Applicants' demographics and efficacy of their model

— skepticism which the Board finds unsupported by specific, relevant, averred facts — are dismissed.

ORDER

Based on the foregoing, it is this 30th day of June, 1983,
ORDERED

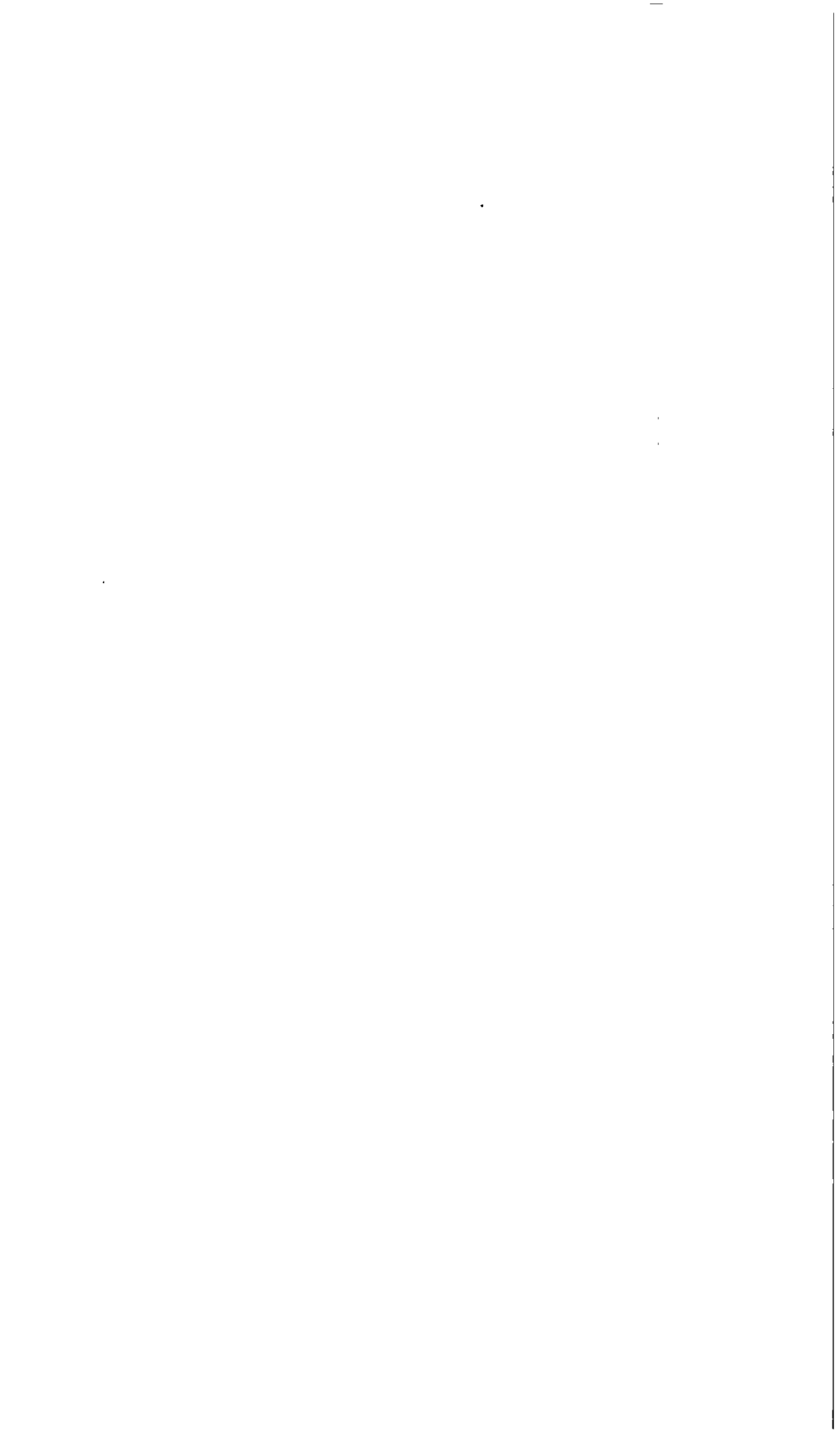
1. That Applicants' Seventh Motion for Summary Disposition, to the extent *not withdrawn*, is granted; all issues other than those in the restated NH-21, above, are dismissed.

