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NUCLEAR REGULATORY COMMISSION ISSUANCES

September 1984

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

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

U.S. NUCLEAR REGULATORY COMMISSION

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CONTENTS

Issuances of the Nuclear Regulatory Commission

Issuances of the Atomic Safety and Licensing Appeal Boards

Issuances of Directors' Decisions

Commission Issuances

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal
Lando W. Zech, Jr.

In the Matter of **Docket No. 50-322-OL-4 (Low Power)**

LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station, Unit 1)

September 7, 1984

The Commission calls for the views of the parties concerning a September 5, 1984 Licensing Board Order (LBP-84-35A, 20 NRC 920) in this operating license proceeding.

ORDER

On September 5, 1984, the Atomic Safety and Licensing Board issued an "Order Reconsidering Summary Disposition of Phase I and Phase II Low-Power Testing" (LBP-84-35A, 20 NRC 920). The effect of the September 5 Order is to resolve certain offsite emergency power issues in favor of permitting the Long Island Lighting Company (LILCO) to conduct fuel loading and low-power testing as proposed in Phases I and II of its low-power testing program. However, in the present posture of the case, no such fuel loading and low-power testing can be undertaken without action by the Commission itself.

Any party's written views on whether the Licensing Board's September 5, 1984 Order may serve as the basis for issuance of a license for Phase I and Phase II of LILCO's low-power testing program should be received by the Secretary of the Commission no later than c.o.b. Friday, September 14, 1984. Such written views should include discussion of the factors specified in 10 C.F.R. § 2.788(e).

It is so ORDERED.

For the Commission*

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 7th day of September 1984.

*Chairman Palladino has chosen not to participate in matters related to Shoreham pending disposition of the County's and State's "Request for Recusal and, Alternatively, Motion for Disqualification of Chairman Palladino."

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal
Lando W. Zech, Jr.

In the Matter of **Docket No. 50-289-SP (Restart)**

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

September 11, 1984

The Commission denies a request by the Licensee to stay the reopened management hearings in the Three Mile Island, Unit 1, restart proceeding based upon its determination that the stay criteria are not satisfied and it grants an intervenor's motion to lift the stay of the reopened hearings on certain other allegations.

RULES OF PRACTICE: STAY REQUESTS

The four factors to be considered in deciding whether to grant a stay request, as set forth in 10 C.F.R. § 2.788(e), are: (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.

RULES OF PRACTICE: STAY REQUESTS (IRREPARABLE INJURY)

The most significant factor in deciding whether to grant a stay request is "whether the party requesting a stay has shown that it will be irreparably injured unless a stay is granted." *Westinghouse Electric Corp.* (Export to the Philippines), CLI-80-14, 11 NRC 631, 662 (1980).

RULES OF PRACTICE: STAY REQUESTS (IRREPARABLE INJURY)

Mere litigation expense, even substantial and unrecoupable cost, does not constitute irreparable injury. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-395, 5 NRC 772, 779 (1977), *quoting Renegotiation Board v. Bannercraft Co.*, 415 U.S. 1, 24 (1974).

ORDER

This Order addresses Licensee's June 13, 1984 request that the Commission stay the reopened management hearings in the Three Mile Island, Unit 1 (TMI-1) restart proceeding (ALAB-772, 19 NRC 1193 (1984)), and Three Mile Island Alert's (TMIA) June 25, 1984 request that the Commission lift the stay of the reopened hearings on the so-called Hartman allegations (ALAB-738, 18 NRC 177 (1983)).[1] As explained below, the Commission has decided to deny Licensee's request and grant TMIA's request.

I. LICENSEE'S REQUEST TO STAY ALAB-772

On May 25, 1984, the Appeal Board issued its decision on the management issues in the TMI-1 restart proceeding. The Appeal Board in that decision remanded three issues to the Licensing Board for further hearings. Those issues involved (1) the adequacy of Licensee's training program, (2) the May 9, 1979 mailgram from Herman Dieckamp to Congressman Udall concerning the "pressure spike" during the TMI-2 accident, and (3) pre-accident leak rate practices at TMI-1.

[1] By separate Order issued today, the Commission has taken review of three issues in ALAB-772 and of several related matters, in order to decide whether or not further hearings are required in this restart proceeding and, if so, what their scope should be. CLI-84-18, 20 NRC 808 (1984).

On June 13, 1984, Licensee requested the Commission to stay the remanded hearings pending action on the petition for review it intended to file.[2] Licensee addressed the four factors to be considered in deciding whether to grant a stay as follows.[3] Licensee argued first that it is likely to prevail on the merits on all three remanded issues. Licensee stated the difference in judgments between the Boards on training are likely "to be resolved in favor of the Licensing Board's decision," that it would be "fruitless and inconsistent" to devote additional resources to the mailgram issue, and that the evidence does not justify reopening on leak rate testing practices at TMI-1. Licensee then argued that it will be irreparably injured if a decision on restart must await completion of further hearings, and that it will suffer irreparable injury from the effort and expense of preparing for and conducting further hearings if the Commission should eventually reverse the Appeal Board. Finally, Licensee stated no other party will be harmed by a stay, and the public interest will best be served by avoiding a commitment of resources to the reopened hearings prior to a Commission decision on whether those hearings are necessary.

The NRC Staff, the Union of Concerned Scientists (UCS), and Three Mile Island Alert (TMIA) responded to Licensee's motion.

The NRC Staff supported Licensee's request. Staff argued that Licensee had failed to show that it was likely to prevail on the merits and did not make a particularly strong showing of irreparable injury. However, Staff agreed with the Licensee that no other party would be harmed by a stay and that the public interest would best be served by avoiding any commitment of resources to a hearing which may not be necessary. Staff, balancing these four factors, concluded that they weighed "slightly in favor" of granting Licensee's request "until the Commission has acted on Licensee's petition for review of ALAB-772."

UCS opposed Licensee's request. UCS first argued that the application for a stay is inconsistent with the procedures adopted by the Commission in the restart proceeding. UCS, noting that the Commission removed stay authority from the Appeal Board in this special proceeding, argued

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[2] Licensee requested prompt Commission action on its motion because the Licensing Board had scheduled a prehearing conference on the remanded issues for June 28, 1984. The Commission issued an Order on June 26, 1984 (unpublished) stating that it would not act on Licensee's motion prior to June 28.

[3] The four factors to be considered in deciding whether to grant a stay request are set forth in 10 C.F.R. § 2.788(e):

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.

that there is no reason for a stay because the question of restart is independent of the merits process.

UCS next argued that Licensee's request does not meet the standards required for the granting of a stay. UCS stated that Licensee has not established that it will suffer irreparable injury because the grant or denial of a stay would have no effect whatever on restart, and because the effort and expense of conducting hearings do not constitute irreparable harm. UCS argued that Licensee's pleading on its face was insufficient to show that it is likely to prevail on the merits. UCS maintained that the other parties would be harmed by a stay because it would again delay the time when intervenors can participate in an on-the-record adjudication of Licensee's competence and integrity. Finally, UCS argued that the public interest favors denying the stay because the questions here go to the heart of management and operator competence and hence should be resolved now.

TMIA opposed Licensee's request for the reasons outlined in the UCS opposition.

The most significant factor in deciding whether to grant a stay request is "whether the party requesting a stay has shown that it will be irreparably injured unless a stay is granted."[4] *Westinghouse Electric Corp.* (Export to the Philippines), CLI-80-14, 11 NRC 631, 662 (1980). The only injury in the present case would be the commitment of resources to a hearing before the Commission has decided whether that hearing should be held. "Mere litigation expense, even substantial and unrecoupable cost, does not constitute irreparable injury." *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-395, 5 NRC 772, 779 (1977), *quoting Renegotiation Board v. Bannercraft Co.*, 415 U.S. 1, 24 (1974).[5]

With regard to the second factor, establishing a strong likelihood of prevailing on the merits, Licensee has not made a convincing argument. On the first issue, training, Licensee offers only a conclusionary argument that the Commission is likely to resolve the differences in judgment between the boards in favor of the Licensing Board. This argument

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[4] The Commission disagrees with the UCS argument that a stay is necessarily improper in this special proceeding. The Commission removed stay authority from the Appeal Board because the Commission intended to make the decision on restart. That does not mean that a stay by the Commission in the present circumstances would be improper.

[5] Licensee's argument that it will be irreparably injured through a delay in restart is irrelevant to the present question. The issue of restart is separate from the issue of whether the reopened hearings should be stayed until the Commission decides whether to review ALAB-772.

is insufficient for purposes of its stay motion to establish a strong likelihood of prevailing on the merits.[6]

Concerning the third factor, the Commission finds that the other parties would not be harmed by a stay. The only harm alleged by UCS and TMIA is a delay in the hearings and some unspecified relationship between that delay and a restart decision. The Commission will not authorize restart unless the concerns which led to making the 1979 shutdown order immediately effective are satisfied. A short delay in any hearings while the Commission determines whether those hearings should be held would not affect the Commission's decision.

The Commission finds that the fourth factor, the public interest, is neutral here. While there is some public interest in not pursuing those hearings before the Commission has considered if they are necessary, there is also a public interest in avoiding delay in hearings.

The Commission after considering these four factors has decided to deny Licensee's motion. The necessity of participating in a hearing does not constitute sufficient harm to justify a stay, and Licensee has failed to demonstrate that any of the other factors are significant enough in the present case to warrant a stay.

II. TMIA'S REQUEST TO LIFT STAY OF ALAB-738

The Appeal Board in ALAB-738 directed the Licensing Board to reopen the TMI-1 restart record to examine allegations made by Harold Hartman, a former TMI-2 operator, that leak rate data at TMI-2 had been falsified. On October 7, 1983, the Commission took review of whether the hearings should be deferred until after the Commission's Office of Investigations (OI) had completed an investigation it had instituted on the Hartman allegations. To preserve the *status quo*, the Commission stayed the Licensing Board hearings until it had received and considered the parties' views.

Shortly after issuance of the October 7 Order, the Department of Justice requested the Commission to stay further administrative proceedings related to the operation of TMI-2 until the then-pending criminal trial, *United States v. Metropolitan Edison Co.*, had been completed. The Commission agreed to cooperate with the Department of Justice and suspended the OI investigation of the Hartman allegations.

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[6] The Commission notes that in view of Licensee's failure to make the requisite showing on the training issue it is unnecessary to address the other two issues. Even if Licensee made the requisite showing on the other issues, the prospect of some reopened hearings would remain real.

TMIA in response to Licensee's request for a stay of ALAB-772 moved the Commission to lift the stay of the reopened hearings on the Hartman allegations. TMIA argued that there was no longer any basis for staying that decision. TMIA maintained that OI had substantially completed its investigation, that the company had already commissioned a new investigation, and that it was grossly unfair to deny the parties to the proceeding any opportunity to pursue this matter.

The Staff opposed TMIA's motion. Staff argued that the stay should continue until OI has completed its investigation of the Hartman allegations and issued its resulting report, especially in view of the previous Commission decision that the Hartman allegations do not have to be resolved before restart. Staff also argued that the stay should continue until the Commission decides whether further hearings are required under ALAB-772.

Licensee also opposed the TMIA motion. Licensee argued there was no urgency to pursuing the matter and the original basis for the stay remained valid. Licensee also noted that the Commission could still take review of whether further hearings were required.

The Commission has decided to grant TMIA's motion and lift the stay of the hearings ordered by the Appeal Board in ALAB-738. The Commission has not yet decided whether a full investigation of the Hartman allegations is still warranted, and, accordingly, the Commission has determined that its original concerns about conserving agency resources and avoiding duplication of effort are not now sufficient to warrant a stay. The Commission also notes in this regard that the Licensing Board in the prehearing conference on the issues remanded by ALAB-772 deferred proceeding on the TMI-1 leak rate matter pending further guidance by the Appeal Board or Commission because the Appeal Board expected the TMI-1 leak rate matter to be considered in conjunction with the Hartman remand. For purposes of a stay of hearings, the Commission sees no reason to treat the leak rate practices issues differently from the other remanded issues.

In sum, the Commission finds no reason to stay the remanded hearings. Licensee's motion to stay the remand directed in ALAB-772 is therefore denied, and TMIA's motion to lift the stay of the remand

directed in ALAB-738 is granted. The Commission in this decision is expressing no view on the merits of either Appeal Board decision.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 11th day of September 1984.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal
Lando W. Zech, Jr.

In the Matter of **Docket No. 50-289-SP (Restart)**

METROPOLITAN EDISON COMPANY,
et al.
(Three Mile Island Nuclear Station, Unit 1) **September 11, 1984**

In order to determine whether further hearings are required in this special restart proceeding for Unit 1 of the Three Mile Island (TMI) nuclear power plant and the scope of any such hearings, the Commission (1) decides to review certain portions of the Appeal Board decisions in ALAB-772, 19 NRC 1193 (1984), and ALAB-738, 18 NRC 177 (1983), and (2) requests the views of the parties regarding additional hearings. The Commission also announces its intention to determine whether the plant must remain shut down pending more hearings, should it find such hearings are required.

ORDER

On May 24, 1984, the Appeal Board issued its decision on the management issues in the Three Mile Island, Unit 1 (TMI-1) restart proceeding, ALAB-772, 19 NRC 1193. The Appeal Board found in three areas

"that the record does not support the Licensing Board's favorable findings concerning licensee's management of TMI-1." *Id.* at 1279. Those areas involve the adequacy of Licensee's training program, the May 9, 1979 mailgram from Herman Dieckamp to Congressman Udall regarding the "pressure spike," and leak rate practices at TMI-1.

As explained below, the Commission has decided to review the Appeal Board's decision on these three issues to determine whether further hearings are warranted. The Commission has also decided to review whether the Appeal Board in this proceeding had the legal authority to remove Mr. Charles Husted from supervisory duties, insofar as the training of nonlicensed personnel is concerned, without providing Mr. Husted with notice and an opportunity to request a hearing.

In addition, as explained below, the Commission has decided to take review of whether in view of changed circumstances further hearings are required on the Hartman allegations, as directed by the Appeal Board in ALAB-738, 18 NRC 177 (1983).[1] Finally, the Commission has decided to review whether any of the information discussed in Staff's latest evaluation of management integrity, NUREG-0680, Supplement No. 5, requires further hearings.

The Commission in this manner will decide whether any further hearings are required in this proceeding, and, if so, what their scope should be. The Commission in making its determination whether new information requires reopening of the record will use the traditional standards for reopening, and, accordingly, the parties should apply those standards in their comments. *See, e.g., Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876 (1980). The parties in addressing the scope of further hearings, if any, as requested throughout this Order, shall designate the specific disputed issues of fact material to a restart decision by the Commission on which further evidence must be produced and shall provide their most substantial factual and technical bases for their position on each such issue.

The Commission has decided not to rule on whether to lift the immediate effectiveness of the 1979 shutdown orders until after it has decided on what further evidentiary hearings, if any, are required in the restart proceeding. If the Commission decides that further hearings are required, it will decide whether the public health, safety and interest require completion of those hearings prior to a decision on lifting effectiveness.

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[1] Licensee's request that the remanded hearings directed by the Appeal Board in ALAB-772 be stayed and TMIA's request that the stay of ALAB-738 be immediately lifted are being addressed in a separate Order that is being issued today (CLI-84-17, 20 NRC 801).

I. REVIEW OF ALAB-772

Licensee, General Public Utilities Nuclear Corporation (GPU Nuclear), on June 22, 1984, requested the Commission to review ALAB-772 insofar as it reopens the record on the management phase of this proceeding. Licensee argued that the Licensing Board's decision, which found in favor of restart, was adequate, and that the perfection in the record sought by the Appeal Board was unnecessary. The NRC Staff had no objection to Commission review of ALAB-772.

Licensee's petition was opposed by Three Mile Island Alert (TMIA) and the Union of Concerned Scientists (UCS). Both argued that the Appeal Board was correct on the three remanded issues, and that Licensee had failed to demonstrate that these issues met the standards for Commission review set forth in 10 C.F.R. § 2.786.

The proceeding to determine whether TMI-1 should be restarted was initiated by Commission Order in August 1979. CLI-79-8, 10 NRC 141. The Commission at that time had no conception that this proceeding would last for 5 or more years. The proceeding has become one of the most complex in Commission history, requiring a high degree of Commission involvement.

The Commission has decided that, due to the unique nature of this enforcement proceeding, it will make the decision on whether further hearings are required, and if so, what the specific issues in those hearings should be. *See, e.g., Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-77-8, 5 NRC 503, 516 (1977); *United States Energy Research and Development Administration* (Clinch River Breeder Reactor Plant), CLI-76-13, 4 NRC 67, 75-76 (1976). Accordingly, the Commission has decided to take review of ALAB-772 insofar as it remands three issues to the Licensing Board for further hearings. The parties in their comments should address both the need for further hearings and what the scope of such further hearings, if any, should be. The Commission in this regard is particularly interested in the parties' analyses and conclusions regarding the significance of information developed since the close of the hearing record relating to the adequacy of Licensee's training program. The Commission by taking review is expressing no view on the merits of the Appeal Board's decision. Nor does the Commission intend this Order to affect the ongoing hearings before the Licensing Board.

In addition, the Commission has decided to take review of the Appeal Board's requirement as a condition of restart that Mr. Charles Husted "have no supervisory responsibilities insofar as the training of non-licensed personnel is concerned." ALAB-772, *supra*, 19 NRC at 1224.

The Commission is not concerned with the underlying justification for the Appeal Board's act, but rather with whether an adjudicatory board in an ongoing hearing has the legal authority to impose a condition on a licensee which in effect operates as a sanction against an individual, where that individual is not a party to the proceeding and has had no notice of a possible sanction or opportunity to request a hearing. The parties should accordingly limit their comments to the legal issue involved. The Commission if it determines that the Appeal Board erred will then decide whether to take enforcement action against Mr. Husted separate from the restart proceeding.

II. REVIEW OF ALAB-738

On October 7, 1983, the Commission issued an Order (unpublished) taking review of whether the hearing on the Hartman allegations ordered by the Appeal Board in ALAB-738 should be stayed until the Commission's Office of Investigations (OI) had completed an investigation it had started on the Hartman allegations. To preserve the status quo, the Commission stayed the Appeal Board decision pending receipt and consideration of the parties' comments.

At the time that it issued its Order the Commission was concerned that concurrent efforts by OI and the Licensing Board on the Hartman allegations would involve a duplication of effort and constitute a possible source of complaint of harassment of witnesses. Another concern was that the NRC had already issued subpoenas to forty-seven witnesses requesting them to appear to answer questions posed by OI. A motion to quash the subpoenas had been denied by the Commission, and the government was preparing a motion asking the Federal District Court to enforce the subpoenas. There was no reason to believe that the Licensing Board would have had an easier time than OI in securing witness cooperation. Accordingly, the Commission perceived that there was little chance that Licensing Board hearings could meaningfully proceed.

After the Commission stayed the hearing, the Department of Justice on December 14, 1983, asked the Commission to stay further agency activity related to the Hartman allegations until the then-pending criminal trial, *United States v. Metropolitan Edison Co.*, Criminal No. 83-00188 (M.D. Pa.), had been completed. The Commission agreed to cooperate with the Department of Justice and suspended the OI investigation of the Hartman allegations.

Metropolitan Edison entered into a plea agreement on February 29, 1984, with the United States which ended the criminal prosecution. Metropolitan Edison pleaded guilty to one count of the indictment charging it with failure to establish, implement and maintain an accurate and meaningful reactor coolant system water inventory balance procedure to demonstrate that unidentified leakage was within allowable limits. It also pleaded no-contest to six other counts of the indictment, including those which charged the company with improper manipulation of TMI-2 leak rate tests to generate results that would fulfill the company's license requirements.

The Commission has been considering how best to proceed in this matter since completion of the criminal trial. The Commission felt that decision would depend in part on whether the Commission could obtain access to the record of the Grand Jury proceeding which led to the indictment of Metropolitan Edison. On June 25, 1984, the District Court for the Middle District of Pennsylvania denied the Commission's request for the Grand Jury record.

The Commission has also been considering the future extent of OI's investigation into this matter, and the effect of changes in personnel at TMI on the relevance of that investigation to operation of TMI-1. For instance, Herman Dieckamp has been relieved of his duties as Chairman and Chief Executive Officer of GPU Nuclear, although he continues to serve on the Board of Directors of GPU Nuclear, and Robert Arnold, who had been President of GPU Nuclear, has been reassigned to non-nuclear work with the GPU organization. Philip Clark, formerly Executive Vice President of GPU Nuclear, has replaced Arnold as President of GPU Nuclear, while E.E. Kintner, formerly Vice President, has become Executive Vice President. GPU Nuclear has also added to its Board of Directors three outside directors who will comprise a Nuclear Safety and Compliance Committee of the GPU Nuclear Board. That Committee has hired a staff to monitor the operation and maintenance of the GPU Nuclear units. The Committee's findings will be detailed in periodic public reports. These new individuals in charge — Messrs. Clark, Kintner, and the new members of the Board — had no connection to or responsibility for the actions taken in 1978 and 1979 that led to the criminal convictions.[2] Nor are any of the individuals who may have been

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[2] The Commission notes in this regard the statement by the United States Attorney at the sentencing hearing that the evidence does not indicate that any of the Directors and Officers of GPU Nuclear from its organization in 1982 to the date of the indictment, or the Directors of Metropolitan Edison Company during the period covered by the indictment, "participated in, directed, condoned or was aware of the acts or omissions that are the subject of the indictment."

directly responsible for the falsifications currently employed in operational positions at TMI-1.[3]

In light of these developments, the Commission has determined that it should now decide whether the restart hearing should be reopened, and, if not, whether there should be a hearing on the Hartman allegations separate from the restart proceeding in order to allow the matter to be fully aired. Accordingly, the Commission is inviting the parties to submit their views on whether a hearing on the Hartman allegations is warranted and, if so, what the scope of the hearing should be.

III. REVIEW OF NUREG-0680, SUPPLEMENT NO. 5

The NRC Staff in NUREG-0680, Supp. No. 5, reviewed nine investigations by OI and other materials that appeared to be relevant and material to evaluating Licensee's management integrity. Staff in its evaluation indicated that significant facts unknown to the Staff during the hearings demonstrated a "pattern of activity on the part of the Met-Ed [that], had it been known at the time, would likely have resulted in a conclusion by the Staff that the Licensee had not met the standard of reasonable assurance of no undue risk to public health and safety." *Id.* at 13-5. However, with regard to the current Licensee, GPU Nuclear, Staff concluded after balancing the past improper activities against the subsequent record of remedial actions and performance, as well as the record of current senior management, that present GPU Nuclear management was acceptable. Staff in making this determination relied in part on information outside the formal adjudicatory record.

Considering the amount of extra-record material relied on by Staff in Supp. No. 5 and Staff's conclusions regarding Metropolitan Edison, the

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[3] The Commission believes that, in the absence of any contrary information, OI's report on leak rate practices at TMI-1 leaves no significant doubt that Michael Ross had no involvement in falsifications at Unit 2. Mr. Ross is the only person currently in an operational position at TMI-2 who was licensed to operate TMI-2 prior to the accident. OI's investigation shows that Mr. Ross primarily worked at TMI-1, and that he had no involvement with leak rate falsifications at TMI-2.

The Commission recognizes that a limited number of individuals who were in operational positions at TMI-2 prior to the accident are now in nonoperational positions at TMI-1 and it is possible that the Commission may order the temporary separation of some or all of these individuals as a condition of restart. The Commission also recognizes that Licensee, until the open issues (including the Hartman allegations) are resolved, has temporarily reassigned personnel in such a manner that those functions which provide an overview assessment, analysis, or audit of plant activities, contain only personnel who, prior to the accident, had not been in a management, supervisory, or professional position at TMI-1 or -2. The parties in their comments should address whether or not further evidentiary hearings are required to determine the final disposition of the status of these individuals and whether any such hearings can be separated from the restart proceeding. Licensee in this connection should provide a list of the individuals who have been temporarily reassigned and whom Licensee may wish to return to TMI-1 at any time in the future.

Commission wishes the parties to address whether any of the information addressed in Supp. No. 5 requires further reopening of the record. The parties should not address matters where motions to reopen have already been granted or denied on the same information cited by Staff, but rather should specify what, if any, new information which has not yet been passed on by a Board warrants reopening of the record.[4]

If the Staff's position is that the evidentiary record in the restart proceeding needs to be reopened on Supp. No. 5 issues, the Staff shall designate the specific disputed issues of fact on which further evidence must be produced and shall provide in its response its supplemental testimony on each such issue in the form of affidavits. Staff shall also explain how this supplemental testimony alters the testimony it provided to the Licensing Board.

If the Staff's position is that the evidentiary record in the restart proceeding does not need to be reopened on Supp. No. 5 issues, the Staff shall explain how it reached this conclusion in view of its statement in Supp. No. 5 that

> [t]his pattern of activity on the part of Met-Ed, had it been known at the time, would likely have resulted in a conclusion by the staff that the licensee had not met the standard of reasonable assurance of no undue risk to public health and safety. However, these matters, or the significant facts concerning these matters, were not known to the NRC staff during the ASLB's proceeding on TMI-1 restart.

Supp. No. 5, at 13-5.[5] Staff in this regard should specify what testimony it gave before the Licensing Board that it would now change, and why that change in testimony does not require reopening.

The parties have 20 days from service of this Order to submit their views on the above issues, and 15 days thereafter to submit any reply comments. The Commission will then decide the overall question of whether further hearings are required, and, if so, what their scope should be.