2. That Applicants' Twenty-First Motion for Summary Disposition is granted in part and denied in part; all issues other than those in the restated NECNP III.12/III.13, above, are dismissed.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Helen F. Hoyt, Chairperson
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 30th day of June, 1983.



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF INSPECTION AND ENFORCEMENT

Richard C. DeYoung, Director

In the Matter of

Docket Nos. 50-10, 50-237
50-249, 50-295, 50-304
(10 CFR 2.206)

COMMONWEALTH EDISON COMPANY
(Dresden Nuclear Power Station;
Zion Nuclear Plant)

June 8, 1983

The Director of the Office of Inspection and Enforcement denies a petition under 10 CFR 2.206 which requested suspension of operation of the Zion and Dresden plants on the basis of alleged drug and alcohol abuse by plant employees and improper security practices. The Director denies the petition because the NRC investigation did not substantiate widespread drug or alcohol abuse or other improper practices, and the licensee has initiated sufficient measures to correct identified noncompliance and to prevent the potentially adverse effects of drug or alcohol abuse for safe operation.

DIRECTOR'S DECISION UNDER 10 CFR 2.206

On December 19, 1981, Catherine Quigg filed a petition on behalf of Pollution and Environmental Problems, Inc., Palatine, Illinois, which requested that the Director of the Office of Inspection and Enforcement take enforcement action against the Commonwealth Edison Company, the licensee of the units of the Dresden Nuclear Power Station and the Zion Nuclear Plant. Specifically, the petitioner asked the Director to order the licensee to show cause why the Dresden and Zion plants should not be shut down, at least pending the completion of an investigation of alleged drug and alcohol abuse by plant workers and other derelictions of duty by plant security

guards. Ms. Quigg based her request for relief largely on news reports and interviews of plant workers which had been broadcast by a Chicago television station. The alleged unsafe practices concerned generally the sale or use of drugs and alcohol at the plants, inattention to duty, lax management attitude toward drug use, inadequate equipment for and training of security personnel, and the possibility that security personnel would not perform their duties in repelling an attempted intrusion into the plant.

Before Ms. Quigg's petition was received, the NRC's Region III office had initiated an investigation of the allegations. On the basis of the information developed during the initial stages of the investigation and the NRC's augmented inspection efforts at the plant sites, the staff declined to suspend operation of the plants pending the conclusion of the investigation. Ms. Quigg was informed of the denial of her request for such relief by letter dated February 19, 1982.

Since that time, the staff has completed its investigation of the allegations and has released its formal investigation reports that describe the findings of the investigation.¹ The findings are based on numerous interviews of plant personnel as well as the review of the licensee's records. In sum, the investigation did not reveal widespread drug or alcohol use or other gross derelictions of duty at either the Dresden or the Zion site. Although the investigation determined that isolated instances of drug or alcohol use have occurred at the sites, such instances have not had any serious adverse impact on safe operation of the plants. Generally, the licensee has responded adequately to known instances in which employees have reported for duty under the apparent influence of drugs, alcohol, or other controlled substances. During the course of the investigation, several employees admitted using drugs offsite or were identified by others as having used drugs offsite before reporting for duty.²

With respect to the allegedly improper security practices, the investigation did substantiate some deficiencies in the adequacy of searches of containers brought into the Zion plant and in the adequacy of equipment train-

¹ See NRC Region III Investigation Report Nos. 50-10/81-22 (EIS), 50-237/81-40 (EIS), 50-249/81-33 (EIS) (Dresden Nuclear Power Station); NRC Region III Investigation Report Nos. 50-295/81-32 (DETP), 50-304/81-30 (DETP) (Zion Nuclear Plant). Except for attachments to the Dresden and Zion reports containing safeguards information and statements of individuals interviewed by the investigators which are attached to the Dresden report, the reports are available for public inspection in the Commission's Public Document Room (PDR) in Washington, D.C., and in the local PDRs for the Dresden and Zion plants.