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[4] Because the Commission will decide whether or not the information contained in Supp. No. 5 requires reopening of the record, the parties should not file separate motions to reopen the record on matters addressed in Supp. No. 5 with the Licensing Board or Appeal Board.

[5] Regardless of its position on reopening, Staff shall set forth exactly what new information led it to the above-quoted conclusion on Metropolitan Edison Co. The Commission notes in this regard that the certification of Floyd and post-accident cheating were litigated before the Licensing Board, the Appeal Board in ALAB-774, 19 NRC 1350 (1984), denied a motion to reopen on pre-accident training irregularities, and the Staff was aware of the Hartman allegations in 1979.

Staff in addressing whether further hearings are required should also explain why it believes current GPUN management is acceptable in light of its assertions that management may not have been adequate until 1982. We note that from 1980 to 1982 key GPUN personnel such as Messrs. Philip Clark and Henry Hukill held senior management positions, and some of the organizational elements that were in place prior to 1982 closely paralleled current GPUN structures.

Commissioner Asselstine disapproved this Order. His separate views are attached. The separate views of Commissioner Roberts and the additional views of Chairman Palladino are also attached.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 11th day of September 1984.

DISSENTING VIEWS OF COMMISSIONER ASSELSTINE

I cannot agree with the Commission's Order taking review of ALAB-772 and other miscellaneous TMI Restart issues. The Appeal Board decision should be allowed to stand, and the Commission should merely remand the other issues it has decided to review to the Licensing Board. The Licensing Board can then determine whether new information warrants holding a hearing.

The Appeal Board decision on management issues (ALAB-772) is a particularly thoughtful and well-done review of the Licensing Board's decision. The Commission has not and indeed cannot point to anything in the Appeal Board decision which is either clearly erroneous or an abuse of discretion, neither is there any important question of law or policy involved. These are the proper triggers for Commission review. 10 C.F.R. § 2.786. Instead, the Commission, without finding that the Appeal Board erred, is requiring parties who have already prevailed before the Appeal Board to again meet the heavy burden of showing why the record should be reopened.

Further, the Commission has required the parties, in effect, to set out contentions they want to put forth at a hearing and the evidentiary bases for those contentions. The Commission intends not only to rule on whether the record should be reopened and remanded to the Licensing Board, but it also intends to rule on what specific contentions the Licensing Board may hear, if any. As I have said in the past, this is the kind of ruling best left in the hands of licensing boards which are perfectly capa-

ble of, and in fact were specifically set up for, handling such fact-specific adjudicatory rulings.

The Commission has also decided to solicit comments on whether the record should be reopened on the Hartman issues (ALAB-738) and based upon the Staff's latest evaluation of Licensee management — NUREG-0680, Supp. No. 5. There has been so much new information on the management issue since the close of the Licensing Board record that the Licensing Board record clearly is stale. The following statement of the Staff, standing alone, demonstrates the staleness of the Licensing Board record:

> The pattern of activity by Met-Ed, had it been known by the staff at the time the staff formulated its positions on management in the restart proceeding would likely have resulted in a conclusion by the staff that Met-Ed had not met the standard of reasonable assurance of no undue risk to the public health and safety.

NUREG-0680, Supp. No. 5, p. 2-2. The Commission ought simply to acknowledge the obvious, reopen the record, and remand the case to the Licensing Board for a determination on whether further hearings on these issues would be useful. The parties to this proceeding have been asked repeatedly to comment on all this new information, and have repeatedly expressed opinions about the need to, or lack of a need to, reopen the record for a hearing. Obtaining further comments on this issue is nothing more than procedural window dressing and is a waste of time and energy for all concerned.

The Commission ought to decide finally whether the TMI-1 Restart decision is to be based on a formal adjudicatory record or on an informal record. If the Commission really thinks a formal record is necessary, as it said it did 5 years ago, it ought to stop playing procedural games, reopen the record and get these hearings moving. If the Commission instead intends to make its decision based partially on the informal record developed since the close of the Licensing Board record and not wait for the results of any hearings, the Commission ought to just make that decision and move on. Today's Order accomplishes nothing but delay in either case.

SEPARATE VIEWS OF COMMISSIONER ROBERTS ON ALAB-772 AND OTHER MATTERS
(September 10, 1984)

My dissenting colleague asserts that the majority has improperly taken review of ALAB-772 and other matters decided by the Appeal Board. I must disagree with that characterization of our decision.

I view our taking of review as exercising our supervisory authority and responsibility to chart the course of the remainder of this proceeding. At this stage of the proceeding, the procedures used by a Licensing Board to screen contentions at the initial stages of a proceeding do not apply. We are not "playing procedural games." We are trying to assure that any further hearings that may be necessary to produce factual information material to our decision on restart are focused on issues which are genuinely in dispute. Until we receive from the parties their responses to this Order, we cannot decide whether further hearings are necessary, or, if they are, what their scope should be.

In light of the course of this proceeding over the past 5 years, I believe that, had we not taken review, we would have been shirking our duty.

ADDITIONAL VIEWS OF CHAIRMAN PALLADINO

I agree with the Commission's decision and with Commissioner Roberts' comments in response to the dissenting opinion of Commissioner Asselstine. I would add that I cannot agree with Commissioner Asselstine that our decision "accomplishes nothing but delay." I believe that the restart proceeding can benefit from Commission guidance at this time on what specific disputed issues warrant further hearings as they may affect the Commission's pending restart decision. I would not conclude that the Commission's decision can only engender delay, particularly in light of the decision to permit hearings to proceed in the interim. The course that fosters delay, it seems to me, is for the Commission to do nothing as Commissioner Asselstine appears to prefer, thus leaving the entire matter in the Licensing Board's lap.

Atomic Safety and Licensing Appeal Boards Issuances

ATOMIC SAFETY AND LICENSING APPEAL PANEL

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

*Dr. Buck resigned from the Panel on September 7, 1984.

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)

September 6, 1984

Upon the appeals of intervenors and the Governor of California, the Appeal Board affirms (with respect to Unit 1) the initial decision of the Licensing Board authorizing the issuance of a full power license for the Diablo Canyon nuclear facility. Consideration of Unit 2 by the Appeal Board is postponed, pending the Board's completion of findings of fact for that unit.

RULES OF PRACTICE: BRIEFS

Exceptions to an initial decision that are not briefed on appeal are deemed waived. *See Public Service Electric and Gas Co.* (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 NRC 43, 49 (1981), *aff'd sub nom., Township of Lower Alloways Creek v. Public Service Electric & Gas Co.*, 687 F.2d 732 (1982); *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-461, 7 NRC 313, 315 (1978).

EMERGENCY PLANNING: EARTHQUAKE IMPACTS

NRC regulations do not require specific consideration of the impacts of earthquakes on emergency planning. *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-81-33, 14 NRC 1091 (1981). *See also Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-728, 17 NRC 777, 793 (1983); CLI-84-12, 20 NRC 249, 250 (1984).

POLICY STATEMENT: ENVIRONMENTAL IMPACT OF "CLASS 9" ACCIDENTS

The Commission's June 13, 1980 policy statement entitled "Nuclear Power Plant Accident Considerations Under the National Environmental Policy Act of 1969," 45 Fed. Reg. 40,101, does not mandate that the agency consider Class 9 accident sequences for plants, like Diablo Canyon, where the final Environmental Impact Statement has already been issued, unless there is a showing of special circumstances. In this instance, location of a nuclear power plant in a region of known seismicity is not a "special circumstance" under the policy statement.

EMERGENCY PLANNING: FEMA FINDINGS (NEED FOR FINAL FINDINGS)

The Commission's emergency response regulations, 10 C.F.R. 50.47(a)(2), do not require "final" Federal Emergency Management Agency (FEMA) findings on the adequacy of offsite emergency response plans before a license may be authorized. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-776, 19 NRC 1373 (1984).

EMERGENCY PLANNING: EMERGENCY PLANNING ZONES

Central to the development of offsite emergency response plans under the Commission's regulations is the concept of emergency planning zones (EPZs), i.e., those areas around a plant for which planning is needed so that timely and effective actions can be taken to protect the public in the event of a radiological emergency. *See* 10 C.F.R. 50.47(c)(2); 10 C.F.R. Part 50, Appendix E; "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) at 10. The Commission's regulatory

scheme contemplates the establishment of two such zones: the plume exposure pathway that "shall consist of an area about 10 miles (16 km) in radius" and the ingestion pathway that "shall consist of an area about 50 miles (80 km) in radius." 10 C.F.R. 50.47(c)(2).

EMERGENCY PLANNING: REQUIREMENTS

The Commission's regulations require that emergency response planning within the emergency planning zones meet the requirements set forth in 10 C.F.R. 50.47(b). Section 50.47(c)(2) further provides that "[t]he 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."

EMERGENCY PLANNING: EMERGENCY PLANNING ZONES (SIZE)

Although the regulations provide that the exact size and configuration of a particular EPZ is to be determined with reference to site-specific factors, the wholesale enlargement of the Commission-prescribed EPZs by a state cannot preclude a licensing decision based upon the requirements of the NRC regulations. *See Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), LBP-82-39, 15 NRC 1163, 1181 (1982), *aff'd*, ALAB-717, 17 NRC 346 (1983) (The Commission's regulations "clearly allow leeway for a mile or two in either direction, based on local factors. But it . . . clearly precludes a plume EPZ radius of, say, 20 or more miles.").

EMERGENCY PLANNING: EXCEPTIONS TO REGULATIONS

A party seeking to impose a radical departure from the Commission's prescribed EPZs should seek an exception to the rule pursuant to 10 C.F.R. 2.758.

APPEAL BOARDS: STANDARD OF REVIEW

The standard applicable to appeal board review of a licensing board's factual findings is whether an appeal board's examination of the evidence convinces it that the record compels a different result. *See Northern States Power Co.* (Monticello Nuclear Generating Plant, Unit 1),

ALAB-611, 12 NRC 301, 304 (1980); *Niagara Mohawk Power Corp.* (Nine Mile Point Nuclear Station, Unit 2), ALAB-264, 1 NRC 347, 357 (1975).

EMERGENCY PLANNING: PREDICTIVE FINDINGS

The Commission's emergency response regulations contemplate, in appropriate circumstances, predictive findings on emergency response planning so that operation of a facility need not be delayed unnecessarily by the hearing process. *See San Onofre, supra,* 17 NRC at 380 n.57. *See generally Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-730, 17 NRC 1057, 1067 (1983).

LICENSING BOARDS: RESOLUTION OF ISSUES

A Licensing Board must adequately confront the conflicting viewpoints of expert witnesses and resolve each issue before it. *See generally Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-442, 6 NRC 33, 41 (1977).

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 S. Georgiou, Sacramento, California, and **Herbert H. Brown** and **Lawrence Coe Lanpher,** Washington, D.C., for Edmund G. Brown, Jr., (former) Governor of the State of California.*

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

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*Since the briefing 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.

Lawrence J. Chandler, Donald F. Hassell and **Sherwin E. Turk** for the Nuclear Regulatory Commission staff.

DECISION

All parties appealed the Licensing Board's August 31, 1982 initial decision, LBP-82-70, 16 NRC 756 (1982), authorizing a full power license for Pacific Gas and Electric Company's Diablo Canyon Nuclear Power Plant, Units 1 and 2. In this decision, we address the appeals of the joint intervenors and the Governor of California from that decision. Previously, in ALAB-776, 19 NRC 1373 (1984), we decided the appeals of the applicant and the NRC staff. The present appeals challenge the adequacy of emergency planning at Diablo Canyon. In addition, the joint intervenors dispute the sufficiency of the NRC's environmental review of the Diablo Canyon project.[1]

I.

In its initial decision, the Licensing Board made detailed factual findings on the numerous facets of the onsite and offsite emergency response planning for Diablo Canyon.[2] The Board then concluded that emergency planning for the facility complies with the Commission's

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[1] The adjudicatory history of the Diablo Canyon project extends over a period exceeding a decade and can be traced through numerous agency decisions. *See, e.g.*, ALAB-334, 3 NRC 809 (1976) (authorization of Part 70 license to store new fuel); LBP-78-19, 7 NRC 989 (1978) (partial initial decision on environmental and some safety issues); LBP-79-26, 10 NRC 453 (1979) (partial initial decision on non-TMI issues, e.g., risk from aircraft, seismic and security); ALAB-598, 11 NRC 876 (1980) (reopening of record for seismic issues); ALAB-644, 13 NRC 903 (1981) (seismic findings on reopened record); LBP-81-21, 14 NRC 107 (1981) (partial initial decision authorizing fuel loading and low power testing); ALAB-653, 14 NRC 629 (1981) (security findings based on reopened record; expurgated findings attached to CLI-82-19, 16 NRC 53 (1982)); CLI-81-22, 14 NRC 598 (1981) (immediate effectiveness review); CLI-81-30, 14 NRC 950 (1981) (suspension of low power license); ALAB-728, 17 NRC 777 (1983) (low power authorization affirmed); CLI-83-27, 18 NRC 1146 (1983) (fuel loading and precriticality testing authorized); CLI-84-2, 19 NRC 3 (1984) (hot system testing authorized); ALAB-763, 19 NRC 571 (1984) (findings on adequacy of Unit 1 design following reopening of record); CLI-84-5, 19 NRC 953 (1984) (lifting suspension of low power license); CLI-84-13, 20 NRC 267 (1984) (immediate effectiveness review).

[2] LBP-82-70, *supra*, 16 NRC at 763-92, 799-849. What we stated in ALAB-776, *supra*, 19 NRC at 1375 n.4, concerning the format of the Licensing Board's initial decision warrants repeating:

> The Board's initial decision consists of essentially two parts. The first is a lengthy "opinion" discussing the issues, the evidence, and the Board's resolution of the issues. LBP-82-70, *supra*, 16 NRC at 759-98. The second is an equally lengthy listing of "findings of fact" and "conclusions of law" largely repetitious of what the Board already stated in the first part of its decision. *Id.* at 798-855. Besides being exceedingly time-consuming for both the writers and the readers, this format holds the potential for creating . . . inconsistencies within the four corners of the decision.

emergency response regulations and provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.[3] On appeal, the joint intervenors and the Governor challenge these conclusions on several grounds.[4]

A. They assert that the Board erred in making these determinations without first considering the effects upon emergency planning of a major earthquake which causes, or occurs during, a radiological emergency at the facility.[5] In a prehearing conference order the Licensing Board rejected the attempt to inject this issue into the proceeding,[6] relying upon the Commission's then-recent decision in *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-81-33, 14 NRC 1091 (1981). That decision held the agency's regulations do not require specific consideration of the impacts of earthquakes on emergency planning.

The joint intervenors and the Governor raised this same issue in their earlier appeals[7] from the Licensing Board's partial initial decision authorizing fuel loading and low power testing at Diablo Canyon.[8] In ALAB-728, we resolved this issue against them, holding that the Commission's *San Onofre* decision "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."[9] Normally, our resolution of this issue in ALAB-728 would be the law of the case and preclude any further consideration of the same issue on appeals from the Licensing Board's initial decision. In this instance, however, the Commission has, in effect, directed certification of the

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[3] LBP-82-70, *supra*, 16 NRC at 761, 797-98.

[4] Pursuant to 10 C.F.R. 2.762 (1982), the joint intervenors filed 198 exceptions to the Licensing Board's initial decision and other related rulings while the Governor filed 83 exceptions. *See* Joint Intervenors' Exceptions to the Licensing Board's August 31, 1982 Initial Decision (September 16, 1982); Exceptions of Governor [of California] to Licensing Board Initial Decision of August 31, 1982 (September 16, 1982). Only those issues briefed by the joint intervenors or the Governor are treated in this opinion. The remaining exceptions are deemed waived for failure to brief them on appeal. *See Public Service Electric and Gas Co.* (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 NRC 43, 49 (1981), *aff'd sub nom., Township of Lower Alloways Creek v. Public Service Electric & Gas Co.*, 687 F.2d 732 (1982); *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-461, 7 NRC 313, 315 (1978).

[5] *See* Joint Intervenors' Brief in Support of Exceptions (November 8, 1982) [hereinafter Joint Intervenors' Brief] at 21-30; Brief of Governor [of California] in Support of Exceptions (November 8, 1982) [hereinafter Brief of Governor] at 2-8.

[6] *See* Memorandum and Order of December 23, 1981 (unpublished) at 1-2.

[7] *See* Joint Intervenors' Brief in Support of Exceptions (September 2, 1981) at 53-55; Brief of Governor [of California] on Appeal of the Licensing Board Partial Initial Decision of July 17, 1981 (September 2, 1981) at 35-40.

[8] *See* LBP-81-21, 14 NRC 107 (1981).

[9] 17 NRC 777, 793 (1983).

issue on its own motion.[10] After declining to review ALAB-728,[11] the Commission, on April 3, 1984, announced that it would decide whether the effects of earthquakes on emergency planning at Diablo Canyon should be considered.[12] In a decision issued August 10, the Commission "determined that the information before it does not warrant departure from the decision in *San Onofre* that the NRC's regulations 'do not require consideration of the impacts on emergency planning of earthquakes which cause or occur during an accidental radiological release.' "[13] In these circumstances, the issue appealed by the joint intervenors and the Governor is no longer before us.

B. The joint intervenors also argue that the Licensing Board erred in authorizing a license for Diablo Canyon without first addressing the consequences of a Class 9 accident at the facility.[14] Like their argument concerning the complicating effects of earthquakes on emergency planning, the joint intervenors raised this issue on their appeal from the Licensing Board's partial initial decision authorizing fuel loading and low power testing. Once again this issue was resolved against them in ALAB-728.

In a Memorandum and Order dated June 19, 1981, the Licensing Board denied the joint intervenors' motion to reopen the record to consider the environmental consequences of a Class 9 accident at Diablo Canyon.[15] On appeal of the decision authorizing low power testing, the joint intervenors argued that the Board's denial of their earlier motion was error. They asserted that the Commission's June 13, 1980 policy statement entitled "Nuclear Power Plant Accident Considerations Under the National Environmental Policy Act of 1969," 45 Fed. Reg. 40,101, mandated that the agency consider Class 9 accident sequences for Diablo Canyon in its Environmental Impact Statement (EIS).[16] In ALAB-728, we fully rehearsed the evolution of the agency's treatment of so-called Class 9 accidents from the time such postulated events received no consideration through the issuance of the Commission's 1980 policy statement, which announced that future agency environmental impact statements should include their consideration. Contrary to the joint intervenors' argument that pending cases required consideration of Class 9 accidents, we held that the policy statement, by its terms, was

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[10] *See* 10 C.F.R. 2.718(i).
[11] *See* CLI-83-32, 18 NRC 1309 (1983).
[12] *See* CLI-84-4, 19 NRC 937 (1984).
[13] CLI-84-12, 20 NRC 249, 250 (1984).
[14] *See* Joint Intervenors' Brief at 47-53.
[15] LBP-81-17, 13 NRC 1122 (1981).
[16] *See* Joint Intervenors' Brief in Support of Exceptions (September 2, 1981) at 56-57. *See also* ALAB-728, *supra*, 17 NRC at 795.

limited to proceedings where the agency had not yet issued a final EIS.[17] In the case of Diablo Canyon where the final EIS had already been issued, supplemented, litigated and found adequate, we held that the "change in policy announced in 1980 was not intended by the Commission to apply."[18] We went on to note, however, that the Commission's policy statement did not completely foreclose consideration of Class 9 accidents in proceedings like Diablo Canyon if certain "special circumstances" were shown. But we found that

> 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.[19]

The joint intervenors now seek to argue on this appeal that the Licensing Board's conclusion that no special circumstances exist at Diablo Canyon was erroneous. Their argument comes too late. Nothing barred the joint intervenors from raising this additional argument on their previous appeal. Indeed, they were required to put forth all their arguments on this issue at that time. To allow a second appeal of the same issue would lead to endless litigation.

In any event, the joint intervenors' argument that special circumstances exist at Diablo Canyon is without merit. As noted in ALAB-728, the Commission's policy statement set forth the "unique circumstances" in cases that had in the past warranted consideration of Class 9 accidents.[20] The Commission cited the novel design of the proposed Clinch River Breeder Reactor, the high population density surrounding the proposed Perryman site, and the potentially serious radiological exposures associated with water pathways from Offshore Power Systems' floating nuclear power plants. It then indicated that final environmental statements should be expanded to include Class 9 accident analyses only in "similar special circumstances."[21] The joint intervenors do not contend that Diablo Canyon presents circumstances similar to those listed in the Commission's policy statement. Rather, they argue there is a fourth category — proximity to a natural hazard — that demands consid-

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[17] ALAB-728, *supra*, 17 NRC at 795-96.
[18] *Id.* at 796.
[19] *Id.*
[20] ALAB-728, *supra*, 17 NRC at 796; 45 Fed. Reg. 40,101, 40,102 (1980).
[21] 45 Fed. Reg., *supra*, at 40,103.

eration of Class 9 accidents because Diablo Canyon is located in the vicinity of the Hosgri Fault and in a region of known seismicity.

The "natural hazard" category relied upon by joint intervenors originated with the Commission's opinion in *Public Service Co. of Oklahoma* (Black Fox Station, Units 1 and 2), CLI-80-8, 11 NRC 433, 434 (1980). There the Commission reversed our order requiring the staff to inform the Commission whether Class 9 accidents should be considered for that reactor.[22] *Black Fox* preceded the Commission's policy statement and was an evolutionary step toward the policy's development. In that decision, the Commission listed the same three categories of special cases that subsequently appeared in the policy statement. It also noted a fourth category, i.e., "proximity to man-made or natural hazard," that represented the "type of *exceptional* case that *might* warrant additional consideration."[23] Because the natural hazards category was not subsequently repeated in the policy statement, that category's continuing validity is suspect. Nor is the natural hazards category "similar" to the other categories in the policy statement.[24] Putting these distinctions to one side, the natural hazards category still does not advance the joint intervenors' position.

Contrary to joint intervenors' argument, the fact that Diablo Canyon is located in the vicinity of the Hosgri Fault and in a region of known seismicity does not make the Diablo Canyon situation "unique" or "exceptional" as required by the policy statement and *Black Fox*. Pursuant to General Design Criterion 2 (GDC 2) of 10 C.F.R. Part 50, Appendix A, nuclear power plants are required to be designed to withstand earthquakes and certain other natural hazards. Specifically, it directs that they

> shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions. The design bases for these structures, systems, and components shall reflect: (1) Appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena and (3) the importance of the safety functions to be performed.[25]

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[22] *See* ALAB-573, 10 NRC 775, 790-92 (1979).

[23] CLI-80-8, *supra*, 11 NRC at 434 (emphasis in the original).

[24] *See Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-705, 16 NRC 1733, 1742 n.24 (1982).

[25] 10 C.F.R. Part 50, Appendix A, Criterion 2.

Diablo Canyon, like other licensed facilities, has been found to meet this standard.[26] In other words, the effects of the hazards listed in GDC 2 are typical of those that all commercial reactors must be designed to meet. They are not the "unique" and "exceptional" circumstances that under the Commission's precedents and policy statement require consideration of Class 9 accidents.[27] Accordingly, the Licensing Board was correct in concluding that no special circumstances exist at Diablo Canyon that require consideration of Class 9 accidents.[28]

C. Next, the joint intervenors and the Governor argue that the Licensing Board erred in authorizing the issuance of a full power license before the Federal Emergency Management Agency (FEMA) issued "final" findings on the adequacy of the state and local offsite emergency response plans for Diablo Canyon. They argue that such "final" FEMA findings, and their right to rebut them, are mandated by the Commission's emergency response regulations, 10 C.F.R. 50.47(a)(2).[29] This issue was decided in ALAB-776 in resolving the appeals of the applicant and the staff from the Licensing Board's initial decision. In opposing those appeals, the joint intervenors and the Governor made the identical argument and proffered the same interpretation of the Commission's regulations.[30] We held that the Commission's emergency response regulations did not require "final" FEMA findings on the adequacy of offsite emergency response plans, and that interim FEMA findings and the testimony of FEMA witnesses with respect to the adequacy of such plans was all that was needed to comply with the regulations. Further, with respect to the state plan and preparedness, we found that the hearing record fully supported the Licensing Board's conclusion that there was

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[26] At the time the joint intervenors moved to reopen the record for consideration of Class 9 accidents at Diablo Canyon, the Licensing Board had already conducted exhaustive hearings on the effects of seismic forces on the facility. Subsequently, the Board found the seismic design adequate. *See* LBP-79-26, 10 NRC 453 (1979). Thereafter, we reopened the record to hear new evidence that was not available to the Board below and, after further hearings, affirmed the Licensing Board's decision. *See* ALAB-644, 13 NRC 903 (1981).

[27] We note that the Director of Nuclear Reactor Regulation has also denied two petitions filed pursuant to 10 C.F.R. 2.206 seeking to have the agency consider the effects of Class 9 accidents at Diablo Canyon. *See* DD-80-22, 11 NRC 919 (1980); DD-81-3, 13 NRC 349 (1981). The second petition was filed by the joint intervenors. In denying both petitions, the Director found that there were no special circumstances at Diablo Canyon warranting the consideration of Class 9 accidents.

[28] The joint intervenors also argue that the Licensing Board's failure to consider the consequences of Class 9 accidents violates the National Environmental Policy Act, 42 U.S.C. §§ 4321 *et seq.*, and the regulations of the Council on Environmental Quality, 40 C.F.R. 1502.9(c). The explicit purpose of the Commission's June 13, 1980 policy statement, however, was to ensure compliance with NEPA. We are, therefore, bound by the policy statement. *See* ALAB-705, *supra*, 16 NRC at 1738 n.13.

[29] *See* Joint Intervenors' Brief at 12-20, 37-38; Brief of Governor at 12-14.

[30] *See* Joint Intervenors' Response to Pacific Gas and Electric Company and NRC Staff Briefs in Support of Exceptions to August 31, 1982 Initial Decision (December 20, 1982) at 4-11; Brief of Governor [of California] in Reply to PG&E and NRC Staff Briefs in Support of Exceptions (December 20, 1982) at 1-6.

reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.[31]

D. Central to the development of offsite emergency response plans under the Commission's regulations is the concept of emergency planning zones (EPZs), i.e., those areas around a plant for which planning is needed so that timely and effective actions can be taken to protect the public in the event of a radiological emergency.[32] The Commission's regulatory scheme contemplates the establishment of two such zones: the plume exposure pathway that "shall consist of an area about 10 miles (16 km) in radius" and the ingestion pathway that "shall consist of an area about 50 miles (80 km) in radius."[33] As we stated in reviewing this regulatory scheme in *Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit No. 1), ALAB-727, 17 NRC 760, 765 (1983),

> [t]he 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.

The Commission's regulations then require that emergency response planning within these two zones meet the requirements set forth in 10 C.F.R. 50.47(b).

In its emergency response planning for Diablo Canyon, the State of California established substantially larger EPZs around the plant than those specified in 10 C.F.R. 50.47(c)(2). Although recognizing the Commission-prescribed EPZs, the State established three zones that more than encompassed the federal zones: the California Basic EPZ (plume); the California Extended EPZ (plume); and the California Ingestion Pathway EPZ.[34] The Basic EPZ, for instance, has an average radius of about 15 miles but extends 18 miles beyond the plant to the

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[31] ALAB-776, *supra*, 19 NRC at 1380.

[32] *See* 10 C.F.R. 50.47(c)(2); 10 C.F.R. Part 50, Appendix E; "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) at 10.

[33] 10 C.F.R. 50.47(c)(2). The Commission's emergency response regulations further provide that "[t]he 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." *Id.*

[34] *See* Applicant's Ex. 73, Appendix C at 7, 12, and Figs. 2, 6.

north and 20 miles to the southeast.[35] Following the example of the State, San Luis Obispo County (the jurisdiction in which the plant is located) adopted the same state zones in its emergency response plan.[36]

In its initial decision, the Licensing Board noted the five EPZs (i.e., three state and two federal) applicable to Diablo Canyon and held that

> the Federal requirements are minimum standards for planning and not inflexible targets which must not be exceeded. This Board, however, has no authority to enforce State standards which exceed those required by Federal regulations. That is for the State to do.[37]

Because the county emergency plan incorporating the California Basic EPZ would be implemented in the event of a radiological emergency at Diablo Canyon, the Board inquired into the status of planning in the state zones beyond the areas set forth in 10 C.F.R. 50.47(c)(2) only to assure that all levels of emergency response would be integrated. The Board then generally found that offsite planning within the federal EPZs was adequate and met the Commission's emergency response requirements of 10 C.F.R. 50.47(b). Additionally, it found that beyond the federal zones there was reasonable assurance that planning would be sufficient to permit appropriate integration prior to full power operation.[38]

On appeal, the joint intervenors and the Governor assert that the Licensing Board erred in failing to give effect to the state-designated zones. They argue that the Board's conclusion, which largely ignores the state zones beyond the areas specified in the Commission's regulations, contravenes established principles of federal-state comity — principles that are specifically recognized by section 274 of the Atomic Energy Act, 42 U.S.C. § 2021.[39] The applicant and the staff, on the other hand, support the Licensing Board's treatment of the state zones, arguing that the Board properly declined to require compliance with the Commission's emergency planning requirements throughout the entire state-designated zones.

Contrary to the argument of the joint intervenors and the Governor, the Licensing Board's focus on emergency planning within the EPZs set forth in 10 C.F.R. 50.47(c)(2) was correct. That regulation evidences the Commission's considered expert judgment as to the necessary size of the plume exposure pathway EPZ and the ingestion pathway EPZ for

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[35] *Id.* at Fig. 2.
[36] *See* Applicant's Ex. 80 at I.5(2) and Fig. I.5-6.
[37] LBP-82-70, *supra*, 16 NRC at 764. *See also id.* at 801-02.
[38] *See id.* at 765, 768, 802.
[39] *See* Joint Intervenors' Brief at 31-36; Brief of Governor at 8-12.

light water commercial nuclear power plants.[40] Although the regulations provide that the exact size and configuration of a particular EPZ is to be determined with reference to site-specific factors,[41] the wholesale enlargement of the Commission-prescribed EPZs by the State cannot preclude a licensing decision based upon the requirements of the NRC regulations. As the Licensing Board concluded in considering the same type of expanded state EPZs in *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), LBP-82-39, 15 NRC 1163, 1181 (1982), *aff'd,* ALAB-717, 17 NRC 346 (1983), the Commission's regulations "clearly allow leeway for a mile or two in either direction, based on local factors. But it . . . clearly precludes a plume EPZ radius of, say, 20 or more miles." The same Board then correctly determined that a party seeking to impose such a radical departure from the Commission's prescribed EPZs should seek an exception to the rule pursuant to 10 C.F.R. 2.758.[42]

Before the Licensing Board neither the joint intervenors nor the Governor sought an exception or waiver (pursuant to 10 C.F.R. 2.758) of the Commission's 10- and 50-mile emergency planning zones. Nor did they present evidence that the plume exposure pathway EPZ and the ingestion pathway EPZ established pursuant to the Commission's regulations should be altered to accommodate particular local conditions.[43] Rather, they now argue that as a matter of federal-state comity the Licensing Board should have deferred to the state zones. This argument, however, simply misses the point. Although section 274 of the Atomic Energy Act provides a framework for cooperation with, and transfers of authority to, the states for the regulation of certain byproduct, source, and special nuclear materials, that section also requires the Commission

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[40] *See* Statement of Considerations accompanying promulgation of Final Emergency Planning Regulations, 45 Fed. Reg. 55,402, 55,406 (1980); NRC Policy Statement, "Planning Basis for Emergency Responses to Nuclear Power Reactor Accidents," 44 Fed. Reg. 61,123 (1979). *See also* "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) at 15-17, I-6 to I-7, and I-20.

[41] *See* note 33, *supra.*

[42] *See* LBP-82-39, *supra,* 15 NRC at 1181 n.14.

[43] In their briefs, both the joint intervenors and the Governor cite Governor's Exhibit 8 and suggest that it provides the most appropriate basis for determining the size of the EPZs for Diablo Canyon. *See* Joint Intervenors' Brief at 34; Brief of Governor at 8. This exhibit, published by the California Office of Emergency Services and entitled "Emergency Planning Zones for Serious Nuclear Power Plant Accidents" (November 1980), delineates enlarged EPZs for all nuclear power plants in the state. In the hearing below, the Licensing Board admitted this exhibit into evidence for the sole purpose of identifying the boundaries of the three state EPZs. It was specifically not admitted to provide the basis for, or to justify, the state EPZs. *See* Tr. 12,522-23, 12,545-48. Neither the joint intervenors nor the Governor has appealed the Licensing Board's evidentiary ruling on this exhibit. Moreover, because the exhibit was offered by the Governor without any sponsoring expert witnesses, the Board's ruling was manifestly correct. *See San Onofre, supra,* 17 NRC at 366-68; *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 477 (1982).

to retain all authority and responsibility for the regulation of nuclear power plants and prohibits any delegation of that authority.[44] It should hardly need be stated that the Commission's emergency response requirements are an integral part of the agency's regulation of nuclear power plants, and compliance with those rules determines whether an applicant receives an operating license, not obedience to additional requirements that may have been adopted by state or local authorities. Even though offsite emergency planning depends upon state and local resources, the applicant cannot be denied an operating license, if, as in this case, planning within the NRC-prescribed EPZs complies with the Commission's emergency response requirements. Accordingly, the Licensing Board did not err in refusing to adopt the enlarged state EPZs and, correspondingly, in refusing to require compliance with the Commission's emergency response requirements in the areas outside the federal EPZs.

E. Additionally, the joint intervenors argue that the Licensing Board abused its discretion in authorizing a full power license for Diablo Canyon even though at the time of the hearing on emergency planning several defects in the county's response plans existed.[45] Principally, they complain, with little elaboration, that the county's planning is inadequate because its public information program had not been implemented and its communications system had uncorrected deficiencies. Further, the joint intervenors, joined by the Governor, claim that the county's emergency response planning is generally deficient because sociological and psychological profiles of the population in the evacuation zone have not been conducted to gauge the public response to a radiological emergency at Diablo Canyon.[46]

1. In addressing emergency response information programs for Diablo Canyon,[47] the Licensing Board concluded that the applicant had

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[44] *See* 42 U.S.C. § 2021(c).

[45] The joint intervenors also claim that, at the time of the hearing, state emergency planning was inadequate because evacuation plans for special state jurisdictions within San Luis Obispo County (i.e., California Men's Colony and California Polytechnic Institute) were incomplete. *See* Joint Intervenors' Brief at 38. In ALAB-776, *supra*, 19 NRC at 1380, we reviewed the evidence underlying the Licensing Board's conclusion that state planning was adequate and upheld that finding. Moreover, as found by the Licensing Board, both of the joint intervenors' examples of inadequacies in state preparedness are in areas that lie outside the federally prescribed plume exposure pathway where evacuation would be needed. *See* LBP-82-70, *supra*, 16 NRC at 766 n.8.

[46] *See* Joint Intervenors' Brief at 40-47; Brief of Governor at 15-17.

[47] The Commission's planning standard on public information, 10 C.F.R. 50.47(b)(7), provides that:

> Information is [to be] 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 [to be] established in advance, and procedures for coordinated dissemination of information to the public are [to be] established.

developed an adequate program. That program included a page of appropriate information in the San Luis Obispo County telephone directory and the periodic dissemination of newsletters to the residents within the California Basic EPZ informing them about the plant, general nuclear issues, emergency planning and instructions on how residents will be notified and what they should do in the event of a radiological emergency. The Board found that the applicant had prepared various sites for the news media in the event of a radiological emergency and had established procedures for the coordinated release of information to the general public and the media.[48] With respect to the county program, the Board indicated that the county planned to publish and distribute throughout the California Basic EPZ an information booklet containing emergency response instructions but, at the time of the hearing, the document was only in draft form. The Licensing Board, like FEMA in its review of the county plan and preparedness, found that the county publication was a necessary element of the public information program. It therefore placed a condition upon its license authorization that the county information booklet be published and distributed to the public well in advance of full power operation of Diablo Canyon.[49]

The Licensing Board also fully canvassed the question of the adequacy of the onsite and offsite communications systems necessary to respond to a radiological emergency.[50] The Board concluded that there were no serious deficiencies with the applicant's onsite emergency communications systems but, with respect to offsite communications, it identified several defects in essential components of the county system. The Licensing Board found, however, that such defects were temporary in nature because the applicant had committed to replace or add necessary equipment to the county system thereby eliminating the cited difficulties.[51] Thus, the Board concluded "that the critical requirements of the communication system for offsite communications in San Luis Obispo County are or will be met" and the county system met the requirements of 10 C.F.R. 50.47(b)(6).[52]

The Board's findings on the adequacy of the county's public information program and emergency communications system fully discuss each issue and thoroughly and accurately detail the record evidence. No

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[48] *See* LBP-82-70, *supra*, 16 NRC at 777, 820-22.

[49] *Id.* at 778, 823.

[50] The Commission's emergency communications planning standard, 10 C.F.R. 50.47(b)(6), provides that: "Provisions [must] exist for prompt communications among principal response organizations to emergency personnel and to the public."

[51] LBP-82-70, *supra*, 16 NRC at 775-77, 816-20.

[52] *Id.* at 776.

useful purpose would be served by repeating all of those particulars here. Suffice it to say that the Board's findings are supported by the record and our examination of the evidence does not convince us that the record compels a different result — the standard applicable to our review of the Licensing Board's factual findings.[53] Moreover, the joint intervenors' complaints stem from the predictive nature of the Board's findings (i.e., that actions taken in the future will rectify deficiencies) and the condition placed by the Board on its authorization to ensure certain actions are taken. The gist of the joint intervenors' position is that all corrective actions must be taken before the adjudicatory hearing, not after it, with the result that all licensing details must await the hearing process.

The Commission's emergency response regulations, however, contemplate, in appropriate circumstances, predictive findings on emergency response planning so that operation of a facility need not be delayed unnecessarily by the hearing process.[54] Emergency planning need not be complete at the time of the hearing as long as the evidence permits the Licensing Board to find that "there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency."[55] Indeed, prior to 1982, 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."[56] In 1982, the Commission deleted the reference to the "state" of emergency preparedness "to clarify that the findings on emergency planning required prior to license issuance are predictive in nature and need not reflect the actual state of preparedness at the time the finding is made."[57] Thus, as here, the Licensing Board's findings can

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[53] *See Northern States Power Co.* (Monticello Nuclear Generating Plant, Unit 1), ALAB-611, 12 NRC 301, 304 (1980); *Niagara Mohawk Power Corp.* (Nine Mile Point Nuclear Station, Unit 2), ALAB-264, 1 NRC 347, 357 (1975).

We note that in the staff response to our April 10, 1984 order inquiring whether the appeals of the applicant and the staff from the Licensing Board's initial decision were moot, the staff attached an April 2, 1984 FEMA memorandum on the current status of offsite emergency planning at Diablo Canyon. The FEMA memorandum indicates that the county emergency response information booklet has been published and distributed and that a second distribution is already planned. The memorandum also states that the deficient items in the county communications system (i.e., those identified by FEMA as critical for emergency planning) have been corrected and that the reliability of the county's microwave and VHF systems has been very good during the last year. *See* Memorandum for Edward L. Jordan, NRC, from Richard W. Krimm, FEMA (April 2, 1984), attached to NRC Staff Response to the Appeal Board's Order of April 10, 1984 (April 18, 1984) [hereinafter FEMA memorandum].

[54] *See San Onofre, supra,* 17 NRC at 380 n.57. *See generally Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-730, 17 NRC 1057, 1067 (1983).

[55] 10 C.F.R. 50.47(a)(1).

[56] 10 C.F.R. 50.47(a)(1) (1982).

[57] 47 Fed. Reg. 30,232 (1982). At the same time the Commission removed the reference in 10 C.F.R. 50.47(a)(1) to the "state" of emergency preparedness, it also added a last sentence to the section

(Continued)

properly be predictive in nature.[58] Similarly, the Board's licensing authorization may be appropriately conditioned on the completion of items found deficient at the time of the hearing.[59]

2. The joint intervenors and the Governor also assert that, contrary to 10 C.F.R. 50.47(a)(1), there is no assurance that the emergency plans for Diablo Canyon can be implemented because sociological and psychological profiles of the affected populations in the evacuation zone have not been conducted to assess the public response to a radiological emergency at Diablo Canyon. In rejecting the need for local surveys, the Licensing Board found that such studies are not required by the agency's regulations and would not improve public information planning.[60] It concluded that "[h]owever interesting such data might be, it is irrelevant to the task of informing the public about the necessity to travel a limited distance from Diablo Canyon in an emergency."[61]

In addressing the testimony of the joint intervenors' expert witnesses (i.e., that surveys were necessary because people behave differently in radiological emergencies than in other disasters and either overreact by doing more than is required, or underreact by becoming immobilized), the Board found that

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providing that emergency preparedness exercises need not be held before any initial licensing decision. *See* 47 Fed. Reg. 30,232, 30,236 (1982). This new provision was invalidated in *Union of Concerned Scientists v. NRC*, 735 F.2d 1437 (D.C. Cir. 1984) on the ground that it denied the right to a hearing on a material licensing factor required by 10 C.F.R. Part 50, Appendix E, in contravention of section 189(a)(1) of the Atomic Energy Act, 42 U.S.C. § 2239(a)(1). That holding is inapposite to the type of predictive findings and conditions involved here.

[58] No unfairness results from such a system for just as one party can demonstrate that a planned course of action will resolve an identified deficiency, an opposing party can establish that the deficiency cannot be resolved by that planned action. Supervision of a party's compliance with a commitment or a licensing board condition is left to the staff. If one party is dissatisfied with the way another party has fulfilled a commitment or met a condition, the matter may, in appropriate circumstances, be brought back to the licensing board or become the subject of a petition under 10 C.F.R. 2.206.

[59] The joint intervenors also claim that, at the time of the hearing, county preparedness was deficient because not all of the standard operating procedures (SOPs) for implementing the county plan had been finished, approved and adopted, and that no letters of agreement between the county and other private and public organizations for supporting services had been secured. *See* Joint Intervenors' Brief at 39-40. The Licensing Board found that all the SOPs for actions within the federally prescribed plume exposure pathway were complete, and that no difficulties stood in the way of completing the remainder. *See* LBP-82-70, *supra*, 16 NRC at 764-65, 803. The Board also found that the critical elements for implementing the county plan were contained in SOPs and that letters of agreement were used only for non-critical elements of emergency support. Moreover, the Board found that no obstacles stood in the way of the county obtaining such letters of agreement. *See id.* at 767, 804. The Board's findings accurately reflect the hearing evidence and are fully supported by the record. We are not convinced the evidence compels any different result. Further, we note that the FEMA memorandum on the current status of off-site emergency planning at Diablo Canyon (*see* note 53, *supra*) indicates that the county SOPs for the areas outside the federally prescribed plume exposure pathway EPZ are substantially complete and that the county has obtained substantially all the letters of agreement.

[60] LBP-82-70, *supra*, 16 NRC at 778-80, 823-25.

[61] *Id.* at 780.

there is no apparent hazard to public health and safety if overreaction occurs. Assuming overreaction was likely, we have no remedy beyond that which is already planned, which is to broadcast accurate, consistent information.

. . . Some people require repeated warnings and repeated information bulletins in order to become convinced that a hazard is real and that they should react. We see little value in a social survey in counteracting this phenomenon, however. The phenomenon of underreaction is already known. The remedy is repeated consistent warnings and information bulletins. The public will receive these through the emergency broadcast system.[62]

The Board also found the testimony of the applicant's expert, who indicated that studies of human behavior in other types of disasters provide a sufficient basis to establish workable emergency plans, "more credible as regards the public information program."[63]

Contrary to the suggestion of the joint intervenors and the Governor, the Licensing Board adequately confronted the conflicting viewpoints of the expert witnesses and resolved each issue before it.[64] Its findings are amply supported and our examination of the evidence does not convince us that the record compels a different result.[65]

II.

Finally, the joint intervenors challenge the Licensing Board's finding that the power-operated relief valves (PORVs) at Diablo Canyon have been adequately designed, constructed and tested.[66] They do not contest the Board's findings on the basis of the underlying hearing record. Rather, the joint intervenors argue that information revealed by the applicant subsequent to the hearing on the PORV issue removes the evidentiary support for the Board's findings. They point out that the Licensing Board received notification from the applicant after the evidentiary hearing, but before the issuance of the initial decision, that the initial

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[62] *Id.* at 779.

[63] *Id.* at 780.

[64] *See generally Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-442, 6 NRC 33, 41 (1977).

[65] In his brief (at 16), the Governor also argues that the Licensing Board erred in refusing to order a survey to assess the magnitude of role conflict among emergency workers who might evacuate with their families in an emergency instead of reporting for duty. The Licensing Board found that role conflict would not cause professionally trained emergency workers, including plant operators, to abandon their duties. LBP-82-70, *supra*, 16 NRC at 770, 807-08. Further, it found there was no "dichotomy between operators performing their duties and seeing to their family's safety. Reasonable individuals would do both." *Id.* at 770. These findings are also fully supported by the record and we are not convinced that the evidence demands a different result.

[66] *See* LBP-82-70, *supra*, 16 NRC at 761, 795-97, 850-54.

piping design reviews conducted as part of the Commission-ordered independent design verification program (IDVP) revealed that some piping analyses potentially affecting the PORVs may not have been conservative.[67] Subsequent events, however, have made joint intervenors' argument academic.

While the joint intervenors' appeal of the initial decision was pending, they filed a motion with us to reopen the record on the issue of the adequacy of the applicant's design quality assurance program. We granted that motion, along with a similar one filed by the Governor. The reopened proceeding focused on the adequacy of the independent design verification program and the joint intervenors had the opportunity to litigate the same matter they claim on appeal undermines the Licensing Board's findings. The joint intervenors chose not to contest the adequacy of the PORVs although the issue was fairly encompassed by one of the Governor's issues concerning the verification of Westinghouse-supplied equipment. In ALAB-763, 19 NRC 571, 586, 609 n.193 (1984), we found verification of the design of that equipment adequate.

For the foregoing reasons, the initial decision of the Licensing Board authorizing the issuance of a full power license for Diablo Canyon, Unit 1, is affirmed. As we explained in ALAB-763,[68] however, the Board's license authorization for Unit 2 shall not be effective until we have made our findings with respect to the adequacy of the applicant's design verification program for that unit.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[67] *See* Joint Intervenors' Brief at 53-56 and Exhibit B.
[68] 19 NRC at 582.

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)

September 6, 1984

The Appeal Board dismisses the joint intervenors' motion to reopen the Diablo Canyon proceeding on seismic issues, finding that it lacks jurisdiction to consider the matter.

RULES OF PRACTICE: SHOW-CAUSE PROCEEDINGS

Under the terms of 10 C.F.R. 2.206, a party may request the Director of Nuclear Reactor Regulation to institute a show-cause proceeding seeking to amend or revoke a nuclear power plant operating license.

APPEAL BOARDS: JURISDICTION

When a discrete issue has been decided by an appeal board and the Commission declines to review that decision, agency action is final with respect to the issue and appeal board jurisdiction is terminated. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1),

ALAB-766, 19 NRC 981, 983 (1984); *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-551, 9 NRC 704, 708-09 (1979); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-513, 8 NRC 694, 695 (1978).

APPEAL BOARDS: JURISDICTION

Where finality has attached to some but not all issues, appeal board jurisdiction to entertain new matters is dependent upon the existence of a "reasonable nexus" between those matters and the issues remaining before the board. *See Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-551, 9 NRC 704, 707 (1979).

APPEARANCES

Joel R. Reynolds, Ethan P. Schulman, Eric Havian 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.

Robert Ohlback, Philip A. Crane, Jr., Richard F. Locke and **Dan G. Lubbock,** San Francisco, California, and **Arthur C. Gehr, Bruce Norton** and **Thomas A. Scarduzio, Jr.,** Phoenix, Arizona, for Pacific Gas and Electric Company, applicant.

Lawrence J. Chandler for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

Opinion for the Board by Dr. Buck and Dr. Johnson:

On July 16, 1984, the joint intervenors filed with us a motion to reopen the Diablo Canyon proceeding on seismic issues.[1] The motion, accompanied by the affidavit of Dr. James N. Brune,[2] is founded upon

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[1] Joint Intervenors' Motion to Reopen the Record on Seismic Issues.

[2] Dr. Brune is Professor of Geophysics, Scripps Institution of Oceanography, University of California at San Diego. He has appeared in these proceedings previously as a witness for the joint intervenors and for Governor Brown of California. *See* ALAB-644, 13 NRC 903, 1013 (1981).

seismological information characterized by intervenors as newly acquired and of such significance as to put into question the seismic design of the Diablo Canyon plant. In short, our attention is directed to data obtained from the April 24, 1984 Morgan Hill (California) earthquake, the results of a research paper by J.K. Crouch, S.B. Bachman and J.T. Shay (1984) related to the nature of the Hosgri Fault, and a series of recent earthquakes along the Central California coast that, assertedly, cast doubt upon the seismicity previously assigned in NRC proceedings to the Diablo Canyon region.[3]

The applicant and NRC staff oppose the motion to reopen.[4] Both parties first question whether this Board has jurisdiction to entertain such a motion, arguing that our earlier decision on seismic design matters, ALAB-644, 13 NRC 903 (1981), which the Commission declined to review, represents final agency action on the subject. Alternatively, these parties treat the joint intervenors' motion on its merits and again conclude it should be denied. Because the joint intervenors had not addressed the jurisdiction question, we asked for their views on this matter. In an August 9, 1984 reply, joint intervenors take the position, *inter alia*, that agency action on this issue is not final, and that this Board does have jurisdiction to decide their motion.

As we discuss below, review of the parties' arguments, the procedural history of this case and our earlier decisions convinces us that we do not have jurisdiction to consider the intervenors' motion to reopen the record on seismic issues. The motion is therefore dismissed. This does not mean, however, that joint intervenors are without an avenue to pursue their concerns on the seismic design issue within this agency. Under the terms of 10 C.F.R. 2.206, they may request the Director of Nuclear Reactor Regulation to institute a show-cause proceeding seeking to amend or revoke the Diablo Canyon operating license.[5]

Following hearings on the seismic redesign of Diablo Canyon to account for the earthquake potential of the Hosgri Fault, the Licensing Board found the plant to be adequately designed to withstand any earthquake that could reasonably be expected. LBP-79-26, 10 NRC 453 (1979). While joint intervenors' appeal of that decision was before us,

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[3] Joint Intervenors' Motion to Reopen the Record on Seismic Issues (July 16, 1984) at 3-17, Attachment V.

[4] Answer of Pacific Gas and Electric Company in Opposition to Joint Intervenors' Motion to Reopen the Record on Seismic Issues (July 27, 1984); NRC Staff's Answer to Joint Intervenors' Motion to Reopen the Record on Seismic Issues (August 1, 1984).