² The NRC was concerned that offsite use of drugs might affect an individual's performance while on duty and could thereby potentially affect safe operation of the plants. After encountering resistance from employees to answering questions about offsite drug use, the NRC developed criteria to establish time frames before reporting for duty during which offsite drug use might have deleterious effect on an individual's fitness for duty. See Letter to Cordell Reed, Vice President, Commonwealth Edison Co., from James G. Keppler, NRC Region III Administrator (March 25, 1982); see also Attachment 1 to Zion Investigation Report.

ing and drills at the Dresden station. NRC Region III has issued a Notice of Violation pursuant to 10 CFR 2.201 for these violations of the requirements of the licensee's security plan, and the licensee has taken adequate corrective action to cure the violations.³ Apart from these violations, the licensee's security practices appeared to comply with the Commission's requirements. There was no support developed during the investigation for the allegations that the guard forces would not respond properly to attempted intrusions into the plants or other security incidents.

Except for the safeguards violations noted above, the investigation did not find noncompliance with the Commission's requirements. Nonetheless, the use of drugs and alcohol by plant employees is a matter of serious concern to the Commission because of the potentially adverse effect of drug and alcohol abuse on safe operation of a nuclear power plant.⁴ The staff expects licensees to take adequate measures to deter such activities and to minimize the potential effect of drug and alcohol abuse by plant employees. Toward this end, Commonwealth Edison Company has developed and implemented a new drug abuse policy to make plant employees aware of the dangers of such abuse and to ensure the fitness of employees who report for duty. See Letter to J. G. Keppler from C. Reed (May 6, 1982).

As a result of the investigation, NRC Region III also requested a number of actions to provide added assurance of the safe conduct of licensed activities, and the licensee has agreed to take these actions.⁵ These actions included the strengthening of the licensee's means of preventing alcohol consumption onsite and the determination of the fitness for duty of several employees at the Zion plant who had been identified by more than one person as, or who admitted to, having used drugs offsite.

On the basis of the results of the Region III investigation and the licensee's actions in response to the investigation findings, I have determined

³ The violations were classified at Severity Level IV in accordance with the Commission's Enforcement Policy, 47 Fed. Reg. 9987 (March 9, 1982). A description of these violations may be found in the Dresden investigation report (at pages 16 and 54) and the Zion investigation report (at page 47). The Notices of Violation and the details of the noncompliance described in the attachments to the investigation reports are safeguards information and are not, therefore, publicly available.

⁴ In this regard, the Commission has taken several actions as a result of the Dresden-Zion investigation. The Office of Inspection and Enforcement (IE) issued IE information Notice No. 82-05 "Increasing Frequency of Drug-Related Incidents" (March 10, 1982), to alert licensees to drug-related incidents at several plant sites. IE also conducted a survey of programs to deal with drug and alcohol abuse, published as *Survey of Industry and Government Programs to Combat Drug and Alcohol Abuse*, NUREG-0903 (June 1982). The Commission is also considering proposed rule changes to 10 CFR Part 50 to address the issue of ensuring the fitness for duty of plant employees. See Proposed Rule, *Personnel with Unescorted Access to Protected Areas; Fitness for Duty*, 47 Fed. Reg. 33980 (Aug. 5, 1982).

⁵ See Appendix B to Letter to Cordell Reed, Vice President, Commonwealth Edison Co., from James G. Keppler, NRC Region III Administrator (Nov. 2, 1982); Letter to James G. Keppler from Cordell Reed (Dec. 2, 1982); Letter to Cordell Reed from James G. Keppler (Jan. 24, 1983). This correspondence describes in greater detail the Region's requested actions and the licensee's responses thereto.

that suspension of operation of the Dresden and Zion plants is not warranted. The investigation did not substantiate widespread drug or alcohol abuse or other improper practices that would compel such action to ensure adequate protection of public health and safety. Moreover, the licensee has initiated sufficient measures to correct the identified non-compliances with its security plans and to prevent the potentially adverse effects of drug or alcohol abuse on safe plant operation. For the foregoing reasons, the petitioner's request to suspend operation of the plants has been *denied*.

A copy of this decision will be filed with the Secretary for the Commission's review in accordance with 10 CFR 2.206(c). As provided in 10 CFR 2.206(c), this decision will become the final action of the agency 25 days after its issuance, unless the Commission determines to review the decision within that time.

Richard C. DeYoung, Director
Office of Inspection and Enforcement

Dated at Bethesda, Maryland,
this 29th day of June, 1983.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of

Docket No. 50-155
(10 CFR 2.206)

CONSUMERS POWER COMPANY
(Big Rock Point Plant)

June 16, 1983

The Director denies a petition under 10 CFR 2.206 to revoke or suspend the operating license for the Big Rock facility because of alleged misrepresentations by the licensee to a Licensing Board and improper inservice inspection procedures.

DIRECTOR'S DECISION UNDER 10 CFR 2.206

By a petition sent in the form of a letter dated May 16, 1983 to the Directors of the Offices of Nuclear Reactor Regulation, Nuclear Material Safety and Safeguards, and Inspection and Enforcement of the Nuclear Regulatory Commission (the Commission) (NRC), Ms. Christa-Maria, Ms. JoAnn Bier, and Mr. Jim Mills requested that the NRC revoke or suspend Consumers Power Company's license to operate the Big Rock Point Plant. The petition has been treated under 10 CFR Section 2.206 of the Commission's regulations.

I.

In 1979, Consumers Power Company (the licensee) requested NRC approval to expand the storage capacity of the spent fuel pool at the Big Rock Point Plant by adding fuel storage racks to the pool. That request is presently the subject of hearings before the Atomic Safety and Licensing Board

(ASLB); Ms. Christa-Maria, Ms. JoAnn Bier, and Mr. Jim Mills are intervenors in those hearings. A hearing session was held in June 1982; further hearings have been scheduled to begin October 25, 1983. On May 5, 1982, the licensee filed a statement with the ASLB to explain why further delays (beyond June 1982) in the hearing schedule could jeopardize continued plant operation. In support of this statement, the affidavit of Mr. Vandewalle to which the petitioners referred was enclosed. On November 16, 1982, the licensee requested an immediate appeal to the Atomic Safety and Licensing Appeal Board (ASLAB) from the ASLB's Initial Decision on criticality issues. Again, the same Mr. Vandewalle affidavit was enclosed to support the licensee's argument that an immediate appeal was necessary to avoid impacting continued operation of Big Rock Point.

In the affidavit, Mr. Vandewalle explained that inservice inspection of the reactor vessel was required by the Commission's regulations during the refueling outage scheduled for the Spring of 1983. The affidavit also explained that the available ultrasonic inspection techniques required removal of all fuel from the reactor vessel.

On May 13, 1983, the Big Rock Point Plant began a refueling outage. The licensee is performing the required inservice inspection without completely defueling the reactor.

The petitioners concluded, based on this information, that either Mr. Vandewalle's affidavit was a misrepresentation or the inspection is not being performed properly. I have considered the concerns of the petitioners and other relevant information bearing on the issues addressed in the petition. For the reasons set forth below, the petitioners' request for suspension or revocation of Consumers Power Company's license to operate the Big Rock Point Plant is denied.

II.

The NRC staff has reviewed the petitioners' allegations and has concluded that (1) no misrepresentation was made, and (2) no evidence suggests that the inspections are being performed improperly.