[5] We note that, at the request of the joint intervenors, the United States Court of Appeals for the District of Columbia Circuit, on August 17, 1984, stayed the Commission's August 10, 1984 order authorizing issuance of a full power license for Diablo Canyon. The stay will remain in effect pending court review. *San Luis Obispo Mothers for Peace v. NRC*, No. 84-1410 (D.C. Cir. Aug. 17, 1984).

we granted their motion to reopen the record to receive evidence derived from the 1979 Imperial Valley earthquake. Following a six-day hearing to consider this evidence, we issued a decision, ALAB-644, that covered matters raised both on the appeal of the Licensing Board's decision and in the reopened hearing. We found that the seismic design of the facility was adequate and affirmed the Licensing Board's decision.[6] The Commission declined to review ALAB-644, rendering it final on March 18, 1982.[7]

Our earlier decisions make it abundantly clear that when a discrete issue has been decided by an appeal board and the Commission declines to review that decision, agency action is final with respect to the issue and our jurisdiction is terminated. This is the case even when other issues may still be before us. Our most recent determination of this jurisdictional question appeared earlier this year:

> Under settled principles of finality of adjudicatory action, once we have finally determined discrete issues in a proceeding, our jurisdiction is terminated with respect to those issues, absent a remand order by the Commission or a court issued during the course of its review of our decision. *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-551, 9 NRC 704, 708-09 (1979); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-513, 8 NRC 694, 695 (1978). . . . It is clear that where, as here, the Commission declines to review our decision, a final agency determination has been made resulting in the termination of our jurisdiction.
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> To be sure, [unrelated] issues . . . are still before us. That we may yet be considering some issues in a proceeding, however, does not preserve our jurisdiction over issues previously determined.[8]

Intervenors point out that we still have before us on appeal matters related to earthquakes. They argue that because there is a sufficient relationship (i.e., a reasonable nexus) between these issues and those forming the basis of the instant motion to reopen, we do indeed still have jurisdiction to consider the motion.[9] We do not agree. The issues before

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[6] ALAB-644, *supra*, 13 NRC at 996.

[7] *See* letters from S.J. Chilk, NRC, to parties, dated March 18, 1982.

[8] *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-766, 19 NRC 981, 983 (1984) (footnotes omitted). The joint intervenors rely on the cited *Seabrook* decision, ALAB-513, for the proposition that if an issue has not as yet received court review, there has been no final agency action with respect to it. But it is clear that the reference to court review in *Seabrook* (8 NRC at 695) was to provide the reader with information as to the ultimate resolution of the question there. *Seabrook* should not be read to suggest that court review constitutes an element of agency action on an issue. *See also Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-753, 18 NRC 1321, 1329-30 (1983).

[9] *See Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-551, 9 NRC 704, 707 (1979) (where finality has attached to some but not all issues, appeal board jurisdiction to entertain new matters is dependent upon the existence of a "reasonable nexus" between those matters and the issues remaining before the board).

us in the full power appeal are not related to the seismic design of the facility and are independent of the nature of a particular earthquake.[10] The motion, on the other hand, would have us explore again the detailed nature of the seismic design bases for the plant, and involves totally different considerations than the questions on appeal. It is clear that, with our decision on seismic design issues in ALAB-644 and the Commission's determination not to review that decision, the adjudication of that matter is final and we no longer have jurisdiction.

The motion to reopen the record on seismic issues is *dismissed.*

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

Because Dr. Buck's full retirement from the Appeal Panel becomes effective September 7, 1984, the majority opinion is being issued today without the separate opinion of Mr. Moore. That opinion will issue subsequently.

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[10] In ALAB-781, 20 NRC 819, we have today decided exceptions raised by the joint intervenors and Governor Brown to the Licensing Board's final initial decision authorizing full power operation of Diablo Canyon (LBP-82-70, 16 NRC 756 (1982)). Two matters considered in those appeals pertain peripherally to the effects of earthquakes: the Board's failure to consider (1) earthquakes in emergency planning, and (2) the special circumstances of earthquake potential at Diablo Canyon as a basis for analyzing the environmental effects of Class 9 accidents. Clearly we considered these issues to be still before us in our analysis of the jurisdiction question.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL PANEL

Alan S. Rosenthal, Chairman

In the Matter of **Docket Nos. STN 50-518**
STN 50-520

TENNESSEE VALLEY AUTHORITY
(Hartsville Nuclear Plant,
Units 1A and 2A)

In the Matter of **Docket Nos. STN 50-566**
STN 50-567

TENNESSEE VALLEY AUTHORITY
(Yellow Creek Nuclear Plant,
Units 1 and 2) **September 11, 1984**

Based upon the cancellation of Units 1A and 2A of the proposed Hartsville Nuclear Plant and the proposed two-unit Yellow Creek Nuclear Plant, the Appeal Board terminates the limited jurisdiction it previously retained over the construction permit proceedings involving these facilities.

APPEARANCES

Herbert S. Sanger, Jr., Lewis E. Wallace and **W. Walter LaRoche,** Knoxville, Tennessee, for the applicant, Tennessee Valley Authority.

MEMORANDUM AND ORDER

On August 29, 1984, the Board of Directors of the Tennessee Valley Authority (TVA) decided to cancel (1) Units 1A and 2A of the proposed Hartsville Nuclear Plant; and (2) the proposed two-unit Yellow Creek Nuclear Plant.[1] In light of this development, TVA seeks the termination of the limited appellate jurisdiction previously retained over the construction permit proceedings involving these facilities.[2] Its motions to that effect are *granted* on the authority of ALAB-760, *supra* note 1, and the decisions there cited.

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 C.F.R. 2.787(b).

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[1] TVA had previously cancelled Units 1B and 2B of the Hartsville facility. *See* ALAB-760, 19 NRC 26 (1984).

[2] The retained jurisdiction in both proceedings was with regard to a single generic issue as to which an ultimate Commission determination has not as yet been reached: 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. *See* ALAB-554, 10 NRC 15, 16 n.2 (1979) (*Hartsville*); ALAB-558, 10 NRC 158, 159 (1979) (*Hartsville*); ALAB-515, 8 NRC 702, 715 (1978) (*Yellow Creek*).

ALAB-554 and ALAB-558 applied to all four Hartsville units. The jurisdiction over the radon issue retained in those decisions with regard to Units 1B and 2B was terminated in ALAB-760, *supra* note 1.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Thomas S. Moore
Dr. Reginald L. Gotchy

In the Matter of **Docket No. 50-482-OL**

KANSAS GAS AND ELECTRIC COMPANY, *et al.*
(Wolf Creek Generating Station, Unit 1)

September 13, 1984

The Appeal Board affirms an earlier order of the Licensing Board that dismissed an intervenor as a party to this operating license proceeding based upon the Licensing Board's determination that the intervenor's single contention concerned the financial qualifications of an applicant and, under the Commission's rules, such issues are not litigable in such proceedings. The Appeal Board's action is predicated upon the Commission's promulgation of a new rule that, like its predecessor, removed consideration of an applicant's financial qualifications from operating license proceedings.

ADJUDICATORY BOARDS: AUTHORITY

Neither appeal boards nor licensing boards are empowered to entertain challenges to the legality of a Commission regulation. *See* 10 C.F.R. 2.758(a); *see also Potomac Electric Power Co.* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-218, 8 AEC 79, 89-90 (1974).

APPEARANCES

John M. Simpson, Shawnee Mission, Kansas, for the appellant, Kansans for Sensible Energy.

Jay F. Silberg and **Delissa A. Ridgway,** Washington, D.C., for the applicants, Kansas Gas and Electric Company, *et al.*

Myron Karman for the Nuclear Regulatory Commission staff.

DECISION

In an unpublished June 9, 1982 order, the Licensing Board dismissed intervenor Kansans for Sensible Energy (KASE) as a party to this operating license proceeding. That action rested upon two factors: (1) KASE's single contention concerned the financial qualifications of one of the applicants; and (2) effective March 31, 1982, the Commission had amended its regulations to remove financial qualifications issues from, *inter alia*, proceedings such as this one.[1]

KASE filed a timely appeal from the June 9 order, contending that the elimination of consideration of financial qualifications issues in reactor licensing proceedings contravened the Atomic Energy Act. On June 28, 1982, we entered an order in which we pointed out that neither appeal boards nor licensing boards are empowered to entertain challenges to the legality of a Commission regulation.[2] The order went on, however, to advise the parties that we were nevertheless deferring final action on the appeal. This was because it had come to our attention that KASE and certain other organizations had filed a petition for review of the amended financial qualifications rule in the United States Court of Appeals for the District of Columbia Circuit. In the circumstances, it seemed advisable to await the court's disposition of the petition.[3]

On February 7, 1984, the District of Columbia Circuit issued its decision on the petition for review. The court held that the amended financial qualifications rule was not supported by its accompanying statement of basis and purpose, as required by the Administrative Procedure Act.

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[1] 47 Fed. Reg. 13,750 (1982).

[2] *See* 10 C.F.R. 2.758(a); *see also Potomac Electric Power Co.* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-218, 8 AEC 79, 89-90 (1974).

[3] June 28, 1982 order (unpublished) at 3.

Accordingly, the court remanded the rule to the Commission for further proceedings consistent with its opinion.[4]

In response to the remand, the Commission has now promulgated a new rule, which will take effect on October 12, 1984. By its terms, financial qualifications issues may be raised in *construction permit* proceedings. But, as under the replaced 1982 rule, such issues are not to be litigated in *operating license* proceedings.[5]

In light of this development, we now *affirm* the result reached by the Licensing Board in its June 9, 1982 order.[6]

It is so ORDERED.[7]

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[4] *New England Coalition on Nuclear Pollution v. NRC*, 727 F.2d 1127 (D.C. Cir. 1984).

[5] 49 Fed. Reg. 35,747, as corrected, 49 Fed. Reg. 36,631 (1984). That the new rule is not as yet effective is of no present moment. In a statement of policy issued on June 7, 1984, the Commission determined that "the March 31, 1982 rule will continue in effect until finalization of the Commission's response to the Court's remand." The appeal and licensing boards were directed "to proceed accordingly." 49 Fed. Reg. 24,111 (1984).

[6] As noted, this appeal has been on our docket for an extended period. We see no compelling reason to hold it in abeyance still further to await the outcome of any petition for judicial review of the new rule that might be filed. In the event such a petition is filed and proves successful, an appropriate remedy presumably will be available to KASE.

[7] On July 2, 1984, the Licensing Board rendered its initial decision in this proceeding, in which it authorized, subject to certain conditions, the issuance of an operating license for the Wolf Creek nuclear facility. LBP-84-26, 20 NRC 53. In the absence of any appeal from that decision, we have undertaken to review it on our own initiative. *See* our August 3, 1984 order (unpublished). Upon completion of our review, we will announce the results in a separate decision.

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**
50-353

PHILADELPHIA ELECTRIC COMPANY
Limerick Generating Station,
Units 1 and 2) **September 26, 1984**

The Appeal Board affirms, in part, the Licensing Board's decisions in this operating license proceeding concerning the environmental impacts of the Limerick supplementary cooling water system, and remands two issues to the Licensing Board to afford the intervenor the opportunity to resubmit its contentions on those issues. Additionally, the Appeal Board denies the intervenor's motions to set aside the Licensing Board's decisions on the basis of new evidence.

DELAWARE RIVER BASIN COMPACT: EFFECT ON FEDERAL ACTIONS

Federal agencies are precluded from taking action that "substantially conflict[s]" with a comprehensive plan for the development and use of the water resources of the Delaware River Basin (DRB) when it has been adopted by the Delaware River Basin Commission (DRBC) with the concurrence of the Commission's federal representative. *See* DRB

Compact, Pub. L. No. 87-328, § 15.1(s)1, 1961 U.S. Code Cong. & Ad. News (75 Stat. 688) 775, 807-08.

ADJUDICATION: ENVIRONMENTAL IMPACT STATEMENTS

In the usual case, environmental hearings await the preparation and circulation of the staff's final environmental statement. *See, e.g., Potomac Electric Power Co.* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-277, 1 NRC 539, 546 (1975).

ADJUDICATORY BOARDS: CONDUCT OF PROCEEDINGS

Although an agency must ordinarily adhere to its own rules and established practices, it is always within the discretion of an administrative agency to relax or modify its procedural rules adopted for the orderly transaction of business before it when in a given case the ends of justice require it. *See American Farm Lines v. Black Ball Freight Service,* 397 U.S. 532, 539 (1970), *quoting NLRB v. Monsanto Chemical Co.,* 205 F.2d 763, 764 (8th Cir. 1953).

ADJUDICATORY BOARD: AUTHORITY OVER STAFF ACTION

A licensing board may direct the staff to publish its environmental documents by specific dates if, after affording the parties — including the staff — opportunity to be heard on the matter, it finds no further delay is justified. *Offshore Power Systems* (Floating Nuclear Power Plants), ALAB-489, 8 NRC 194, 208 (1978). *See also* 49 Fed. Reg. 9352, 9361 & n.14, 9383-84 (1984) (the latter to be codified at 10 C.F.R. § 51.15).

NEPA: ENVIRONMENTAL IMPACT STATEMENTS (TIMING)

NEPA does not address the timing of an environmental statement, as long as it is available by the time of the agency's recommendation or report on the proposed federal action. *New England Coalition on Nuclear Pollution v. NRC,* 582 F.2d 87, 93-94 (1st Cir. 1978).

DELAWARE RIVER BASIN COMPACT: EFFECT ON FEDERAL ACTIONS

The NRC could neither authorize a utility to withdraw water from the Delaware River in amounts that exceed that allocated by the DRBC, nor require the DRBC to make any particular allocation decision among the competing interests for the Delaware River. But the NRC is not precluded from examining the effects of the amount withdrawn for a nuclear power plant and acting to lessen the impact of a plant on the Delaware River.

NEPA: NRC RESPONSIBILITIES

The Commission has an independent responsibility to fulfill the purposes of NEPA to the fullest extent possible. 42 U.S.C. § 4332. *See Tennessee Valley Authority* (Phipps Bend Nuclear Plant, Units 1 and 2), ALAB-506, 8 NRC 533, 544-49 (1978). *But see Bucks County Board of Commissioners v. Interstate Energy Co.*, 403 F. Supp. 805, 808 (E.D. Pa. 1975) (DRBC is "the federal agency designated to implement NEPA for all projects affecting the Delaware River Basin"). In carrying out its NEPA duties, the NRC need not perform a wholly independent analysis from scratch, but may rely, if it wishes, on scientific data and inferences drawn by other agencies.

ADJUDICATORY BOARDS: JURISDICTION

To the extent that an application for an operating license reflects some actual changes in connection with the facility as it was contemplated at the time of issuance of the construction permit, such changes are within the scope of the operating license proceeding. On the other hand, if activity already authorized by the construction permit results in impacts not previously expected, that is a matter for resolution by the Director of Nuclear Reactor Regulation pursuant to 10 C.F.R. §§ 2.202, 2.206. *See Consumers Power Co.* (Midland Plant, Units 1 & 2), ALAB-674, 15 NRC 1101 (1982).

NEPA: NRC RESPONSIBILITIES

NEPA does not require the NRC to consider those environmental impacts of a water diversion project solely attributable to a separate entity otherwise unassociated with the nuclear plant, when the total impacts have already been evaluated by another agency with oversight of the

entire project. *See Henry v. FPC*, 513 F.2d 395 (D.C. Cir. 1975). *See also Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976).

NATIONAL HISTORIC PRESERVATION ACT: REQUIREMENTS

Section 106 of the National Historic Preservation Act (NHPA) requires the head of any federal agency having authority to license any undertaking, prior to the issuance of any license, to take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. The head of any such federal agency also must afford the Advisory Council on Historic Preservation a reasonable opportunity to comment with regard to such undertaking. 16 U.S.C. § 470f.

NATIONAL HISTORIC PRESERVATION ACT: REQUIREMENTS

Section 110(f) of NHPA requires agencies to undertake in advance all possible planning and actions necessary to minimize any direct and adverse harm to a National Historic Landmark as a consequence of any federal approval. 16 U.S.C. § 470h-2(f).

FISH AND WILDLIFE COORDINATION ACT: REQUIREMENTS (CONSULTATION)

The requirement of the Fish and Wildlife Coordination Act, 16 U.S.C. § 662(a) — that an agency "first shall consult" with the U.S. Fish and Wildlife Service whenever any waters are proposed or authorized to be diverted pursuant to a federal license — does not prescribe exactly when and how this consultation is to occur, so long as it precedes any definitive agency action.

NEPA: REQUIREMENTS

Section 102 of NEPA, 42 U.S.C. § 4332(2)(C), requires consideration of alternatives only for major federal actions "significantly affecting the quality of the human environment."

ENDANGERED SPECIES ACT: REQUIREMENTS

Section 7 of the Endangered Species Act (ESA), as amended in 1979, 16 U.S.C. § 1536(a)(2), provides that each federal agency must, in consultation with and with the assistance of the Secretary of the Interior or Commerce, insure that any agency action is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of the habitat of such species. In fulfilling this requirement, each agency must use the best scientific and commercial data available.

ENDANGERED SPECIES ACT: REQUIREMENTS

Section 7 of ESA does not require acquiescence to National Marine Fisheries Service views, just consultation. *Sierra Club v. Froehlke*, 534 F.2d 1289, 1303-04 (8th Cir. 1976). *Cf. Lake Erie Alliance for the Protection of the Coastal Corridor v. Army Corps of Engineers*, 526 F. Supp. 1063, 1081 (W.D. Pa. 1981), *aff'd*, 707 F.2d 1392 (3d Cir.), *cert. denied*, ___ U.S. ___, 104 S. Ct. 277 (1983).

ENDANGERED SPECIES ACT: REQUIREMENTS

Congress did not design ESA to protect individual members of an endangered species, only the species as a whole. The smallest units afforded protection are "subspecies" and "any distinct population segment . . . which interbreeds when mature." 16 U.S.C. § 1532(16).

RULES OF PRACTICE: EX PARTE COMMUNICATIONS

The Commission's ex parte rules prohibit communications between the parties to contested proceedings, on the one hand, and, on the other, those with decisionmaking responsibilities — i.e., Commissioners, their staffs and advisers, members of adjudicatory boards, and their staffs and advisers. 10 C.F.R. § 2.780. *See* Administrative Procedure Act, 5 U.S.C. § 557(d). The "NRC staff" does not advise the Commission or the boards. Rather, it is a distinct and separate entity that is a party to a proceeding and may confer with other parties. *See* 10 C.F.R. § 2.102(a).

ADJUDICATORY BOARDS: SCOPE OF AUTHORITY

Adjudicatory boards can act only on applications before them and cannot dictate changes in such applications that are a matter of management prerogative.

RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES

An applicant is obliged to notify the board and the parties promptly of any significant changes in its application. *Tennessee Valley Authority* (Browns Ferry Nuclear Plant, Units 1, 2 and 3), ALAB-677, 15 NRC 1387, 1391-94 (1982).

ADJUDICATORY HEARINGS: NEW INFORMATION

Parties to an adjudicatory proceeding must be afforded an opportunity to challenge any newly amended, significant portion of an application under consideration. *See Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-778, 20 NRC 42, 48 (1984).

ADJUDICATORY BOARDS: EFFECT OF OTHER PROCEEDINGS

In making its determinations, an adjudicatory board must decide only the federal questions before it, without being unduly influenced by the decisions of others with differing concerns and responsibilities. *See Kerr-McGee Corp.* (West Chicago Rare Earths Facility), CLI-82-2, 15 NRC 232, 269 (1982), *aff'd sub nom. City of West Chicago v. NRC*, 701 F.2d 632 (7th Cir. 1983), and cases cited. *See also Cross-Sound Ferry Services, Inc. v. United States*, 573 F.2d 725, 732-33 (2d Cir. 1978).

APPEARANCES

Robert J. Sugarman, Philadelphia, Pennsylvania, for intervenor Del-Aware Unlimited, Inc.

Troy B. Conner, Jr., Mark J. Wetterhahn, and **Robert M. Rader,** Washington, D.C., for applicant Philadelphia Electric Company.

Ann P. Hodgdon, Michael N. Wilcove, and **Benjamin H. Vogler** for the Nuclear Regulatory Commission staff.

TABLE OF CONTENTS

DECISION

I. INTRODUCTION AND SUMMARY

This case concerns an application by Philadelphia Electric Company (the applicant or PECo) for an operating license for its Limerick Station, Units 1 and 2. All issues in this appeal involve the applicant's effort to use the Delaware River to provide supplementary cooling water for the

plant.[1] The appellant is Del-Aware Unlimited, Inc. (Del-Aware), an organization with members who live near the area of the Delaware River at issue here. Although it litigated several contentions concerning the environmental impact of using the Delaware River to provide supplementary cooling water, other similar issues it sought to raise were excluded. Following a hearing on the admitted contentions, the Licensing Board concluded that there would be no adverse environmental impact from the use of Delaware River water for the Limerick plant.[2]

Del-Aware's challenges on appeal from the Board's disposition of its various contentions can be divided into four broad categories. First, Del-Aware attacks the Board's decision to hold hearings on its contentions before the NRC staff issued its environmental impact statement. Second, it disputes the Board's determination to exclude certain contentions from consideration at the hearing. Third, it objects to the Board's disposition of those issues actually considered. Fourth, it claims that various recent developments warrant remand to the Board for consideration of alternatives to the use of Delaware River water. PECo and the NRC staff oppose the appeal.

We affirm the Board's decision on all but two issues. As explained in more detail below, Del-Aware must be given an opportunity to formulate, promptly and in accordance with 10 C.F.R. § 2.714, certain new contentions. They are to be based on the staff's now issued final environmental statement (FES), and should concern (1) the impact of the supplementary cooling water system on the salinity of the Delaware River, and (2) the system's impacts on the Point Pleasant Historic District.

II. BACKGROUND

Like most electricity generating plants, Limerick will require a substantial amount of water for operation. As the project stands now, PECo intends to draw cooling water primarily from either the adjacent Schuylkill River or the nearby Perkiomen Creek. When water from these sources is inadequate, PECo intends to supplement it by drawing cooling water from the Delaware River and transporting it to the plant through a series of pipelines and pumping stations. This has been termed the "river-follower" method of supplementary cooling. The withdrawal of water from the Delaware River for use at Limerick is part of an overall

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[1] Various issues unrelated to the supplementary cooling water system were recently decided by the Licensing Board in LBP-84-31, 20 NRC 446 (1984). Still other issues remain pending.

[2] LBP-83-11, 17 NRC 413 (1983).

venture known as the Point Pleasant Diversion (PPD) project, which is to provide water for the Neshaminy Water Resources Authority (NWRA) (serving Bucks and Montgomery Counties, Pennsylvania), as well as for PECo's use.[3]

The lengthy history of this project is set forth in several earlier NRC decisions.[4] We will not rehearse here the genesis of the river-follower method, except as necessary for the discussion of the issues now before us on appeal. A brief chronology of events pertinent to this proceeding, however, is useful.

A. AEC/NRC and DRBC Reviews

The allocation of Delaware River water among conflicting potential uses, such as the Point Pleasant Diversion project, is determined by the Delaware River Basin Commission (DRBC). This is a regional entity created by an intergovernmental compact and ratified by joint resolution of Congress.[5] The Commission is comprised of the governors of Delaware, Pennsylvania, New York, and New Jersey, plus a federal representative. The Compact requires the DRBC to prepare, and from time to time to revise, a comprehensive plan for the development and use of the water resources of the Delaware River Basin. Federal agencies are precluded from taking action that "substantially conflict[s]" with such comprehensive plan when adopted by the DRBC with the concurrence of the federal representative.[6]

The pumping station at Point Pleasant was originally approved by the DRBC and added to the comprehensive plan in 1966. PECo, which filed its application to construct Limerick in 1970, and NWRA requested DRBC approval for inclusion in the comprehensive plan that same year (1970). In 1973, the DRBC issued a final environmental impact statement on the proposal and tentatively granted approval to PECo to withdraw water from the Delaware River, subject to certain flow restrictions. The DRBC also indicated that the river-follower method was one of

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[3] The project gets its name because the intake from the Delaware River is located near Point Pleasant, Pennsylvania. Water is to be drawn from the Delaware River and pumped through a transmission main to the Bradshaw Reservoir. Beyond the reservoir the flow will be divided. A portion of the water will flow to the Neshaminy Creek watershed where it is to be used as part of the municipal water supply for NWRA and for low flow augmentation for water quality control. The rest of the water will be used at Limerick. It will flow via pipeline to the East Branch of the Perkiomen Creek. From the East Branch the water will travel into the main stream of the Perkiomen. A final pumping station will transmit the water via a line from an intake on the Perkiomen to the Limerick plant. *See* map in Appendix A.

[4] *See, e.g.*, LBP-74-44, 7 AEC 1098 (1974); ALAB-262, 1 NRC 163 (1975).

[5] *See* DRB Compact, Pub. L. No. 87-328, 1961 U.S. Code Cong. & Ad. News (75 Stat. 688) 775.

[6] *Id.*, § 15.1(s)1, 1961 U.S. Code Cong. & Ad. News at 807-08.

three available options for effecting the withdrawal and that it would reach a final decision on the matter at a later time.