In order to examine certain welds, the ultrasonic inservice inspection (ISI) device must be placed inside the reactor vessel. In many cases, the fuel in the area of the weld must be removed to allow access to the weld by the device. During the overall inspection, welds in many parts of the vessel must be examined; therefore, eventually all of the fuel in the reactor must be removed or rearranged to allow completion of the entire inservice inspection. It is quicker and cheaper to completely defuel the reactor rather than systematically rearrange fuel assemblies. For this reason, licensees

including CPC have always completely defueled to perform ISI. Since inspections were always performed in an empty vessel, all of the ISI devices and procedures were designed for vessels which were completely defueled. Therefore, Mr. VandeWalle's conclusion that the ultrasonic inspection techniques that are available require removal of all the fuel appears to have been reached in good faith.

In the Spring of 1983, because of the status of the spent fuel pool expansion proceeding, it became obvious that it was extremely unlikely that off-load capability for the entire core would be available for the 1983 refueling outage. In informal discussions with the NRC staff, the licensee considered the possibility of asking for NRC approval to install an additional rack temporarily during the outage. However, some of the same technical issues from the pool expansion hearing would have been involved and could not have been resolved in time to support a temporary rack addition. The licensee also discussed the option of requesting an extension to allow the ISI to be performed during the 1984 refueling outage. Realizing the importance the NRC placed on the inspection of the sensitized safe-ends, the licensee concluded that the extension was not a viable option.

Therefore, in the Spring of 1983, facing an extended outage without the capability to complete the required ISI, the licensee began considering the possibility of performing ISI without completely defueling. Based on consultations between the licensee and the contractor who was hired to perform the ISI, CPC concluded that the ISI could be performed without completely defueling. The licensee performed a safety review of the revised ISI program and procedures as specified in 10 CFR 50.59. This review included approval by the Plant Review Committee. As required by 10 CFR 50.59 the licensee determined that ISI without completely defueling did not involve a change in the technical specifications incorporated in the license or an unreviewed safety question. The licensee informally told the NRC Staff of its intention to proceed in this manner.

No NRC pre-approval of a licensee's review performed under 10 CFR 50.59 is required. The licensee's safety evaluation must be available for review by NRC inspectors upon request. Also, a brief description of the action taken and a summary of the safety evaluation must be included in the facility's annual report to the NRC. These activities, as with all activities at the Big Rock Point Plant, are subject to inspection by the NRC Resident Inspector and other NRC inspectors.

III.

In conclusion, as discussed above, no basis exists for the Staff to conclude that any misrepresentation was made at the time Mr. VandeWalle executed

his affidavit or presented it to the Boards. Further, the decision by the licensee, in Spring 1983, to pursue an alternate method of ISI in accordance with the requirements of 10 CFR 50.59 is an acceptable course of action under Commission regulations. Consequently, I have determined that no adequate basis exists for suspension or revocation of Consumers Power Company's license to operate the Big Rock Point Plant. Therefore, the petitioners' request is hereby denied. A copy of this decision will be filed with the Secretary for the Commission's review in accordance with 10 CFR 2.206(c). As provided in this regulation, the decision will become the final action of the Commission twenty-five (25) days after issuance, unless the Commission, on its own motion, institutes review of the decision within that time.

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland,
this 16 day of June, 1983.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF INSPECTION AND ENFORCEMENT

Richard C. DeYoung, Director

In the Matter of

Docket Nos. 50-247
50-286
(10 CFR 2.206)

CONSOLIDATED EDISON COMPANY
OF NEW YORK
(Indian Point, Unit 2)

POWER AUTHORITY OF THE
STATE OF NEW YORK
(Indian Point, Unit 3)

June 29, 1983

The Director of the Office of Inspection and Enforcement denies a petition submitted under 10 CFR 2.206 by the Rockland County Legislature requesting that the Commission immediately suspend operation of the Indian Point Station, Units 2 and 3, until such time as the health, safety and welfare of Rockland County citizens could be assured.