A licensing board authorized the issuance of a construction permit to PECo in 1974, but excluded the river-follower method as a bona fide alternative for providing supplementary cooling water.[7] Although the Atomic Energy Commission's staff (predecessor to the NRC) had prepared a final environmental impact statement for Limerick's construction permit application, the Board found that the environmental impacts of the river-follower method had not been adequately considered. On appeal, we disagreed and concluded that the consideration of this alternative was adequate, noting that it would add no environmental "costs" but might only reduce the "benefits" for economic reasons.[8] The U.S. Court of Appeals for the Third Circuit affirmed our decision.[9]

In 1979, PECo and NWRA filed applications with the DRBC to obtain final approval for construction of their respective portions of the Point Pleasant Diversion pumping stations and transmission mains. These applications reflected a downscaled version of the project, as tentatively approved earlier by the DRBC.[10] The DRBC once again performed an environmental review and in August 1980 prepared an "environmental assessment" with a "negative declaration." In other words, the DRBC found no significant environmental impacts from the project and thus no need for another environmental impact statement. It granted final approval to PECo's and NWRA's applications in 1981. Under a condition imposed by the DRBC, however, PECo may not withdraw cooling water from the Delaware River when the flow at Trenton, New Jersey, is less than 3,000 cubic feet per second (cfs), unless PECo releases from offstream storage an amount of water equal to that it withdraws. The DRBC's decision was challenged in federal court and upheld.[11]

PECo filed its operating license application with the NRC in 1981. The Commission published a notice of opportunity for hearing, and the Licensing Board held a special prehearing conference to consider petitions for intervention. In an order following the conference, the Board,

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[7] LBP-74-44, *supra*, 7 AEC at 1128.

[8] ALAB-262, *supra*, 1 NRC at 189-97, 199-205.

[9] *Environmental Coalition on Nuclear Power v. NRC*, 524 F.2d 1403 (3d Cir. 1975).

[10] The original plans called for a maximum total withdrawal of 150 million gallons of water per day (mgd). The new plan sought withdrawal of only 95 mgd — 46 mgd for Limerick and 49 for NWRA.

[11] *Delaware Water Emergency Group v. Hansler*, 536 F. Supp. 26 (E.D. Pa. 1981), *aff'd*, 681 F.2d 805 (3d Cir. 1982) (hereafter "*Hansler*"). The district court noted the several environmental impact statements that had already been prepared in connection with this project, including that of the DRBC in 1973, the AEC in 1973, and the Soil Conservation Service of the U.S. Department of Agriculture in 1976. *Id.* at 32-34.

inter alia, admitted Del-Aware as a party to the case and accepted several of its contentions for litigation.[12]

The Licensing Board also made a number of other determinations pertinent to this appeal. First, it concluded that, absent a showing of sufficiently changed circumstances since the construction permit was issued, it would not relitigate environmental matters that were considered in the construction permit proceeding.[13] On a related point, the Board also concluded that it lacked jurisdiction to consider "changes in impacts of construction resulting from changed circumstances."[14] In doing so, the Board stressed that the Notice of Opportunity for Hearing in this proceeding limited its authority to consideration of only matters relating to the proposed *operation* of the plant.[15] The Board thus distinguished *construction* impacts from "*operational* impacts of construction changes."[16] Second, the Board ruled that it would consider the total environmental impacts of the portions of the project to be used jointly by PECo and NWRA — i.e., the Point Pleasant intake and pumping station, the transmission main to the Bradshaw Reservoir, and the reservoir itself.[17] It would not consider, however, those portions of the water supply system to be used exclusively by NWRA — i.e., the transmission main from the Bradshaw Reservoir to the North Branch of the Neshaminy Creek, the North Branch Water Treatment Plant, and the transmission mains from the treatment plant.[18]

Third, the Board determined that section 15.1(s)1 of the DRB Compact precluded it from reevaluating the DRBC decision allocating water to Limerick via the river-follower mode.[19] This provision bars federal

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[12] LBP-82-43A, 15 NRC 1423, 1440-41, 1479 (1982). As pertinent here, those contentions are:

> **Contention V-15 and V-16a (in part)** — The intake will be relocated such that it will have significant adverse impact on American shad and short-nosed [sic] sturgeon. The relocation will adversely affect a major fish resource and boating and recreation area due to draw-down of the pool.
>
> **Contention V-16a** — 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.

[13] *Id.* at 1458-64. The Board based this conclusion on its understanding of the scope of review required by the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321, at the operating license stage. *Id.* at 1461.

[14] *Id.* at 1476.

[15] *Id.* at 1477.

[16] *Id.* at 1476 (emphasis added). Among the changes alleged by Del-Aware and noted by the Board were a change in the location of the intake structure at Point Pleasant (from the shoreline to farther out into the river); the reported discovery of shortnose sturgeon, an endangered species, in the river since the conclusion of the construction permit proceeding; and the recent eligibility of the Point Pleasant Historic District for listing in the National Register of Historic Places. *Id.* at 1461, 1476.

[17] *Id.* at 1472.

[18] *Id.* at 1473.

[19] *Id.* at 1469. The Board noted, however, that the Compact did not bar consideration of all environmental issues arising due to the Diversion project — just those relating to water allocation. *Ibid.*

action that substantially conflicts with the DRBC's comprehensive plan, of which water allocation is a principal part. Del-Aware's proposed contention V-16 concerned the Diversion's assertedly adverse effect on water quality in the Delaware River — specifically an increase in salinity. Because salinity is a function of total water withdrawal and thus allocation, the Board reasoned, this was a matter committed to the DRBC's discretion. The Board therefore refused to admit the contention.[20] It noted, however, that even in the absence of the statutory bar, Del-Aware would have a "heavy burden" in showing why any NRC reliance on the DRBC's salinity analysis was improper or unjustified.[21]

Finally, because NWRA and PECo were soon to begin construction of the Point Pleasant Diversion, the Board decided to review the environmental impacts of its operation on an expedited basis — even before the staff completed its draft environmental statement. The Board believed that its consideration of Del-Aware's contentions, particularly the need for mitigation of potential adverse operating impacts resulting from or exacerbated by the changes, might be compromised if undertaken after the start of construction.[22] As a result, hearings on Del-Aware's contentions were held in October 1982, some eight months before the issuance of the staff's draft environmental impact statement.[23]

The Board issued its partial initial decision in March 1983. It summarized its conclusions as follows:

> 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,

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[20] *Id.* at 1484-85; Licensing Board Memorandum and Order of July 14, 1982 (unpublished), at 18-19; LBP-82-72, 16 NRC 968 (1982).

[21] LBP-82-43A, *supra*, 15 NRC at 1485. *See generally id.* at 1464-70.

[22] *Id.* at 1479-80. *See* Memorandum and Order of July 14, 1982, *supra*, at 15-18; LBP-82-92A, 16 NRC 1387 (1982).

[23] NWRA began construction at Point Pleasant on December 15, 1982, but construction has subsequently been suspended. *See* Applicant's Notice (Oct. 28, 1982). *See also* p. 883, *infra*.

As noted, the NRC staff issued its draft environmental statement on the Limerick operating license in June 1983. The final environmental statement (FES) was issued in April 1984.

> operation of and maintenance for the proposed intake and pumping station would not have a significantly adverse effect on the proposed historic district.[24]

This appeal followed.[25]

B. U.S. Army Corps of Engineers Review

In response to a request from NWRA for a permit authorizing construction of the intake structure, the United States Army Corps of Engineers examined those environmental matters that had arisen since the DRBC's 1981 decision and its affirmance by the court in *Hansler*.[26] Among the new matters evaluated, insofar as they are pertinent here, were: (1) movement of the intake system from the shore bank into the channel of the Delaware River; (2) a determination by the Advisory Council on Historic Preservation that the village of Point Pleasant was eligible to be placed on the Historic Register; (3) the assertion that shortnose sturgeon had been seen in the area near Point Pleasant; and (4) salinity and ground water studies performed by or for the DRBC.[27] Following its environmental evaluation, the Corps issued the permit on October 25, 1982.

Del-Aware challenged the Corps decision in federal district court, raising issues similar to those presented on appeal to us. The court decided, at least for the purpose of denying a preliminary injunction, that the Corps of Engineers had adequately considered the environmental effects of moving the intake on salinity, the shad and shortnose sturgeon, and recreation.[28] It also found that the historic character of the area had been properly taken into account.[29] The court observed:

> A study of the complaint in the Hansler case demonstrates that it was wide ranging and touched upon almost all the issues which are raised here as if they were new.[30]

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[24] LBP-83-11, *supra*, 17 NRC at 416.

[25] The Licensing Board issued at least 10 orders and decisions dealing with the supplementary cooling water system at Limerick. Many of these ruled on Del-Aware's numerous, belated efforts to litigate new or assertedly new contentions on this subject. Del-Aware's arguments on appeal, however, relate almost exclusively to the Licensing Board's Special Prehearing Conference Order, LBP-82-43A, and its partial initial decision, LBP-83-11. We will discuss or note the Board's other orders and rulings only as pertinent to the resolution of particular arguments on appeal.

[26] *See* note 11, *supra*.

[27] *See Del-Aware Unlimited, Inc. v. Baldwin*, No. 82-5115, Tr. 1445-46 (E.D. Pa. Dec. 15, 1982), *aff'd*, 720 F.2d 661 (3d Cir. 1983), *cert. denied*, ___ U.S. ___, 104 S. Ct. 1274 (1984) (hereafter "*Baldwin*") (The district court's opinion was issued from the bench.)

[28] *Id.*, Tr. 1444, 1450-53.

[29] *Id.*, Tr. 1446-50.

[30] *Id.*, Tr. 1444.

C. State and Local Activity

Developments on several fronts at the state and local level have occurred in connection with PECo's Limerick facility since the record in this proceeding was closed.[31] Del-Aware asserts that they have a bearing on this appeal, and it has filed two motions essentially seeking that we set aside the Licensing Board's decision on this basis. We discuss and rule on the motions in Part III.D. of this opinion. The various legal actions, most of which are ongoing, are summarized below.

1. Pennsylvania Public Utility Commission

In 1983, the Pennsylvania Supreme Court upheld a decision by the Commonwealth's Public Utility Commission (PUC) that withheld approval of PECo's request to issue additional securities to finance Unit 2.[32] In two other recent decisions, the PUC has rejected PECo's new financing proposals for Limerick.[33] Pending before the PUC is also an investigation of the need for Unit 2.[34]

Because a variance from local zoning ordinances is required, PECo sought approval from the PUC to construct the pumphouse at the Bradshaw Reservoir. In a December 1983 decision, an administrative law judge approved PECo's application to build the pumphouse, but with only one of the four pumps requested. A second pump was authorized, pending the results of a one-year program to monitor the effects of flooding and erosion.[35] This decision is apparently awaiting further review by the PUC itself.[36]

2. Pennsylvania Department of Environmental Resources

In September 1982, the Pennsylvania Department of Environmental Resources (DER) issued permits to PECo and NWRA for certain construction and maintenance activities in conjunction with the Point Pleasant Diversion project. Del-Aware appealed DER's action before the

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[31] These developments have been brought to our attention by both Del-Aware and PECo.

[32] *Pennsylvania Public Utilities Commission v. Philadelphia Electric Co.*, 501 Pa. 153, 460 A.2d 734 (1983).

[33] *Securities Certificate of Philadelphia Electric Co. in the matter of the Limerick Revolving Credit/Term Loan not in excess of $1,100,000,000*, No. S-834987 (Pa. P.U.C. Dec. 23, 1983); *Limerick Nuclear Generating Station Investigation*, No. I-80100341 (Pa. P.U.C. Dec. 23, 1983).

[34] *See* NRC Staff Response to Motion by Del-Aware to Set Aside the Partial Initial Decision (Aug. 27, 1984), Attachment.

[35] *Application of Philadelphia Electric Co.*, No. A-00103956 (Pa. P.U.C. Dec. 12, 1983) (ALJ Kranzel).

[36] *See* Del-Aware's Motion to Set Aside Based on New Evidence (Aug. 6, 1984) at 3-4.

Commonwealth's Environmental Hearing Board. In an extensive opinion, the Board concluded that DER had not abused its discretion in issuing the permits and had not failed to give adequate consideration to alternatives to PECo's part of the project.[37] It remanded the matter, however, for DER to impose certain technical conditions on the involved permits.[38]

3. Bucks County

The citizens of Bucks County voted in May 1983 to withdraw from that part of the PPD project involving NWRA. Subsequently, a majority of the Bucks County Commissioners notified PECo of its "termination" of the contract between PECo and NWRA for the operation of the Point Pleasant Pumping Station.[39] PECo and others have brought suit in the Bucks County Court of Common Pleas to enjoin Bucks County from terminating its participation in the Point Pleasant project. A recent decision of the court dismissed the defendants' preliminary objections to the complaint.[40] The litigation, however, continues, and work on the project is apparently suspended.[41]

III. DISCUSSION

As indicated earlier, Del-Aware's challenges to the Licensing Board's determinations fall broadly into four categories — the Board's decision to hold early hearings on the environmental contentions; its determination that certain matters need not be considered; its disposition of those issues that were considered; and its asserted refusal to consider alternatives to the Point Pleasant Diversion project in light of recent developments. We discuss these matters in turn.

A. The Early Hearings

Construction permit proceedings for Limerick, including judicial review, were completed by 1975. PECo had all necessary NRC authoriza-

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[37] *Del-Aware Unlimited, Inc. v. Pennsylvania*, Nos. 82-177-H and 82-219-H, slip op. at 149 (Pa. E.H.B. June 18, 1984).

[38] *Id.* at 152, 154, 155.

[39] Letter from T.B. Conner, Jr., to Appeal Board (June 2, 1983).

[40] *Sullivan v. County of Bucks*, No. 83-8358-05-5 (Bucks Co., Pa., May 29, 1984).

[41] Letter from R.J. Sugarman to Appeal Board (May 15, 1984), treated as a motion, per Appeal Board Order of May 17, 1984 (unpublished).

tions in connection with construction of the plant. Nonetheless, construction of the Point Pleasant Diversion had not yet begun at the time PECo filed its operating license application. Given that happenstance, the Licensing Board decided to conduct early hearings on Del-Aware's supplementary cooling water contentions so that it might have a realistic opportunity to consider any actions necessary to mitigate possible adverse environmental effects before construction began.

Del-Aware argues, however, that the Board erred in conducting hearings on its environmental contentions before the staff had issued either its final or draft environmental impact statement. Del-Aware claims such hearings violated both the Commission's own regulations and the National Environmental Policy Act (NEPA). Further, Del-Aware charges that the premature hearings prejudiced the staff's ultimate evaluation of environmental issues by requiring it to take a tentative position, and compromised Del-Aware's participation by requiring it to develop its own environmental record from scratch. Del-Aware asserts that the staff's testimony must be stricken.

Although we agree that the Board did not act in literal accordance with agency regulations, we find no prejudice to Del-Aware resulting from the conduct of early hearings. We also find no violation of NEPA. Thus, we decline to strike the staff's testimony and to upset the Board's ruling on those grounds.

The pertinent regulation states:

> In any proceeding in which a draft environmental impact statement is prepared pursuant to this part, the *draft environmental impact statement will be made available to the public at least fifteen (15) days prior to the time of any relevant hearing. At any such hearing, the position of the Commission's staff on matters covered by this part will not be presented until the final environmental impact statement is furnished to the Environmental Protection Agency and commenting agencies and made available to the public.* Any other party to the proceeding may present its case on NEPA matters as well as on radiological health and safety matters prior to the end of the fifteen (15) day period.[42]

From the clear terms of the regulation, there is no question that it accords members of the public at least 15 days notice of the contents of the staff's draft environmental impact statement before litigation of such issues begins. The regulation also protects the staff against the need to defend any of its environmental determinations until the final environmental statement is prepared and circulated. Thus, in the usual case, en-

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[42] 10 C.F.R. § 51.52(a) (1982) (emphasis added).

vironmental hearings await the preparation and circulation of the staff's FES.[43]

The fact that the Board departed from that course and the terms of the regulation, however, does not mean that the Board's action was ill-advised in the circumstances or warrants remedial action. We recognize that an agency must ordinarily adhere to its own rules and established practices. Nonetheless,

> "[i]t is always within the discretion of . . . an administrative agency to relax or modify its procedural rules adopted for the orderly transaction of business before it when in a given case the ends of justice require it."[44]

It is plainly apparent that the Licensing Board believed the "ends of justice" required early hearings on the Point Pleasant Diversion. We have no cause to disagree. Further, we see no prejudice to any party as a result of the procedures the Board employed.

To begin with, the Board stressed that at the early hearing it sought only an evaluation of certain specific impacts. It explicitly recognized that resolution of the ultimate cost/benefit balance under NEPA must await the issuance of the staff's environmental statement.[45] The Board went ahead with early hearings on Del-Aware's contentions because it was

> concerned that some of the contentions which allege impacts after operation of the supplemental cooling water system could be rendered substantially moot prior to consideration of their merits by virtue of the construction of the intake and reservoir. [The Board was] also concerned that the Applicant will incur the time and expense of major construction work not previously reviewed in a licensing proceeding which may later have to be undone in whole or in part in the event [it were to] find a change in location or design is necessary to mitigate impacts which would arise from operation.[46]

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[43] *See, e.g., Potomac Electric Power Co.* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-277, 1 NRC 539, 546 (1975).

Since the Licensing Board held the hearings in question and issued its partial initial decision, the Commission has substantially amended its environmental regulations, 10 C.F.R. Part 51. *See* 49 Fed. Reg. 9352 (1984). Our decision, of course, must necessarily focus on the propriety of the Board's actions pursuant to the regulations as they existed in 1982. We note, however, that, while the new counterpart to former section 51.52(a) eliminates the 15-day advance notice of the DES, it makes clear that the FES is to precede the hearing on environmental issues and that the staff "may not offer the final environmental impact statement in evidence *or present the position of the NRC staff on matters within the scope of NEPA and this subpart*" until the FES is filed with EPA and offered for comment to other agencies and the public. *Id.* at 9396 (to be codified at 10 C.F.R. § 51.104(a)(1)) (emphasis added). *See id.* at 9365.

[44] *American Farm Lines v. Black Ball Freight Service*, 397 U.S. 532, 539 (1970), *quoting NLRB v. Monsanto Chemical Co.*, 205 F.2d 763, 764 (8th Cir. 1953).

[45] Memorandum and Order of July 14, 1982, *supra*, at 17-18; LBP-82-43A, *supra*, 15 NRC at 1480.

[46] LBP-82-43A, *supra*, 15 NRC at 1476. *See id.* at 1480.

The Board reiterated these concerns in responding to staff objections to the early hearing.[47] Moreover, for the Board "to wait to hear these issues, quite possibly until construction is completed and certain actions which might minimize environmental harm are no longer feasible[,] . . . [might] appear to violate at least the spirit of NEPA . . . ."[48] The Board's decision to move forward with the hearing was thus reasonably grounded in its legitimate desire to avoid the same potential adverse environmental impacts that prompted Del-Aware's interest in the proceeding in the first place.

We reject Del-Aware's assertion that the failure of the Licensing Board to await the FES placed an unfair burden on Del-Aware to develop its own evidentiary record from scratch. Although the staff did not prepare a formal final or draft environmental impact statement before the hearing, it prepared and filed its testimony in advance. Of course, Del-Aware was served with this testimony, and all parties engaged in what the Licensing Board termed "three months of intensive discovery."[49] Moreover, the issues Del-Aware raised have been the subject of administrative and judicial exploration for more than a decade, and Del-Aware has been an active participant in at least a portion of the earlier litigation.[50] Indeed, at oral argument, counsel for Del-Aware acknowledged that the issues involved here "are essentially within the same broad confines" as those earlier litigated, although some aspects may differ.[51] Thus, Del-Aware has not demonstrated that it was in fact unfairly burdened in presenting its case.

The Board's approach also did not impermissibly interfere with the staff's role or compromise its objectivity, as Del-Aware argues. The staff independently conducted its environmental review and prepared its own testimony for the hearing. The Board did not and could not dictate the contents of that testimony.[52]

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[47] Memorandum and Order of July 14, 1982, *supra*, at 3-4.

[48] *Id.* at 15.

[49] LBP-82-92A, *supra*, 16 NRC at 1389.

[50] *See, e.g., Baldwin, supra.*

[51] App. Tr. 99-100.

[52] We note in this connection that the Board did not actually order the staff to prepare any environmental document by a date certain. It simply explained its reasons for proceeding expeditiously and afforded the staff some flexibility in the timing of its submissions. LBP-82-43A, *supra*, 15 NRC at 1480. Further, as noted at p. 865, *supra*, the staff had an opportunity to object to the Board's procedures. *See* Memorandum and Order of July 14, 1982, *supra*, at 15-18. Thus, although the Board's action was inconsistent with former section 51.52(a), we do not find it incompatible with our decision in *Offshore Power Systems* (Floating Nuclear Power Plants), ALAB-489, 8 NRC 194 (1978). There, in commenting on the boards' authority to control the staff's independent NEPA review, we held that "[t]he Licensing Board may direct the staff to publish its environmental documents by specific dates if, after affording the parties — including the staff — opportunity to be heard on the matter, it finds that no further delay is

(Continued)

Given the Licensing Board's stated purpose behind the commencement of early hearings on Del-Aware's contentions, as well as the lack of genuine prejudice to Del-Aware's position, it is hardly surprising that the appellant concedes that "the Board commendably moved quickly to insure timely consideration of environmental impacts in scheduling this early hearing . . . ."[53] Indeed, it did not even object to the Board's hearing schedule at the time it was announced.[54] Instead, it waited until after prefiled testimony and trial briefs were submitted, the staff's position was revealed, and the hearing was only a week away, before filing a request to postpone the hearing. We agree with the Licensing Board that the request was without merit and came too late.[55]

Finally, we find no support for Del-Aware's alternative assertion that NEPA independently requires that hearings await the preparation of the staff's environmental impact statement. Generally speaking, NEPA does not address the timing of an environmental statement, as long as it is available by the time of the agency's recommendation or report on the proposed federal action.[56] The Licensing Board's *partial* initial decision before us on appeal does not constitute such a recommendation or report because it does not authorize the issuance of an operating license to PECo. Thus, while we agree with Del-Aware that an operating license cannot be issued without an environmental impact statement,[57] that is not the situation here. As noted at p. 864, *supra*, the Licensing Board stressed that it was not passing on the ultimate cost/benefit balance required by NEPA. Rather, it simply held hearings on certain environmental issues earlier than would ordinarily be the case in order to identify and to mitigate, before the Point Pleasant project progressed too far, any potential adverse environmental impacts.

B. Issues Excluded

1. Salinity and Water Quality

Del-Aware's proposed contention V-16 claimed that the operation of the supplementary cooling water system will adversely affect the water

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justified." *Id.* at 208. *See also* 49 Fed. Reg., *supra*, at 9361 & n.14, 9383-84 (the latter to be codified at 10 C.F.R. § 51.15).

[53] Appellants' [sic] Brief (Aug. 23, 1983) at 12.

[54] Del-Aware did not include the hearing schedule when it sought reconsideration of the Board's prehearing conference order. *See* Request of Del-Aware, Limited [sic] Inc. for Reconsideration of Aspects of Special Pre-Hearing Conference Order (undated, but received June 21, 1982).

[55] *See* LBP-82-92A, *supra*, 16 NRC 1387.

[56] *New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d 87, 93-94 (1st Cir. 1978).

[57] The Commission's own regulations require an impact statement for an operating license. *See* 10 C.F.R. § 51.5(a)(2) (1982); 49 Fed. Reg., *supra*, at 9384 (to be codified at 10 C.F.R. § 51.20(b)(2)).

quality and water supply of the Delaware River and the receiving streams.[58] In explaining the basis for the contention, Del-Aware asserted that short-term drawdowns of water could increase salinity and adversely affect drinking water.[59] The Licensing Board excluded the contention, essentially on the ground that changes in salinity result from the total quantity of water withdrawn for all uses approved by the DRBC, and that section 15.1(s)1 of the Delaware River Basin Compact precludes redetermination by the NRC of the DRBC's decisions concerning the allocation of water for Limerick.[60] Del-Aware now argues that such exclusion was error.[61] We agree that the Board erred, as a matter of law, in concluding that the Compact precludes consideration of contention V-16.

Section 15.1(s)1 provides that nothing in the Compact shall impair or affect any powers or functions of the United States. This reservation of authority, however, is subject to a proviso that prohibits federal agencies from taking action that "substantially conflict[s]" with any portion of the comprehensive plan approved by the DRBC with the concurrence of the federal member.[62] In discussing this provision, the Licensing Board explained:

> We do not believe that the NRC is precluded by the Compact provision from considering all environmental questions arising from the diversion .... However, in light of the DRBC's role in determining the uses for water in the basin, we believe that it bars us from reevaluating the DRBC decision to allocate water to the Limerick facility operating in the river follower mode. ... [A]lthough we will not look at the allocation decision itself, we might determine whether changes in the plan since the con-

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[58] Contention V-16 reads as follows:

> Operation of the SCWS will adversely affect the water quality and adequacy of water supplies in a critical reach of the Delaware River and estuary. DRBC's determination was based on a number of errors and inadequate information and cannot and should not be accepted by this Commission.

Supplemental Petition of Coordinated Intervenors (Nov. 24, 1981) at 69.

[59] *Ibid.* The NRC staff did not oppose the admission of this contention. LBP-82-43A, *supra*, 15 NRC at 1485.

[60] *Id.* at 1484-85; Memorandum and Order of July 14, 1982, *supra*, at 18-19; LBP-82-72, *supra*, 16 NRC at 969-71; Memorandum and Order of January 24, 1983 (unpublished), at 6-7.