DIRECTOR'S DECISION UNDER 10 CFR 2.206

By letter dated May 13, 1983, the County Attorney of Rockland County, New York, on behalf of the Rockland County Legislature, submitted Rockland County Resolution No. 302, passed on April 19, 1983 (Resolution), to the Directors of the Offices of Nuclear Reactor Regulation, Nuclear Material Safety and Safeguards, and Inspection and Enforcement for treatment as a petition under 10 CFR 2.206 of the Commission's regulations. The Resolution requested that the Commission immediately suspend operation of the Indian Point Station, Units 2 and 3, until such time as the health,

safety and welfare of Rockland County citizens could be assured. By letter dated June 13, 1983, the Rockland County Legislature renewed its request for relief in accordance with Resolution No. 302, asking that the Commission reverse its June 10th decision not to take enforcement action. These letters have been referred to the Director of the Office of Inspection and Enforcement for consideration as a request for action under 10 CFR 2.206.

The Commission in its June 10, 1983 Order, CLI-83-16, 17 NRC 1006 addressed the question of continued operation of the Indian Point facility, and concluded that the facility should not be shut down. For the reasons set forth in the Commission's June 10th order, the staff does not believe that the relief requested in the Rockland County Resolution is warranted at this time. Accordingly, the Rockland County Legislature's request for action pursuant to 10 CFR 2.206 is hereby *denied*.

As provided by 10 CFR 2.206(c), a copy of this decision will be filed with the Secretary for the Commission's review. This decision will constitute the final action of the Commission twenty-five (25) days after date of issuance unless the Commission, on its own motion, institutes a review of this decision within that time.

Richard C. DeYoung, Director
Office of Inspection and Enforcement

Dated at Bethesda, Maryland,
this 29th day of June, 1983.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

EXECUTIVE DIRECTOR FOR OPERATIONS

William J. Dircks

In the Matter of

Docket No. PRM-50-24

John F. Doherty

April 6, 1983

The Executive Director for Operations under authority delegated under 10 CFR 1.40(o) denies petition for rulemaking to amend regulations to require prescribed actions be taken by the Commission in the event of objects falling from earth's orbit.

ADMINISTRATIVE PROCEDURES ACT: NOTICE AND COMMENT PROCEDURES

Section 186 of the Atomic Energy Act of 1954 authorizes the Commission, in cases of extreme importance to the health and safety of the public, to enter upon and operate a licensed facility prior to any of the procedures provided under the Administrative Procedures Act.

ATOMIC ENERGY ACT: EMERGENCY MEASURES

Section 186 of the Atomic Energy Act of 1954 authorizes the Commission, in cases of extreme importance to the health and safety of the public, to enter upon and operate a licensed facility.

ATOMIC ENERGY ACT: FINAL ORDERS

Section 161 of the Atomic Energy Act of 1954 authorizes the Commission to prescribe orders governing the operations of facilities in order to protect health and to minimize danger to life or property.

TECHNICAL ISSUES DISCUSSED: EXTERNAL EVENTS

Credible external events, natural or man-induced, are considered within the framework of the current NRC licensing processing in the siting and design of power reactors.

INCIDENT RESPONSE: NRC EMERGENCY PLAN

Mechanisms exist by which the NRC is kept apprised of developing situations that have the potential to impact routine operation at power reactors; typical situations have included events such as the Skylab reentry, the COSMOS 1402 reentry, the Mt. St. Helens eruption, hurricanes, etc. The NRC Emergency Plan (NUREG-0728) and Implementing Procedures (NUREG-0845) outline the Agency response organization and activities.

DENIAL OF PETITION FOR RULEMAKING

The Nuclear Regulatory Commission is denying a petition requesting that the Commission amend its regulations governing the domestic licensing of production and utilization facilities to specifically require prescribed action by the Commission in the event of objects falling from earth's orbit on the grounds that the requested amendments are unnecessary. The provisions of the Atomic Energy Act of 1954, as amended, permit the Commission to take actions of the kind outlined by the petitioner; the requested amendments are therefore unnecessary. Based on experience, the Commission has found its present practice of notification and monitoring the progression of natural or man-induced events that may impact the operation of licensed facilities is adequate. Further, the Commission is authorized to order licensees to act to protect health and minimize danger to life or property.