[61] We are unable to discern from Del-Aware's brief precisely *why* it believes the Board erred. It mentions two matters in this connection, however — (1) the "contradiction" of the Board's exclusion of the salinity issue and the staff's inclusion of this subject in its subsequent draft environmental impact statement; and (2) the assertedly "continuing concerns" of the Environmental Protection Agency (EPA) about salinity. *See* Appellants' Brief, *supra*, at 2, 13.

[62] Section 15.1(s)1 provides, as pertinent:

> Nothing contained in this Act or in the Compact shall impair or affect the constitutional authority of the United States or any of its powers, rights, functions, or jurisdiction under other existing or future legislation in and over the area or waters which are the subject of the Compact including projects of the Commission: *Provided*, That *whenever a comprehensive plan, or any part or revision thereof, has been adopted with the concurrence of the member appointed by the President, the exercise of any powers conferred by law on any officer, agency or instrumentality of the United States with regard to water and related land resources in the Delaware River Basin shall not substantially conflict with any such portion of such comprehensive plan* ....

DRB Compact, *supra*, § 15.1(s)1, 1961 U.S. Code Cong. & Ad. News at 807-08 (emphasis added).

struction permit stage call for new mitigation efforts or would cause significantly increased environmental impacts such that overall alternative cooling methods should be examined.[63]

We agree that the NRC may not reevaluate the DRBC's "allocation decision itself." As the Board correctly noted, the "DRBC's function is to regulate water supply and control consumptive uses of water in the basin through development of the Comprehensive Plan."[64] We part company with the Board, however, in its determination that any NRC appraisal of the salinity or water quality issue would necessarily and substantially conflict with the plan.

The fact that the salinity of the water is a function of the total amount withdrawn does not prevent either the NRC staff or the adjudicatory boards from examining the effects of the amount withdrawn for Limerick. To be sure, following such examination the NRC could not authorize PECo to withdraw water from the Delaware River in amounts that *exceed* that allocated by the DRBC. Nor could the agency require the DRBC to make any particular allocation decision among the competing interests for the Delaware River. On the other hand, the NRC might well conclude — after its own consideration of available data and despite the findings of the DRBC — that the amount of water that must be withdrawn from the Delaware River to permit safe operation of Limerick would nonetheless adversely affect the quality of the water to an unwarranted degree.[65] In such a case, nothing in the DRBC's decision would either require the Commission to license the plant or preclude it from imposing conditions on its operation. This is so because the DRBC's allocation is permissive, not mandatory: it does not require, but rather

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[63] LBP-82-43A, *supra*, 15 NRC at 1469.

[64] *Ibid. See* DRB Compact, *supra*, § 1.3, 1961 U.S. Code Cong. & Ad. News at 776.

[65] This is not to say that the NRC must perform a wholly independent analysis from scratch. As the Licensing Board correctly observed, the staff *may* rely on the scientific data and inferences drawn by the DRBC. LBP-82-43A, *supra*, 15 NRC at 1467-68. *See* ALAB-262, *supra*, 1 NRC at 193. On the other hand, the Commission need not slavishly defer to either the DRBC's findings or its conclusions about water quality. *But cf. Hansler, supra*, 536 F. Supp. at 42 n.25 ("DRBC is the agency charged with this decision, and it, not this court, has the necessary expertise to make [salinity and flow rate] determination"). (The DRBC, which was created eight years before NEPA, is, by the terms of the Compact, principally concerned with water supply and allocation — not its "quality" from an environmental standpoint. *See generally Delaware River Basin Commission v. Bucks County Water & Sewer Authority*, 545 F. Supp. 138, 140-42 (E.D. Pa. 1982).)

The critical factor is that the staff (and the NRC) exercise independent judgment with regard to its ultimate conclusions about the environmental impacts of the project. *See* LBP-82-43A, *supra*, 15 NRC at 1468. In this way, the Commission will discharge its independent responsibility to fulfill the purposes of NEPA "to the fullest extent possible." 42 U.S.C. § 4332 *See Tennessee Valley Authority* (Phipps Bend Nuclear Plant, Units 1 and 2), ALAB-506, 8 NRC 533, 544-49 (1978). *But see Bucks County Board of Commissioners v. Interstate Energy Co.*, 403 F. Supp. 805, 808 (E.D. Pa. 1975) (DRBC is "the federal agency designated to implement NEPA for all projects affecting the Delaware River Basin").

permits, PECo to withdraw from the Delaware for use at Limerick.[66] Thus, action the Commission might take to lessen the impact of the Limerick facility on salinity or water quality would not "substantially conflict" with the DRBC's allocation determination.[67]

Despite the Licensing Board's erroneous ruling on the effect of the DRB Compact's preclusion clause on contention V-16, we do not order the admission of the contention per se. In the time since the Licensing Board's ruling, the NRC staff has issued its draft and final environmental impact statements for the Limerick operating license.[68] Both address the issue of salinity and water quality, and the FES takes account of the EPA comments in this regard noted by Del-Aware.[69] In this circumstance, the best course is to afford Del-Aware (assuming that it is dissatisfied with the FES on this score) the opportunity to reformulate its contention V-16 in light of the *specific* information included in the FES.[70]

The Licensing Board recognized the possibility that the Compact might not preclude consideration of contention V-16. It observed that, if such were the case, the staff might reasonably be able to rely on the DRBC's evaluation.[71] Thus, "Del-Aware would have a heavy burden of specifying why any NRC reliance on analysis by DRBC (or other agencies) was improper."[72] We agree that, once Del-Aware reformulates its contention in light of the FES, it may well have a heavy burden in prevailing on the merits. Nonetheless, it is entitled to the opportunity to

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[66] *See Philadelphia Electric Co. (Bradshaw Reservoir, Pumping Station and Transmission Main)*, No. D-79-52CP (DRBC Feb. 18, 1981) (attached to Applicant's Answer to Petition for Intervention of Del-Aware Unlimited, Inc. (Oct. 7, 1981)). The DRBC itself recognized that it may have to reconsider its decision "in light of further information developed by, or decisions rendered in, pending or future proceedings conducted by other State and Federal agencies concerning the development and operation of the Limerick Nuclear Generating Station and related facilities." *Id.* at 8. If the DRBC construed the section 15.1(s)1 preclusion as strictly as the Licensing Board, we do not believe it would have so clearly recognized the possibility that other agencies might consider the full range of issues and might reach different conclusions on them.

[67] The "substantially conflict" standard of the Compact's preclusion clause can be distinguished from stronger preemptions in other statutes. For example, the Federal Water Pollution Control Act precludes any agency, including the NRC, from even reviewing EPA's findings under section 401 of that Act. *See New England Coalition, supra*, 582 F.2d at 98.

There have been but few occasions where section 15.1(s)1 has been construed by the courts and other agencies. We have found none, however, where this provision has been read to preclude an agency from even considering an issue. *See, e.g., Pennsylvania Hydroelectric Development Corp.*, 15 FERC ¶ 61,152 (1981).

[68] *See* note 23, *supra*.

[69] NUREG-0974, "Final Environmental Statement Related to the Operation of Limerick Generating Station, Units 1 and 2," at 9-27 to 9-28. *See* note 61, *supra*.

[70] Because Del-Aware's original contention V-16 should have been admitted initially, a reformulation of it pursuant to our decision here does not make it subject to the Commission's standards for admitting late contentions, 10 C.F.R. § 2.714(a)(1). *See Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041 (1983).

[71] *See* note 65, *supra*.

[72] LBP-82-43A, *supra*, 15 NRC at 1485. *See also* LBP-82-72, *supra*, 16 NRC at 971.

challenge the staff's determinations on the salinity issue, as presented in the FES.[73]

2. *Construction Impacts*

The Licensing Board concluded that it did not have jurisdiction to consider "changes in impacts of construction resulting from changed circumstances," but could properly consider "the operational impacts of construction changes."[74] In its view, the former lies within the authority of the Director of Nuclear Reactor Regulation (NRR). Del-Aware contends, by way of only a passing reference in its brief, that the Board's distinction between construction and operational impacts results in "segmented decisions" in violation of NEPA.[75] Del-Aware fails to explain *how* NEPA is thereby violated and to specify what particular environmental issues have gone unevaluated.[76] In such circumstance, we would be fully justified in ignoring Del-Aware's claim entirely. But because we find the Licensing Board's reasoning on this point somewhat unclear, we address it briefly.

In making its ruling, the Board stressed that, under the Commission's rules, its jurisdiction is governed by the hearing notice for this proceeding. That notice limits the Board's (as well as our) jurisdiction to matters involving PECo's application for a license to *operate* Limerick.[77] Having defined the scope of its jurisdiction, however, the Board was faced with applying that definition to the particular matters before it — not an easy task. In distinguishing between the impacts of construction and operation, and taking account of changes since issuance of the construction permit, the Board, we believe, meant the following. To the extent that PECo's application for the Limerick operating license reflects

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[73] The admission and litigation of any reformulated salinity contention must, of course, be tied to changes or new information that has come to light since the issuance of the construction permit for Limerick. *See* pp. 870-71, *infra*.

[74] LBP-82-43A, *supra*, 15 NRC at 1476-79.

[75] Appellants' Brief, *supra*, at 13.

[76] This section of Del-Aware's brief is typical of its overall quality. For example, it refers to "*Overlook Alliance*." *Ibid.* Although no citation or discussion of its contents and relevance is provided, we assume that, by this truly cryptic reference, Del-Aware means *Indian Lookout Alliance v. Volpe*, 484 F.2d 11 (8th Cir. 1973). As explained below, that case is inapposite. Other parts of the brief can best be described as "gobbledygook," for the juxtaposition of the English words makes neither sentences nor sense. The following is illustrative: "... subsequent revelation that construction is not needed now, and failure of the staff to comply with NEPA renders present has to illadvised an unnecessary. (See Motion)". *Id.* at 12. Having rejected Del-Aware's first effort at briefing, we denied PECo's motion to strike this brief. Although we found it comprehensible enough for the other parties to reply to it, we cautioned Del-Aware that it was to bear the risk of the shortcomings of its own brief. Appeal Board Order of September 2, 1983 (unpublished). We repeat that caveat here.

[77] LBP-82-43A, *supra*, 15 NRC at 1477.

some actual changes in connection with the facility *as it was contemplated at the time of issuance of the construction permit* (e.g., the change in the location of the intake for the Point Pleasant Diversion), such changes are within the scope of this operating license proceeding and can be litigated.[78] On the other hand, if activity already authorized by the construction permit results in impacts not previously expected, that is a matter for resolution by the Director of NRR pursuant to 10 C.F.R. §§ 2.202, 2.206.[79]

As noted, Del-Aware has not explained how this results in a violation of NEPA, and we see none. Del-Aware's elliptical reference to *Indian Lookout Alliance* is unavailing.[80] In any event, the Board permitted Del-Aware to litigate the operational impacts from the various changes in the project since the construction permit was issued.[81] NEPA requires no more.

3. *Impacts Attributable Solely to the NWRA Project*

As noted above, the Point Pleasant Diversion includes (1) the intake, reservoir, and pumping station to be used jointly by PECo and NWRA; (2) transmission facilities to be used solely for Limerick; and (3) transmission mains intended solely for NWRA's use.[82] The Licensing Board concluded that the environmental impacts of that part of the system to be used jointly by PECo and NWRA could not be meaningfully apportioned to each user. Thus, the Board considered not only the impacts solely attributable to Limerick, but also the total environmental impacts of the Point Pleasant intake and pumping station, the transmission main

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[78] This is consistent with the Board's discussion of the Commission's earlier decision concerning the construction permit. The Board concluded that it would not reevaluate environmental matters considered before the permit was issued, except where circumstances had significantly changed. *Id.* at 1461.

[79] *See Consumers Power Co.* (Midland Plant, Units 1 & 2), ALAB-674, 15 NRC 1101 (1982). Del-Aware has taken advantage of this procedure at least twice. *See* DD-82-13, 16 NRC 2115 (1982); DD-84-13, 19 NRC 1137 (1984).

[80] *See* note 76, *supra*. In *Indian Lookout Alliance*, the court found that the environmental impact statement for a portion of a proposed federal highway was too limited because it did not cover enough mileage of the interstate. After noting that this was a problem unique to highway projects, the court stressed that a segmented approach to the impact statements for many projects is often unavoidable, and that segments need only be as large as practicable in the circumstances. 484 F.2d at 15, 19. The "segmented decisions" to which Del-Aware objects here are of a different nature. The Licensing Board's distinction between construction and operational impacts is a function of the Commission's traditional two-stage (construction permit and operating license) licensing process for commercial reactors. *See generally Power Reactor Development Co. v. International Union of Electrical, Radio & Machine Workers*, 367 U.S. 396 (1961). It is also a jurisdictional distinction, concerning the NRC's internal division of decisionmaking authority based on the particular stage of the licensing process involved. It does not result in the indefinite deferral of consideration of impacts of a portion of a project, which the court in *Indian Lookout Alliance* found violative of NEPA.

[81] *See* LBP-83-11, *supra*, 17 NRC 413.

[82] *See* note 3, *supra*, and Appendix A.

to the Bradshaw Reservoir, and the Reservoir itself.[83] The Board determined, however, that NEPA does not require the NRC to consider the part of the system to be used solely by NWRA to supplement municipal water supplies (i.e., the separate transmission main from the Bradshaw Reservoir to the North Branch of the Neshaminy Creek, the North Branch Water Treatment Plant, and the transmission mains from the treatment plant).[84]

In another rather limited argument on appeal, Del-Aware claims that the Board erred in not considering these latter impacts attributable solely to the NWRA part of the project.[85] As we understand it, the gist of Del-Aware's argument is that this part of the project would not be built but for Limerick and the financial commitment of PECo to the system. Assuming arguendo that this is so,[86] Del-Aware fails to explain why this would *require* the *NRC*, pursuant to NEPA, to evaluate impacts of a part of the project otherwise unassociated with Limerick.

We agree with the Licensing Board that NEPA does not require the NRC to consider the environmental impacts solely attributable to the NWRA part of the project, but for somewhat different reasons than those expressed by the Board. The Board's analysis relied on NEPA cases addressing the issue of "segmentation."[87] Those cases use a three-part test to determine if a project has been arbitrarily divided into segments with smaller environmental impacts, so as to avoid consideration of the possibly greater, cumulative impacts of the project as a whole.[88] The project segments usually follow one another in time, with no one agency having evaluated the overall project for NEPA purposes. That is not this case. The respective PECo and NWRA "segments" of the Point Pleasant Diversion project have been planned and are being executed on essentially a concurrent basis, and the DRBC has twice evaluated the en-

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[83] LBP-82-43A, *supra*, 15 NRC at 1470-72.

[84] *Id.* at 1473-75.

[85] Appellants' Brief, *supra*, at 21.

[86] Del-Aware points to a Licensing Board reference to the statement of an NWRA official committing NWRA to constructing that part of the system to be used solely by NWRA, "with or without" PECo. Memorandum and Order of July 14, 1982, *supra*, at 9 n.2. Del-Aware complains that this commitment is now in substantial doubt. Appellants' Brief, *supra*, at 21. The extent to which the Licensing Board actually relied on the NWRA official's "commitment" is not clear. As explained below, however, NWRA's intentions with regard to its separate part of the project are of no relevance to the NRC's NEPA obligations vis-a-vis Limerick. We therefore accept for argument purposes only Del-Aware's claim that NWRA is no longer interested in pursuing the municipal water supply part of the project.

[87] LBP-82-43A, *supra*, 15 NRC at 1473-74.

[88] *See, e.g., Swain v. Brinegar*, 542 F.2d 364 (7th Cir. 1976) (en banc); *Duke Power Co.* (Amendment to Materials License SNM-1773 — Transportation of Spent Fuel from Oconee Nuclear Station for Storage at McGuire Nuclear Station), ALAB-651, 14 NRC 307 (1981).

vironmental impacts of the total project.[89] Thus, the segmentation cases relied on by the Board are largely inapposite to the situation at hand.

We believe that *Henry v. FPC*,[90] also discussed by the Board, provides the more appropriate guidance for the disposition of this case. *Henry* involved a coal gasification project that — much like the Point Pleasant Diversion — required approval from several different agencies. The Bureau of Reclamation of the Department of the Interior was the "lead agency" for NEPA purposes and it (like the DRBC here) prepared an impact statement for the entire project. Because the Federal Power Commission's (FPC) jurisdiction was limited to granting a certificate of public convenience and necessity for the project's "tap and valve" facilities, the FPC contended that it need consider only the incremental environmental impacts of those facilities. Although the court actually held that the NEPA issue was raised prematurely, it opined that the FPC was obliged by *both* NEPA and the Natural Gas Act to consider the environmental impacts of the entire gasification project.[91]

The Licensing Board correctly noted that, under *Henry*, the NRC must consider the impacts of the jointly used portions of the PPD project.[92] But we think it is also clear from *Henry* that the NRC need *not* consider the impacts attributable *solely* to the NWRA segment. The District of Columbia Circuit stressed that, in making its certification decision under the Natural Gas Act, the FPC would necessarily have to consider the overall gasification project, even though it did not have complete jurisdiction over it.[93] By contrast here, consideration of the solely-NWRA portion of the project has no role whatsoever in the NRC's decision under the Atomic Energy Act concerning the issuance of a license to PECo to operate Limerick. Whether this part of the project is ever constructed may be of interest to the DRBC and Army Corps of Engineers, but it is of no decisional significance to the NRC.[94] Thus, the NRC has "no jurisdictional toehold"[95] over that part of the Point Pleasant Diversion and, even under *Henry*, there is no basis for requiring the

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[89] *See* pp. 856-57, *supra*.

[90] 513 F.2d 395 (D.C. Cir. 1975).

[91] *Id.* at 405-07. The court noted, however, that the FPC could rely on the lead agency's impact statement. *Id.* at 407.

[92] LBP-82-43A, *supra*, 15 NRC at 1472.

[93] 513 F.2d at 406-07.

[94] And, by the same token, Limerick — absent possible complications from the private contracts involved — is not foreclosing NWRA's options. *See* LBP-82-43A, *supra*, 15 NRC at 1474-75.

[95] *Henry*, *supra*, 513 F.2d at 407 n.33.

NRC to evaluate the environmental impacts solely attributable to the NWRA branch.[96]

The seminal decision on the proper scope of an agency's environmental review under NEPA supports this conclusion. In *Kleppe v. Sierra Club*, the Supreme Court held that

> when several proposals for . . . related actions that will have cumulative or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together.[97]

The DRBC — the agency with oversight of the entire Point Pleasant Diversion project — has "considered together" the cumulative or synergistic environmental consequences of the discrete parts of the project. Further, its environmental review has passed judicial muster.[98] The question here then is how much of this review does NEPA require the NRC to duplicate. We believe it is entirely reasonable that the NRC decline to duplicate or to consider the DRBC's review of the environmental impacts solely attributable to NWRA's part of the PPD project whose only nexus to Limerick is economic.[99]

C. Other Licensing Board Rulings

1. Impact on the Point Pleasant Historic District

Del-Aware complains that the Licensing Board erred in failing to make any findings under the National Historic Preservation Act (NHPA).[100] Its argument is essentially twofold. First, it asserts that the Board incorrectly distinguished between construction and operating impacts in its Memorandum and Order of July 14, 1982, *supra*, and thereby excluded consideration of the impacts on the Point Pleasant Historic

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[96] *Compare Committee for Auto Responsibility v. Solomon*, 603 F.2d 992, 1002 n.44 (D.C. Cir. 1979), *cert. denied*, 445 U.S. 915 (1980) (GSA consideration of parking needs in conjunction with FES for federal building found reasonable); *Public Service Co. of New Hampshire v. NRC*, 582 F.2d 77 (1st Cir.), *cert. denied*, 439 U.S. 1046 (1978) (NRC consideration of environmental impacts of power plant transmission lines found proper); *City of Rochester v. Postal Service*, 541 F.2d 967 (2d Cir. 1976) (Postal Service, which considered impacts of new construction site, improperly failed to consider impacts of abandonment of old post office as well).

[97] 427 U.S. 390, 410 (1976) (footnote omitted).

[98] *See Hansler*, note 11, *supra*.

[99] Indeed, if the NRC were to consider the impacts solely attributable to NWRA's municipal water supply part of the project, there would be considerable question as to what recourse the agency would have, were it to find significant adverse impacts. For example, could it decline to license Limerick or impose license conditions on account of the environmental impacts caused by NWRA's effort to "piggyback" onto Limerick for economic reasons? Although we need not decide this hypothetical question, we think the answer would be "no."

[100] Appellants' Brief, *supra*, at 21-23.

District. Second, Del-Aware alleges that the Board "refused to consider" the impacts of proposed baffling walls to stifle the noise emanating from the transformers at the Point Pleasant pumping station.[101] According to Del-Aware, such barriers would have an adverse effect on the nearby Delaware Canal, a National Historic Landmark. We find no merit to the latter argument, but agree with Del-Aware that the Board erred in its Memorandum and Order of July 14, 1982.

The Licensing Board rewrote Del-Aware's proposed contention V-14, as follows:

> The esthetic impacts of the Point Pleasant pumping station, and associated hillside clearance and river-edge rip rap wall will adversely affect the peace and tranquility of the proposed Point Pleasant Historic District.[102]

Because of the Board's ruling that it had no jurisdiction over construction impacts,[103] the Board initially admitted contention V-14 only to the extent it concerned "impacts arising from the existence of the diversion."[104] The Board also noted that the determination of the Point Pleasant Historic District's eligibility for inclusion in the National Register of Historic Places was a significant change in circumstance since issuance of the construction permit, warranting present consideration.[105] On reconsideration and in response to PECo's objection, however, the Board struck the contention. Acknowledging that it was "a close question," the Board concluded that contention V-14 concerned essentially construction impacts.[106]

We agree with the Board's original reasoning. The Point Pleasant Historic District had not been declared eligible for the National Register at the time of issuance of the construction permit. Thus, there was no occasion for consideration of the impacts that Limerick's supplementary cooling water system might have on the Historic District. This is clearly a significant change in circumstances that, by the Licensing Board's own reckoning, warrants consideration in the context of this operating license proceeding.[107] More important, NHPA requires it. Section 106 of that act states, as pertinent:

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[101] *Id.* at 22.
[102] LBP-82-43A, *supra*, 15 NRC at 1479.
[103] *See* pp. 870-71, *supra*.
[104] LBP-82-43A, *supra*, 15 NRC at 1483.
[105] *Ibid.* The NRC staff also found the contention admissible. *Ibid.*
[106] Memorandum and Order of July 14, 1982, *supra*, at 4-5.
[107] *See* LBP-82-43A, *supra*, 15 NRC at 1461. *See also* pp. 870-71 and note 78, *supra*.

> the head of any Federal department or independent agency having authority to license any undertaking shall, . . . prior to the issuance of any license, . . . take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. The head of any such Federal agency shall afford the Advisory Council on Historic Preservation established under sections 470i to 470v of this title a reasonable opportunity to comment with regard to such undertaking.[108]

Del-Aware must therefore be afforded the opportunity to litigate its contention V-14. We note, however — as in the case of Del-Aware's salinity contention — that the staff's FES has been issued and addresses the possible impacts on the Point Pleasant Historic District.[109] If it still chooses to pursue this issue, Del-Aware must do so with reference to the staff's review, alleging *specifically* why that review might be inadequate under section 106 of NHPA.[110]

As for Del-Aware's second point with respect to the NRC's obligations under NHPA, it fails for several reasons. Del-Aware charges that the Licensing Board "refused to consider" the impacts of proposed sound barriers placed around the Point Pleasant pumping station on the Delaware Canal.[111] Del-Aware has provided no citation for the Board's asserted "refusal" and we can find none. Indeed, we can find no place where Del-Aware ever properly sought to raise the matter, let alone where the Board explicitly ruled against it.

The issue of sound barriers arose at the hearing, during the litigation of Del-Aware's contention V-16a, which concerned noise effects on the proposed Point Pleasant Historic District.[112] The staff witness testified that the transformers outside the pumphouse would produce objectionable noise at two nearby residences. Baffling walls were suggested as sound barriers, if necessary. In response to this potential problem, the Licensing Board imposed a license condition requiring PECo to perform noise tests, at specified times and sites, after the pumping station is constructed and operating, and to report the results to the staff. *If* the tests show audible noise offsite, mitigation measures — e.g., sound barriers — must be undertaken promptly.[113]

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[108] 16 U.S.C. § 470f.

[109] *See* NUREG-0974, *supra*, at 5-36.

[110] The Licensing Board observed — correctly, in our view — that, in order to comply with NHPA, the staff may properly rely on the historical impact reviews of other agencies. LBP-82-43A, *supra*, 15 NRC at 1483. *See* note 65, *supra*. The Army Corps of Engineers has apparently undertaken such a review of the PPD project. *See* LBP-82-43A, *supra*, 15 NRC at 1483; *Baldwin*, note 27, *supra*.

We also note that Del-Aware raised a similar matter and others in a petition to the Director of NRR. *See* DD-82-13, *supra*, 16 NRC at 2134-36.

[111] Appellants' Brief, *supra*, at 22.

[112] *See* note 12, *supra*.

[113] LBP-83-11, *supra*, 17 NRC at 436-38, 461-62, 463-64.