The petitioner requested that the Commission adopt a regulation which would state that it is the duty of the Commission to inform all holders of Class 103 licenses (production and utilization facility licensees) of any announcement by any Federal agency or department of predicted or expected falling objects from the earth's orbit, whether the falling object is the responsibility of the announcing agency or the responsibility of a foreign nation. The petitioner also requested that the Commission adopt a regulation which specifies that the Commission inform and advise the affected licensees until a prediction of the most likely impact area(s) can be issued by the responsible department or agency. The petitioner requested that the Commission order plants near the probable impact area to be shut down.

As the basis for the request, the petitioner stated that the Commission should specifically prepare for a possible occurrence of a situation similar to the Skylab incident in which orbiting objects of considerable size could be expected to fall to earth with considerable force.

A Notice of Filing of Petition for Rulemaking was published in the *Federal Register* on August 16, 1979 (44 Fed. Reg. 47997). The comment period expired October 1, 1979. The Commission received one letter of comment in response to the notice.

The one commenter opposed the petition on the basis that adequate provisions currently existed within the regulations to permit the Commission to take the required actions should the health and safety of the public be jeopardized. These provisions include the authority to order that a licensed facility be shut down. The commenter also suggested that the proposal could result in the taking of unnecessary adverse action in the absence of a credible threat.

The Commission already has the authority to take the actions the petitioner requests. For instance, the Atomic Energy Act of 1954, as amended, authorizes the Commission to “. . . prescribe such regulations or orders as it may deem necessary . . . to govern any activity authorized . . . including . . . restrictions governing the . . . operation of facilities . . . in order to protect health and to minimize danger to life or property.” Consequently, a specific regulation that deals with objects falling from earth orbit and that prescribes actions on the part of the Commission is unnecessary.

External events may occasionally affect the routine operation of NRC-licensed production and utilization facilities. Within the framework of the current NRC licensing process, these events are considered in the siting and design of power reactors. Plants in operation may be subject to natural or man-induced events that warrant particular attention. The NRC is kept apprised of developing situations that have the potential to impact routine operation at power reactors. In the past, these situations have included events such as the Skylab reentry, the COSMOS 1402 reentry, the Mt. St. Helens eruption, hurricanes, and other severe environmental conditions.

As an example of an NRC response to a specific situation, in addition to the information notice that was issued to licensees during the Skylab reentry, the NRC response center was activated to monitor the situation and was prepared to act if necessary. NRC maintained contact with the Federal Emergency Management Agency (FEMA) and the National Aeronautics and Space Administration during the reentry process. Skylab debris fell on and near Australia. However, had Skylab “skipped” on reentry and continued for another partial orbit, its trajectory would have caused it to become a potential threat to a number of U.S. nuclear facilities. A large uncertainty existed at the time as to which Skylab orbit would be the last.

Nuclear plant shutdowns were not ordered because: (1) the shutdown of a large number of facilities could have caused a potentially serious power disruption; (2) vital parts of nuclear power plants have substantial protection from external hazards, and (3) a direct strike on a nuclear power plant is extremely unlikely. Those NRC-licensed reactor facilities that were projected to be in the potential reentry path were alerted and advised to (1) have technical management available to augment staff in the event of a problem, and (2) be prepared to cope with a loss of offsite power. The actions taken by the NRC during the Skylab incident demonstrate that the Commission was prepared to act in the appropriate manner to protect the health and safety of the public under its existing statutory authority and regulations and that sufficient reason does not exist to grant the petition in whole or in part.

Based on the above considerations, the Commission hereby denies the petition for rulemaking PRM 50-24, dated July 6, 1979, filed by John F. Doherty.

A copy of the petition for rulemaking, a copy of the letter of comment, and the Commission's letter of denial are available for public inspection and copying for a fee at the Commission's Public Document Room at 1717 H Street, N.W., Washington, D.C.

FOR THE NUCLEAR REGULATORY COMMISSION

**William J. Dircks
Executive Director for Operations**

**Dated at Bethesda, Maryland,
this 6th day of April 1983.**

(NOTICE PUBLISHED IN THE *FEDERAL REGISTER* ON JUNE 1, 1983, 48 FED. REG. 24391)

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