When the possibility of sound barriers was suggested, Del-Aware's counsel questioned the involved witnesses about them generally, but did not attempt to pursue the specific matter about which it now complains — the assertedly adverse impact of proposed baffling walls on the Delaware Canal.[114] In its proposed findings of fact to the Licensing Board, Del-Aware simply stated that construction of the proposed walls "might require further review for historical compliance," and that the staff and applicant had not taken any action "to minimize the impact of the facility on the Historic Landmark" in light of NHPA.[115] In these circumstances, we think it is neither accurate nor fair for Del-Aware to allege that the Board "refused to consider" a rather specific matter that Del-Aware did not put squarely before the Board.

There is an additional infirmity in Del-Aware's argument. Del-Aware argues that the Licensing Board has not protected the Delaware Canal by complying with section 110(f) of NHPA. That provision requires agencies to undertake in advance all possible "planning and actions" necessary to minimize any direct and adverse harm to a National Historic Landmark as a consequence of any federal approval.[116] Del-Aware's concern, however, is beyond the scope of both contention V-14 (which the Board erroneously excluded) and contention V-16a (which was litigated). Even as originally drafted by Del-Aware, both refer only to the recent eligibility of the Point Pleasant Historic District for inclusion in the National Register of Historic Places; neither refers to the Delaware Canal or to any other National Historic Landmark.[117] By raising its concerns about the Delaware Canal and compliance with section 110(f) of NHPA, Del-Aware is clearly injecting a new element into its contention. Admittedly, there was no cause for Del-Aware's specific concern about the effect of the sound barriers on the Canal until the prospect of the

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[114] *See* Tr. 1056-61, 1090-92, 1120-58, 1184-85, 1186-87.

[115] Intervenor Del-Aware's Proposed Findings of Fact, Conclusions of Law, and Opinion (Nov. 17, 1982) at 60-61.

[116] 16 U.S.C. § 470h-2(f). That section reads as follows (emphasis added):

> Prior to the approval of any Federal undertaking which may directly and adversely affect any *National Historic Landmark*, the head of the responsible Federal agency shall, to the *maximum extent possible, undertake such planning and actions* as may be necessary *to minimize harm* to such landmark, and shall afford the Advisory Counsel on Historic Preservation a reasonable opportunity to comment on the undertaking.

This provision, which Congress added to NHPA in 1980, complements section 106, 16 U.S.C. § 470f, *supra*, by setting a higher standard for governmental action insofar as National Historic Landmarks are concerned. It requires the agency to plan and to act to minimize adverse impacts, rather than simply to "take into account" such impacts. *See* H.R. Rep. No. 1457, 96th Cong., 2d Sess. 38, *reprinted in* 1980 U.S. Code Cong. & Ad. News 6378, 6401.

[117] *See* Supplemental Petition of Coordinated Intervenors, *supra*, at 67, 69½. *See also* 16 U.S.C. § 470a(a) (distinction between National Historic Landmark and areas listed on the National Register); Tr. 1136 (Delaware Canal is a National Historic Landmark).

barriers was mentioned at the hearing.[118] But if Del-Aware wanted to pursue the matter, it was incumbent upon it to do so *at that time* by seeking to amend and expand its contention V-16a.[119] As explained above, Del-Aware made no serious effort to do so then, and it is too late to do so now in this forum.[120]

2. *Impact on Shortnose Sturgeon and American Shad*

The Licensing Board devoted a considerable portion of its partial initial decision to the effect of moving the location of the Point Pleasant intake structure on shortnose sturgeon (an endangered species) and American shad.[121] Del-Aware does not challenge any of the Board's detailed factual findings in this regard. Rather, it raises essentially three legal arguments, all concerned with the Board's compliance with relevant federal statutes.[122] We address each in turn, finding none to be of any merit.

First, Del-Aware complains that because of the early hearing on its environmental contentions,[123] the NRC staff did not obtain the comments of the U.S. Fish and Wildlife Service (F&WS) prior to the hearing, assertedly "as required" by the Fish and Wildlife Coordination Act.[124] That statute, however, simply provides that the agency "first shall consult" with F&WS whenever any waters are proposed or authorized to be diverted pursuant to a federal license.[125] The statute does not prescribe

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[118] According to the Licensing Board, there is no "plan" for the barriers. LBP-83-11, *supra*, 17 NRC at 437.

[119] It would have been obliged, of course, to satisfy the requirements of 10 C.F.R. §§ 2.714(b), (a)(1).

[120] *See Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-463, 7 NRC 341, 348 (1978). In any event, it is problematical whether the baffling walls will even be necessary. That will depend on the results of the noise tests ordered by the Board. Further, other mitigating measures could be employed, if necessary.

[121] *See* LBP-83-11, *supra*, 17 NRC at 421-32, 450-57. This issue was raised in Del-Aware's combined contentions V-15 and V-16a (in part). *See* note 12, *supra*.

[122] *See* Appellants' Brief, *supra*, at 18-20, 23.

[123] *See* pp. 862-66, *supra*.

[124] Appellants' Brief, *supra*, at 18.

[125] *See* 16 U.S.C. § 662(a), which states:

> Except as hereafter stated in subsection (h) of this section, whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under Federal permit or license, such department or agency first shall consult with the United States Fish and Wildlife Service, Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular State wherein the impoundment, diversion, or other control facility is to be constructed, with a view to the conservation of wildlife resources by preventing loss of and damage to such resources as well as providing for the development and improvement thereof in connection with such water-resource development.

exactly when and how this consultation is to occur, so long as it precedes any definitive agency action. That consultation requirement was clearly satisfied here. In June 1982, before the hearing got under way, the staff solicited input from F&WS for the staff's environmental review of Limerick.[126] Moreover — albeit through the efforts of Del-Aware — the Licensing Board heard extensive testimony at the hearing from Del-Aware witnesses Joseph P. Miller and Richard W. McCoy, fishery biologists from F&WS.[127] The Board also referred to and relied on this testimony in reaching its decision.[128] In this circumstance, we cannot find a failure to comply with the Fish and Wildlife Coordination Act.

Second, in an argument that is somewhat difficult to follow, Del-Aware claims that "the Board failed to properly identify the issue" concerning the intake's impact on the fish species in the Delaware River.[129] Del-Aware appears to concede that some impacts are permissible and that no significant impacts on American shad and shortnose sturgeon, as species, have been demonstrated on this record. It argues, however, that NEPA nonetheless requires consideration of alternatives to the Point Pleasant Diversion.[130] Del-Aware cites no NRC or court precedent to support its interpretation of NEPA and we know of none.[131] In view of the lack of support for Del-Aware's legal argument, and its failure to challenge any of the Licensing Board's extensive factual findings that undergird its conclusion of "no significant adverse effect on the Delaware River populations of either American shad or shortnose sturgeon," we must reject Del-Aware's NEPA argument.[132]

Third, Del-Aware claims — again, without the benefit of any case or other citations — that the Board's decision violates the Endangered Species Act (ESA) insofar as shortnose sturgeon, an endangered species, are concerned. It contends that ESA protects "*the members*" of such species.[133] It points out that no actual sampling was done at the time shortnose sturgeon would be expected near the intake, and that the Licensing Board did not, and could not, find "no effect" on the

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[126] *See* Letter from R.L. Ballard to H.N. Larsen (June 14, 1982), attached to Exhibit J of Appellants' Brief, *supra*. The staff subsequently referred to the F&WS input in the FES. *See* NUREG-0974, *supra*, at 4-37, 9-16, 9-17, 9-18.

[127] *See* Tr. 3039-73, 3128-75.

[128] *See, e.g.*, LBP-83-11, *supra*, 17 NRC at 451, 453, 454.

[129] Appellants' Brief, *supra*, at 19.

[130] *Id.* at 19-20.

[131] *Cf.* section 102, NEPA, 42 U.S.C. § 4332(2)(C) (consideration of alternatives required only for major federal actions "significantly affecting the quality of the human environment").

[132] LBP-83-11, *supra*, 17 NRC at 432. Indeed, the Board concluded that the impact of the new intake location might "very probably be less" than that of the shoreline site previously evaluated and approved. *Ibid.*

[133] Appellants' Brief, *supra*, at 23 (emphasis in original).

sturgeon.[134] It also claims that, according to the National Marine Biological (sic) Service, the absence of sampling "made it impossible to reach any conclusion" concerning the impact on sturgeon.[135] Thus, in Del-Aware's view, the Board's decision does not comply with ESA.

Section 7 of ESA, as amended in 1979, provides, in pertinent part:

> Each Federal agency shall, in consultation with and with the assistance of the Secretary [of the Interior or Commerce], insure that any action authorized, funded, or carried out by such agency (hereinafter in this section referred to as an "agency action") *is not likely to jeopardize* the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with affected States, to be critical, unless such agency has been granted an exemption for such action by the Committee pursuant to subsection (h) of this section. In fulfilling the requirements of this paragraph *each agency shall use the best scientific and commercial data available.*[136]

The agency has complied fully with ESA with respect to the shortnose sturgeon involved here. The principal staff witness on this issue, Dr. Michael T. Masnik, based his "no jeopardy" conclusion in part on the Biological Opinion of the National Marine Fisheries Service (NMFS) of the U.S. Department of Commerce.[137] NMFS, like Dr. Masnik, reviewed the biological assessment of Harold M. Brundage, III. Brundage is a fishery biologist who has studied shortnose sturgeon in the Delaware River since 1978 and who testified as a witness for Del-Aware.[138]

NMFS found Brundage's assessment "reasonably thorough" and "based on the best scientific and commercial data presently available."[139] That assessment was bottomed on a "worst-case" assumption that all life stages of shortnose sturgeon were present in the Point Pleasant area: no empirical data were available because no shortnose sturgeon have been found in that area.[140] NMFS concluded that "construction and operation of the Point Pleasant Pumping Station is not likely to jeopardize the continued existence of the endangered shortnose sturgeon in the Delaware River."[141] Nevertheless, NMFS recommended that field studies be conducted to determine whether shortnose sturgeon

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[134] *Ibid.*
[135] *Ibid.*
[136] 16 U.S.C. § 1536(a)(2) (emphasis added).
[137] Masnik, fol. Tr. 3504, at 5-6.
[138] Professional Qualifications of Harold M. Brundage III, fol. Tr. 2965; Tr. 2965; Tr. 2923, *et seq.*
[139] Masnik, fol. Tr. 3504, Attachment 4, Enclosure at 11, 14 (hereafter "NMFS Opinion").
[140] *Id.* at 11.
[141] *Id.* at 16.

are in fact present in the project area, especially during spawning season.[142]

Del-Aware has thus misstated the NMFS conclusion. The evidence clearly supports the finding that the PPD project is not likely to jeopardize the continued existence of shortnose sturgeon.[143] The fact that NMFS *recommended* further study of the matter does not detract from its *conclusion* of no likely jeopardy, based on the best scientific and commercial data available.[144] Moreover, further study would not likely alter the results of the Brundage analysis reviewed by NMFS, as it was already a worst-case analysis. The staff and Licensing Board thus properly relied on the Brundage and NMFS opinions; ESA requires no more.[145]

Del-Aware's unsupported claim that ESA protects the individual members of endangered species also fails. Apart from the practical difficulty of ensuring such a high level of protection for each fish, Congress did not provide for that in the statute. "Species" means just that, and not "each member thereof." The smallest units afforded protection are "subspecies" and "any distinct population segment . . . which interbreeds when mature."[146] Moreover, the existence of a species is jeopardized if it "reasonably would be expected to reduce the reproduction, numbers, or distribution of a listed species to such an extent as to appreciably reduce the likelihood of the survival and recovery of that species in the wild."[147] The Board's "no significant impact" finding does not conflict with ESA's intended focus on the species as a whole. We therefore reject Del-Aware's construction of the Act.

D. Recent Developments

Del-Aware claims, on brief, that the Licensing Board refused to consider assertedly environmentally preferable alternatives to the Point

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[142] *Id.* at 16-17.

[143] And, again, Del-Aware does not take issue with any of the underlying findings of fact concerning the intake structure or the habits and life cycle of the sturgeon.

[144] NMFS Opinion, *supra*, at 16, 14.

[145] This case is easily distinguished from *Roosevelt Campobello International Park Commission v. EPA*, 684 F.2d 1041 (1st Cir. 1982), where the court found more studies were required for full compliance with ESA. Unlike here, that conclusion was preceded by a finding that "the best scientific and commercial data" available had *not* been tapped. *Id.* at 1055. Further, NMFS was unable to make a "no likely jeopardy" determination. *Id.* at 1045.

In any event, section 7 of ESA does not require acquiescence to NMFS views, just consultation. *Sierra Club v. Froehlke*, 534 F.2d 1289, 1303-04 (8th Cir. 1976). *Cf. Lake Erie Alliance for the Protection of the Coastal Corridor v. Army Corps of Engineers*, 526 F. Supp. 1063, 1081 (W.D. Pa. 1981), *aff'd*, 707 F.2d 1392 (3d Cir.), *cert. denied*, ___ U.S. ___, 104 S. Ct. 277 (1983).

[146] 16 U.S.C. § 1532(16).

[147] 50 C.F.R. § 402.02 (1983). *See Roosevelt Campobello, supra*, 684 F.2d at 1048-49.

Pleasant Diversion.[148] Specifically, Del-Aware argues that two recent developments warrant reexamination of the Point Pleasant option: (1) the possible cancellation of Limerick Unit 2 as a consequence of the Pennsylvania PUC's decision declining to approve PECo's issuance of new securities for Unit 2,[149] and (2) the opinion of F&WS that the Blue Marsh Reservoir on the Schuylkill River is available and fully capable of providing water for the one remaining unit at Limerick. But a review of the Licensing Board's decisions reveals anything but a "refusal" to consider Del-Aware's arguments. It is obviously the Board's disposition of its claims to which Del-Aware now objects.

Before the hearing began, Del-Aware sought to litigate several additional contentions. One of them, V-24, referred to the PUC decision affecting Unit 2 and asserted that Schuylkill River alternatives were available and preferable, both economically and environmentally, to the river-follower method using the Point Pleasant Diversion.[150] The Licensing Board stated that it did not have enough facts to determine whether cancellation of Unit 2 is so remote that it could be ignored. But it assumed arguendo that Unit 2 would be cancelled, and it considered the effect of such a development on the proposed supplementary cooling water system.[151]

In order to determine how often just one unit at Limerick would have to rely on supplementary cooling water, the Board requested from the parties, and PECo supplied, additional historical flow data on the Schuylkill River and Perkiomen Creek (the primary sources of cooling water for Limerick). Based on these data, the Board found that supplementary cooling water would be necessary for solely one unit an average of 31 percent of the time — only three percent of the time less than for operation of two units.[152] Describing this as "manifestly insignificant in view of the requirement for supplementary cooling water more than 30 percent of the time even with only one unit operating," the Board concluded that the Point Pleasant Diversion would therefore be necessary even if Unit 2 were cancelled.[153] In response to Del-Aware's argument that the Blue Marsh Reservoir was available to supplement the Schuylkill flows, the Board pointed out that DRBC allocation restrictions preclude

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148 Appellants' Brief, *supra*, at [illegible]

149 *See* p. 861, *supra*.

150 *See* Licensing Board [illegible] Order of January 24, 1983 (unpublished), at 2-3.

151 *Id.* at 7-9.

152 *Id.* at 10-12.

153 *Id.* at 12.

such augmentation.[154] The Board reiterated these views on at least two more occasions.[155]

We find no basis for upsetting the Licensing Board's determination. First, Del-Aware did not and does not challenge the historical flow data submitted by PECo that support the Board's conclusion that supplemental cooling water from the Delaware River will be needed even if Unit 2 is cancelled and only one unit is operated.[156] Second, the Board correctly noted that the Blue Marsh Reservoir is not now a real alternative for supplementing the Schuylkill River water for Limerick. DRBC Executive Director Gerald M. Hansler explained at the hearing that current DRBC restrictions prohibit use of Blue Marsh for the Limerick project.[157] This is clearly a water allocation determination committed to the DRBC's judgment, the F&WS opinion notwithstanding.[158]

Since the briefing of its appeal, Del-Aware has filed two motions that ask us to "set aside" the Licensing Board's partial initial decision on the basis of certain "new evidence."[159] The first motion states that (1) NWRA has suspended work on the Point Pleasant Diversion and is seeking to terminate its participation in the project with PECo; (2) Bucks County wants to halt the project; (3) PECo has commented publicly on the possible use of the Blue Marsh Reservoir; and (4) the Pennsylvania PUC has under study PECo's application to build the pumphouse necessary for the Perkiomen Creek.[160] Del-Aware's second motion refers to the following, inter alia: (1) a recent decision of the Pennsylvania Environmental Hearing Board, which Del-Aware claims supports its contention V-16 concerning salinity and water quality; (2) a 1973 internal PECo memorandum about the cooling water system; (3) a recently instituted Pennsylvania PUC investigation of the need for Unit 2; and (4) the decision of a PUC administrative law judge approving, for the time being, only one pump for the Bradshaw Reservoir.[161] The gist of both

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[154] *Id.* at 13.

[155] Licensing Board Memorandum and Order of March 8, 1983 (unpublished), at 6-8; Licensing Board Memorandum and Order of March 17, 1983 (unpublished), at 6-8.

[156] *See* Memorandum and Order of January 24, 1983, *supra*, at 11.

[157] Tr. 1205-11.

[158] *See* pp. 867-69, *supra*.

[159] Del-Aware, in effect, appears to be asking us to take official notice of the assertedly new evidence upon which it relies.

[160] Sugarman Letter (May 15, 1984), note 41, *supra*.

[161] Del-Aware's Motion (Aug. 6, 1984), note 36, *supra*. The motion also complains about allegedly improper ex parte contacts between the NRC staff and PECo. *Id.* at 2-3. Such contacts are not ex parte under the Commission's Rules. Those rules prohibit communications between the parties to contested proceedings, on the one hand, and, on the other, those with decisionmaking responsibilities — i.e., Commissioners, their staffs and advisers, members of adjudicatory boards, and their staffs and advisers. 10 C.F.R. § 2.780. *See* Administrative Procedure Act, 5 U.S.C. § 557(d). The "NRC staff" does not advise the Commission or the boards. Rather, it is a distinct and separate entity that is a party to this

(Continued)

motions is that PECo will be unable to operate both units at Limerick or to rely on the Point Pleasant Diversion for supplementary cooling water. In this circumstance, according to Del-Aware, NEPA requires consideration of other alternatives.

What Del-Aware is seeking, in fact, is an order directing PECo to abandon Unit 2 and to rely on a source of supplementary cooling water for the remaining Unit 1 other than the Delaware River via the river-follower method. But we have no legal basis here for making such an order. There is no question that PECo has some formidable obstacles to surmount if it is to operate both Limerick Units 1 and 2 in the manner currently proposed. Whether PECo will change its plans to effect an easier resolution of the problems confronting it is a matter for PECo's management, and possibly its shareholders, to decide. But the fact is we now have before us PECo's application for a license to operate *two* units, using the river-follower method to supplement the plant's cooling water system. We have previously approved the river-follower method in ALAB-262, *supra*. The purpose of this proceeding, in that regard, is consideration of the impacts of any subsequent changes relating to that supplementary cooling system. Except for two matters that we have determined should have been, but were not, litigated,[162] we agree with the Licensing Board's conclusion that the impacts of the subsequent changes are not significant. In the absence of a finding to the contrary, we are without the legal predicate to dictate to PECo that it must pursue other options.[163]

Moreover, Del-Aware would have us act on the basis of rulings of other federal and state entities concerned with various aspects of Limerick and the PPD project. Apart from the facts that, in many instances, these rulings are not final and that overall the situation is rather dynamic, we must decide only the federal questions before us, without

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proceeding and may confer with other parties, including PECo and Del-Aware. *See* 10 C.F.R. § 2.102(a).

[162] Viz., Del-Aware's contentions on salinity and the impacts on the Point Pleasant Historic District. *See* pp. 866-70, 874-76, *supra*.

[163] Of course, if PECo does change its plans and modify its pending application accordingly, it is obliged to notify us and the parties promptly. *Tennessee Valley Authority* (Browns Ferry Nuclear Plant, Units 1, 2 and 3), ALAB-677, 15 NRC 1387, 1391-94 (1982). And, as the Licensing Board correctly observed, in such circumstance the Commission "would have to reconsider its previous assessment of environmental impacts in light of changes proposed by PECo." Licensing Board Memorandum and Order of June 1, 1983 (unpublished), at 9 n.3. The parties would also have to be afforded an opportunity to challenge any newly amended, significant portion of the application. *See Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-778, 20 NRC 42, 48 (1984).

being unduly influenced by the decisions of others with differing concerns and responsibilities.[164] Accordingly, we deny Del-Aware's motions to set aside the Board's partial initial decision on the basis of new evidence.

IV. CONCLUSION

As the history of this case over the last decade makes clear, the environmental impacts of the Limerick supplementary cooling water system have been the subject of considerable attention both at this agency and in numerous other forums. Del-Aware's general assertion that there has been an effort to avoid review of these impacts or to conceal them in some manner is without merit. With regard to its more specific complaints, however, we agree that its contentions concerning salinity and the impacts on the Point Pleasant Historic District should have been considered by the Licensing Board. We therefore *affirm, in part,* the Licensing Board's decisions concerning the supplementary cooling water system. We *reverse and remand with instructions* that Del-Aware be given an opportunity to resubmit its contentions V-14 and V-16 in accordance with this opinion. Del-Aware's motions (filed May 15 and August 6, 1984) to set aside the Board's decisions are *denied.*

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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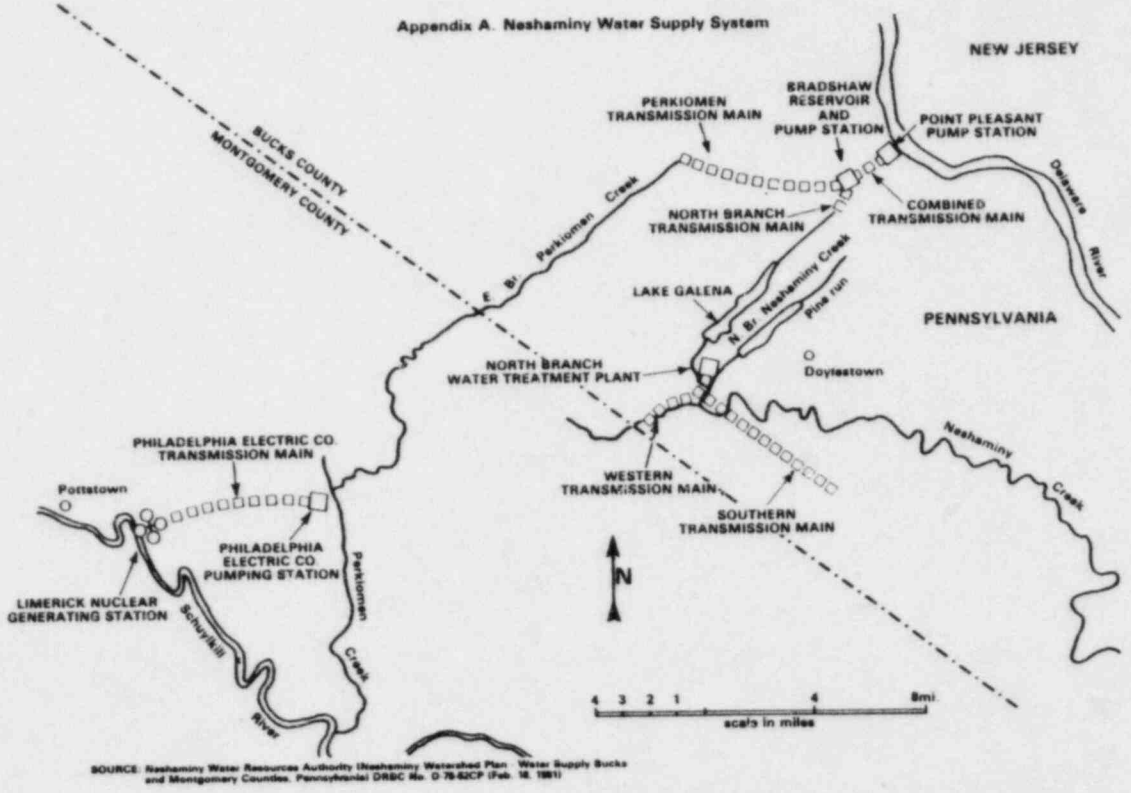
[164] *See Kerr-McGee Corp.* (West Chicago Rare Earths Facility), CLI-82-2, 15 NRC 232, 269 (1982), *aff'd sub nom. City of West Chicago v. NRC,* 701 F.2d 632 (7th Cir. 1983), and cases cited. *See also Cross-Sound Ferry Services, Inc. v. United States,* 573 F.2d 725, 732-33 (2d Cir. 1978).

Appendix A. Neshaminy Water Supply System



SOURCE: Neshaminy Water Resources Authority (Neshaminy Watershed Plan - Water Supply Bucks and Montgomery Counties, Pennsylvania) DRBC No. D 76-62CP (Feb. 18, 1981)

Atomic Safety and Licensing Boards Issuances

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Morton B. Margulies, Chairman
Gustave A. Linenberger, Jr.
Dr. Oscar H. Paris

In the Matter of **Docket Nos. 50-424-OL**
50-425-OL
(ASLBP No. 84-499-01-OL)

GEORGIA POWER COMPANY, *et al.*
(Vogtle Nuclear Plant, Units 1 and 2)

September 5, 1984

In this Memorandum and Order, the Licensing Board rules on the admissibility of Intervenors' contentions.

RULES OF PRACTICE: WAIVER OF REGULATION

Because Intervenors failed to make a *prima facie* showing of special circumstances justifying a waiver of 10 C.F.R. § 51.53(c) to permit reconsideration of the need-for-power issue at the operating license stage, 10 C.F.R. § 2.758(c) bars further consideration of the matter, and Intervenors' contention is dismissed.

OPERATING LICENSE PROCEEDINGS: FINANCIAL QUALIFICATIONS

The Commission's determination that its rule barring litigation of financial qualifications issues in operating license proceedings remains in

effect, despite the decision of the U.S. Court of Appeals for the District of Columbia Circuit in *New England Coalition on Nuclear Pollution v. NRC*, 727 F.2d 1127 (D.C. Cir. 1984), bars consideration of Intervenors' financial qualifications contention.

MEMORANDUM AND ORDER
ON SPECIAL PREHEARING CONFERENCE HELD PURSUANT TO 10 C.F.R. § 2.751a

Following the publication of a Notice of Opportunity for hearing on December 28, 1983, for the captioned operating license application proceeding, petitions to intervene and to hold a hearing were filed by Campaign for a Prosperous Georgia (CPG), Georgians Against Nuclear Energy (GANE) and Coastal Citizens for a Clean Environment (CCCE).

Applicants, represented by Georgia Power Company (GPC) acting for itself and as agent for Oglethorpe Power Corporation, Municipal Electric Authority of Georgia and City of Dalton, Georgia, and the Nuclear Regulatory Commission Staff (Staff) filed responses concluding that CPG and GANE satisfied the interest requirements of 10 C.F.R. § 2.714 and that each Petitioner would have to plead one admissible contention, as required by § 2.714(b), for it to be afforded party intervenor status. They further concluded that CCCE failed to establish requisite interest.

In a Memorandum and Order of March 9, 1984 (unpublished), we found that CPG and GANE had fulfilled the requirements of 10 C.F.R. § 2.714 establishing that their respective interest to participate as intervenors in an adjudicatory proceeding and that full-party status for each was dependent on the submission of at least one litigable contention. We further found CCCE had not shown that the action being challenged could cause injury in fact to any of its members and therefore had not submitted grounds for representative intervention.

A Special Prehearing Conference was ordered pursuant to 10 C.F.R. § 2.751a to resolve, *inter alia*, the matter of standing and to pass upon any proposed contentions that would be submitted. Filings were to be made by Petitioners, through amendment or supplemental petition, by April 12, 1984.

CPG and GANE each filed thirteen proposed contentions, the last nine of which were identical to each other. Nothing was received from CCCE. Responses to the proposed contentions were timely made by Applicants and Staff.

Prior to the holding of the Special Prehearing Conference on May 30, 1984, at Augusta, Georgia, Applicants, Staff, CPG and GANE conferred in an attempt to resolve differences on proposed contentions. This conference resulted in CPG withdrawing two of its contentions, rewording of others, and it submitted a new contention which was based on material drawn from one filed previously. It proposed to resubmit another contention upon receipt of additional information. At the special prehearing conference GANE altered some proposed contentions previously filed and, like CPG, submitted the same additional proposed contention. No one opposed the submission of the additional contention by each petitioner.

A review follows of the proposed contentions submitted by Petitioners, as supplemented and amended, and of the responses of Applicants and Staff, with our respective rulings. Further, in this Memorandum and Order, we will set future scheduling and dispose of the CCCE petition.

DISPOSITION OF THE CPG PROPOSED CONTENTIONS

Proposed Contention 1

Withdrawn.

Proposed Contention 2

> There is no reasonable assurance that the production capacity of Plant Vogtle will be needed, as required by NEPA (42 U.S.C. 4331-4335) and by NRC regs 10 C.F.R. 50.42 and 10 C.F.R. 51.52(c)(3).

CPG's proposed contention asserts that there is no need for the power from the subject plant. In support of its contention CPG sets forth that GPC incorrectly projected its annual electricity sales growth and peak demand. It alleges that the utility has overcapacity and had tried without success to sell this capacity to out-of-State utilities. Petitioner contends that, if additional capacity were needed, conservation, solar energy and other environmentally preferable alternatives would be the way to provide it.

Both Applicants and Staff responded that the proposed contention is inadmissible because 10 C.F.R. § 51.53(c) specifically provides:

(c) 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.

That response in turn resulted in CPG filing on May 25, 1984, a request for a waiver of 10 C.F.R. § 51.53(c) pursuant to 10 C.F.R. § 2.758. The latter section provides that a party may petition that the application of a specified Commission regulation may be waived or an exception made for the particular proceeding. The sole ground shall be that there are special circumstances with respect to the subject matter of the particular proceeding which are such that application of the regulation would not serve the purposes for which the regulation was adopted.

The Commission in promulgating 10 C.F.R. § 51.53(c) succinctly set forth its reasons at 47 Fed. Reg. 12,940 (March 26, 1982). It stated:

> The purpose of these amendments is to avoid unnecessary consideration of issues that are not likely to tilt the cost-benefit balance by effectively eliminating need for power and alternative energy source issues from consideration at the operating license stage. In accordance with the Commission's NEPA responsibilities, the need for power and alternative energy sources are resolved in the construction permit proceeding. The Commission stated its tentative conclusion that while there is no diminution of the importance of these issues at the construction permit stage, the situation is such that at the time of the operating license proceeding the plant would be needed to either meet increased energy needs or replace older less economical generating capacity and that no viable alternatives to the completed nuclear plant are likely to exist which could tip the NEPA cost-benefit balance against issuance of the operating license. Past experience has shown this to be the case. In addition, this conclusion is unlikely to change even if an alternative is shown to be marginally environmentally superior in comparison to operation of a nuclear facility because of the economic advantage which operation of nuclear power plants has over available fossil generating plants. An exception to the rule would be made if, in a particular case, special circumstances are shown in accordance with 10 C.F.R. 2.758 of the Commission's regulations.

In the same *Federal Register* issuance at 12,942 the Commission commented that there had never been a finding in a Commission operating license proceeding that a viable, environmentally superior alternative to operation of the nuclear facility exists and that the Commission expects this to be true for the foreseeable future.

The Commission, in promulgating the restrictive regulation 10 C.F.R. § 51.53(c), relied upon its conclusion found at 46 Fed. Reg. 39,441 (August 3, 1981). It provides:

> Based on all of the above, the Commission believes that case-specific need for power and alternative energy source evaluations need not be included in the environmental evaluation for a particular nuclear power plant operating license. An ex-

ception would be made to this rule if, in a particular case, special circumstances are shown in accordance with 10 C.F.R. 2.758 of the Commission's regulations. Such special circumstances could exist if, for example, it could be shown that nuclear plant operations would entail unexpected and significant adverse environmental impacts or that an environmentally and economically superior alternative existed.

In its petition for waiver CPG contends that special circumstances now exist concerning the plant which justify a reconsideration of the need for its power at the operating license stage. It gives as a basis dramatically changed circumstances since the construction permit was issued, in the areas of economics, electricity consumption patterns and availability of alternative energy.

The petition for a waiver is supported by an affidavit of Tim Johnson, executive director of CPG. His background qualifications in the area of the subject of the affidavit are not given. The affidavit is virtually a verbatim repetition of the bases given in support of proposed Contention 2.

Affiant reports that Georgia Power Company's average annual growth in territorial sales and peak demand through 1983 had been incorrectly forecast. The utility is stated to be already overbuilt. CPG names nine other generating units under construction along with the capacity of each. CPG claims this should compound GPC's overcapacity. Affiant reported further that the company had conceded to the Georgia Public Service Commission that it had tried without success to sell its overcapacity to out-of-State utilities.

Affiant's position is that even if additional capacity were needed, the facility would not be the best way to provide it. Johnson asserts conservation and solar energy are less injurious to the physical and human environment than Plant Vogtle would be. He claims that a solar water heating system could be installed on every household in Georgia at less cost than that of completing the nuclear facility. The proposed water heating system, it is alleged, would provide more energy and jobs and have less environmental impact than completion and operation of Plant Vogtle. Unnamed experts are relied upon in support of the propositions. Conservation and passive solar measures are stated to have essentially no operating costs. No figures are submitted by Petitioner to support any of its assertions as to cost comparisons. Georgia Solar Coalition, Inc., a nonprofit organization, in a notarized letter of May 28, 1984, submitted a figure of 22 MBtu as the typical yearly demand for delivered energy for an electrical resistance domestic water heater for a family of four; 15.4 MBtu is the average yearly savings that can result from energy conservation measures and a standard active solar flat-plate collector domestic hot water system.

Petitioner states that it is clear that Plant Vogtle is not needed to meet increased energy needs or to replace older, less economical generating capacity. Affiant asserts that operating costs of the facility will exceed the total costs of many environmentally preferable alternatives, including co-generation using existing industrial process steam, conservation measures consisting of increased insulation of homes and applications of solar energy for water and space heating. No details or figures are furnished.

Petitioner also relies in the matter on a statement made by a Commissioner of the Georgia Public Service Commission that unnamed experts are questioning whether large-scale generating plants should continue to be constructed, and are of the position that an era of co-generation, combined cycle generation, photocell or light-cell and fuel-cell generation is being entered and that alternative sources of generation should be studied.

Applicants filed a response on June 11, 1984, alleging Petitioner had failed to make a *prima facie* case for waiver as provided in 10 C.F.R. § 2.758 and ask that the request be denied. The pleading was supported by an affidavit from Georgia Power Company's senior vice president of marketing who is experienced in planning and marketing of bulk power resources for the utility.

Affiant noted that Georgia Power Company's currently available capacity includes only approximately one-third of the new capacity additions which the Company had planned to construct a decade ago, achieved in part through cancelling units and selling interests in others under construction. He further pointed out that the Company's generating capacity is predominantly fossil fueled and that under normal procedures Plant Vogtle's capacity will be utilized in preference to fossil-fueled generation because its fuel costs will be lower. Affiant also reported that the majority of households in Georgia Power Company's service area use natural gas to provide hot water heating.

Among other points, Applicants further asserted CPG makes no attempt to show that Plant Vogtle would not be used to replace older, less-economical generating capacity, a vital requirement for making a *prima facie* case for waiver. Nuclear Regulatory Commission Staff took the same position in its response. Three of the owners, other than Georgia Power Company, now own a majority interest in the plant.

Based upon the foregoing record, we find that CPG has not made a *prima facie* showing that should result under 10 C.F.R. § 2.758(d) in a certification of whether the regulation should be waived. Under 10 C.F.R. § 2.758(c), if the presiding officer determines that the petitioning

party has not made a *prima facie* showing, the presiding officer may not further consider the matter.

A formidable burden is placed on one seeking a waiver of 10 C.F.R. § 51.53(c). *See Duquesne Light Co.* (Beaver Valley Power Station, Unit 2), LBP-84-6, 19 NRC 393, 401-03 (1984). Here Petitioner failed to make a *prima facie* showing that the Vogtle facility will not be needed to meet increased energy needs. It provided no probative information bearing on what will be the electrical energy requirements of Georgia Power Company and its three partners who hold a majority interest, and their production capacity during the expected life of the facility. Without such information it cannot be determined whether the proposed operating plant will represent needed or excessive capacity.

The fact that Georgia Power Company erroneously estimated its annual electricity sales growth and peak demand for a preoperational period does not establish that the power of the plant will not be needed during its planned life. The providing of the names and capacities of additional facilities Georgia Power Company has coming on line and making known that Georgia Power Company had unsuccessfully attempted to sell electricity out of State does not establish that Vogtle, when ready, will represent overcapacity. Applicants' affiant has furnished information showing that Georgia Power Company reduces planned capacity when the situation warrants. CPG has not provided sufficient information to provide a comprehensive picture of what electrical needs will be during the projected life of the plant and whether Vogtle will represent needed or excess capacity. Because CPG has failed to establish that the subject plant will not be needed for increased energy needs, it has not provided a basis for waiver of 10 C.F.R. § 51.53(c) and its petition must fail.

Equally fatal to its waiver claim is CPG's failure to show that the facility would not be used to replace older, less-economical generating capacity. The Commission's regulation barring need for power as an issue in an operating license application proceeding is based on the presumption that the new nuclear plant would be used in that manner. Applicants' affiant states it will be so used. Petitioner has made no showing to overcome the presumption and the evidence that the plant would not be so used. Petitioner has not sustained its burden of proof on this aspect of the waiver petition which must therefore be denied.

CPG has not made a *prima facie* case that an environmentally and economically superior alternative exists to the proposed Vogtle Plant which could tip the NEPA cost-benefit balance against issuance of the operating license.

To be a viable alternative power source for the subject plant the substitute must be capable of serving the consumers in an equivalent manner that the power from the Vogtle Plant could be used. Consumers must be able to utilize the power from the substitute source in whatever varied ways they see fit.

Petitioner has not offered an alternative power source for the proposed plant. It proposes conservation and installation of solar water heating systems. Neither of these offers the consumer an alternative power source in the manner indicated. Petitioner only offers conservation in various forms, which the Commission concludes does not negate a need for the new plant. The Commission stated in its rulemaking on need for power at 47 Fed. Reg. 12,941:

> If conservation lowers demand, then utility companies take the most expensive operating plants off-line first. Thus a completed nuclear plant would be used as a substitute for less economical generating capacity.

For the sake of argument, even if one were to consider conservation and the solar water heating system an alternative energy source, Petitioner has offered nothing convincing and probative that they are environmentally and economically superior to the Vogtle Plant. All that are offered are conclusional statements without factual support. The figures given by Georgia Solar Coalition, Inc., do not support the assertions made. Had the affiant been qualified as an expert in the subject matter under discussion, which he had not been, Petitioner's *prima facie* case still would not have been made because what was offered were unsupported conclusions.

Petitioner makes us aware that there are potentially beneficial energy sources other than from nuclear and fossil fuels and that research is being conducted on their use and more is being called for, but this does not meet the regulatory requirement of showing any of them to be currently environmentally and economically superior as an alternative to the Vogtle Plant. Its request for waiver of 10 C.F.R. § 51.53(c) therefore must be denied.

Having found that Petitioner has not made a *prima facie* showing for a waiver of 10 C.F.R. § 51.53(c), under the provision of 10 C.F.R. § 2.758(c) we cannot consider the matter further. Consideration of the matter in proposed Contention 2 being denied to us, the proposed contention is not litigable and is therefore dismissed.

Proposed Contention 3

> There is no reasonable assurance that Georgia Power Company and co-owners will have the financial ability to safely operate Plant Vogtle for the period of the license or to permanently shut down the facility and maintain it in a safe condition, as required by 10 C.F.R. 50.40(b), and other applicable laws, rules and regulations.

Petitioner expects Georgia Power Company and the plant's co-owners will be subjected to hardships to the extent that their financial ability to safely operate the plant for the period of the license and to properly decommission it is questionable.

The Commission promulgated on March 31, 1982, regulations 10 C.F.R. § 50.33(f)(1) and 10 C.F.R. § 50.40(b) that eliminated as an issue the financial qualifications of an electric utility as an applicant in an operating license application proceeding.

Applicants, in their response to Petitioner, pointed out that the Commission's rule barring financial qualifications in an operating license proceeding had been the subject of a recent remand by the U.S. Court of Appeals for the District of Columbia Circuit in *New England Coalition on Nuclear Pollution v. NRC*, 727 F.2d 1127 (D.C. Cir. 1984) and the Commission had undertaken a rulemaking proceeding to revalidate the proscription. Their position is that because the matter of financial qualifications is the subject of rulemaking it is an inappropriate subject for a contention in the proceeding and at the very least the issue should be deferred pending Commission guidance to the licensing boards.

Staff in response noted that the Commission had met on April 26, 1984, to discuss policy guidance on financial qualification litigation and it recommended that the matter be deferred pending a statement by the Commission.

Staff subsequently reported that on June 7, 1984, the Commission issued its Statement of Policy which concludes:

> Accordingly, the March 31, 1982 rule will continue in effect until finalization of the Commission's response to the Court's remand. The Commission directs its Atomic Safety and Licensing Board Panel and Atomic Safety and Licensing Appeal Panel to proceed accordingly.

The Commission's finding that the rule continues in effect proscribes us from considering the issue of financial qualifications of utility applicants in an operating license application. The proposed contention is therefore dismissed.

Proposed Contention 4

Withdrawn.

DISPOSITION OF THE INITIALLY IDENTICAL PROPOSED CONTENTIONS OF CPG AND GANE

Proposed Contention 5

The applicant has not properly assessed the geology of the site and has not properly considered the geology of the site in the engineering design of the project, especially in light of new data made available by the U.S. Geological Survey. This violates NRC rules on seismic standards described in 10 C.F.R. Part 100, Appendix A.

In their separate submittals of April 11, 1984, CPG and GANE cited U.S. Geological Survey (USGS) information released in 1982 relating to a postulated Millett Fault about 7 miles from the Vogtle site (USGS Open-File Report 82-156 (1982)), and to a USGS letter (J.F. Devine to R.E. Jackson, November 16, 1982) indicating that its investigations of the 1886 Charleston Earthquake do not justify confining an event of that magnitude to the immediate environs of Charleston. We address each USGS matter separately.

By the time the prehearing conference was held on May 30, 1984, CPG had amended proposed Contention 5 (submitted May 25, 1984) to delete inclusion of the postulated Millett Fault, whereas GANE retained the Millett Fault as part of its contention (Tr. 18). Applicants and Staff, in their submittals on May 7 and May 14, 1984, respectively, opposed including the Millett Fault on the grounds that its existence is only speculative, and that the extent of overlying, undisturbed sediments provides reason for not considering it to be a capable fault. At the prehearing conference, CPG stated that recent discussions (about 1 week prior to the conference) with a USGS staff member indicated that the Millett Fault lacked significance. GANE offered no basis in support of its allegation that the Millett Fault exists, is capable and should be considered. Accordingly, we dismiss any consideration of the postulated Millett Fault within the scope of Contention 5, because no adequate basis for its inclusion has been provided. The above action restores proposed Contention 5 to an identical status for CPG and GANE involving only the Charleston Earthquake. However, the Board is mindful of two considerations not addressed by the participants in the proceeding:

(a) Board Notification 82-122A of December 30, 1982 (prompted by the USGS reconsideration of the 1886 Charleston Earth-

quake) wherein the Staff recommended that certain studies be undertaken as the result of this revised USGS position; and,

(b) The issuance in April 1984 of NUREG/CR-3756, "Seismic Hazard Characterization of the Eastern United States: Methodology and Interim Results for Ten Sites," which considers ten sites including the Vogtle site and which appears to be the first report on certain of the studies recommended in BN 82-122A.

In its letter of July 12, 1984, the Board asked the Staff to comment upon this matter as it relates to the proposed contention. The Staff's response of July 23, 1984, indicated that it will discuss the impact upon Vogtle of its reassessment of the Charleston event in the Vogtle SER, currently scheduled to issue in June of 1985. Further, the Staff suggested that the Board's ruling on admissibility of this proposed contention be deferred until after the Vogtle SER issues.

Other participants were also invited to comment upon the Board's inquiry. CPG filed comments on July 26, 1984, to include recognition of the recommended reassessment program identified in BN 82-122A as well as recognition of the issuance of NUREG/CR-3756. CPG alleged that these matters constitute new information that justifies admission of the proposed contention. GANE did not respond. The Applicants, on July 27, 1984, filed comments in which they concluded that the publication of NUREG/CR-3756 did not cure the lack of a basis for the proposed contention and maintained that it should not be admitted.

We find merit to the Staff's position regarding deferral. Accordingly, Petitioners are advised that within 30 days following issuance of the SER they may amend this proposed contention if they consider that the SER contains a basis for such an amendment. Applicants and Staff will have the usual prescribed time for responses. Absent the filing of an amendment by either Petitioner in accordance with these instructions, proposed Contention 5 (limited to the Charleston Earthquake) will be ruled on by the Board.

Proposed Contention 6

> The applicant cannot guarantee the safe operation of the reactor for the life of the plant due to unresolved questions of thermal shock effects on irradiated reactor vessels as required by 10 C.F.R. 50 Appendices A, G, and H and other applicable laws, rules, and regulations.

Applicants and Staff both opposed the admission of this contention for reasons that include lack of a showing that a specific basis exists for

concern about pressurized thermal shock effects on the Vogtle reactor vessel, failure to show that the Applicants' analyses of thermal shock are flawed, and failure to justify inclusion of this unresolved safety issue in the Vogtle proceeding. Petitioners' concern about the existence of copper and phosphorous in the reactor vessel alloy was not shown to relate to accelerated embrittlement. Finally, Petitioners' concern about the cost to Applicants should the pressure vessel need to be heat-treated during the operating lifetime of the Vogtle Plant is beyond the scope of this proceeding. During the prehearing conference discussion, Petitioners offered no additional information that would negate the objections raised by Applicants and Staff. We agree with the position of Applicants and Staff; accordingly, the admission of proposed Contention 6 is denied on the ground that it lacks a sufficiently particularized basis.

Proposed Contention 7

> Applicant has not adequately addressed the value of the groundwater below the plant site and fails to provide adequate assurance that the groundwater will not be contaminated as required by 10 C.F.R. 51.20(a), (b), and (c), 10 C.F.R. 50.34(a)(1), and 10 C.F.R. 100.10(c)(3).

Petitioners contend that the Tuscaloosa aquifer, which they state is located approximately 300 feet below the Plant Vogtle site, is a valuable regional resource of excellent quality water that supplies domestic water to many cities and communities across East Central Georgia and the South Carolina Coastal Plain. They point out that the Tuscaloosa acquifer provides water for 15,000 people in Richmond County and most of the drinking water for residents of Girard, located 5 miles from the plant, and of McBean, which is 13 miles from the plant. (GANE Supplement, April 11, 1984, at 15.)

In addition to the Tuscaloosa aquifer, Petitioners state that the Lisbon Sand Formation located approximately 200 feet below Plant Vogtle is another valuable ground water source. They contend that this aquifer is important as an existing source of drinking water and to future development along the Savannah River. They state that Plant Vogtle's cooling system makeup water wells penetrate and obtain water from both the Lisbon Sand Formation and the Tuscaloosa aquifer. (*Ibid.*)

Finally, there is a water table aquifer located directly below the surface at Plant Vogtle, and while Petitioners acknowledge that this aquifer is not as extensive as the two deeper aquifers discussed above, they contend that the water table aquifer is used in Burke County to supply water for agriculture and commercial establishments. (*Ibid.*)

Petitioners contend that any release of radioactive water on site would quickly contaminate the water table aquifer because at the site the soils are sandy and permeable and there is little runoff. They argue that radioactive contamination of the water table aquifer could endanger the public health and cause economic hardship (*id.* at 15-16). They argue, further, that contamination of the water table acquifer could result ultimately in contamination of the Lisbon Sand Formation and the Tuscaloosa aquifer, by vertical movement of contaminated water through fractures in the clay separating the aquifers, or through permeable sections of the clay. (*Id.* at 16.)

In a GANE filing of June 13, 1984, Mr. W.F. Lawless discusses at length various sources of contaminants at the Savannah River Plant (SRP). He also states that the Tuscaloosa aquifer has produced contaminated water in at least five wells, including two drinking-water-supply production wells. The contaminants appear to have been chlorinated hydrocarbons, however, not radioactive material. (GANE filing, June 13, 1984, at 13.) The hydrocarbons, however, conceivably could have come from the M-Area at SRP. (*Id.* at 13-14.) Mr. Lawless alleges, further, that ground water above the Tuscaloosa aquifer is severely contaminated. (*Id.* at 18.)

Applicants discuss the water table aquifer and the Tuscaloosa aquifer, but do not acknowledge a Lisbon Sand Formation aquifer between the two.[1] Applicants state that a 60- to 70-foot-thick marl formation makes contamination of the Tuscaloosa aquifer unlikely. They acknowledge that an accidental release could contaminate the water table aquifer, but state that spillage at the plant would eventually make its way to Mathes Pond via the water table aquifer and from there by a stream to the Savannah River. (Applicants' Response, May 7, 1984, at 42-43; Tr. 139-42.)

The Staff objects to the admission of Contention 7 on the grounds that Petitioners have raised no new facts to call into question the assessment of ground water problems at the construction permit proceeding. In addition, Staff has difficulty in discerning the gravamen of the

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[1] Applicants do state that there is a third aquifer in the region, which they characterize as the "principal artesian aquifer", because the principal artesian aquifer is not hydraulically isolated from the Tuscaloosa aquifer; however, Applicants elect to refer to the combination as the Tuscaloosa aquifer. (Applicants' Response, May 7, 1984, at 42-43 n.27.) It is not clear whether the principal artesian aquifer is distinct from, or synonymous with, the Lisbon Sand Formation aquifer. GANE refers to the principal artesian aquifer, also, but characterizes it as being "a major regional water supply aquifer" located just south of Plant Vogtle, and GANE seems to suggest that in that region the clay that separates the water table aquifer from the deeper aquifer changes to a permeable limestone (GANE Supplement, April 11, 1984, at 16).

contention, or whether it addresses normal operation or accident conditions. (Staff Response, May 14, 1984, at 12.)

The Board has no difficulty in discerning the gravamen of the contention: it is that the Petitioners are concerned that an accidental spill of radioactive water on the site could result in radioactive contamination of the shallow, and possibly the deeper, aquifers under Plant Vogtle, all of which are used as public water supplies. Moreover, from the information provided in the pleadings and at the Special Prehearing Conference, we are not convinced that radioactive contaminants that might get into the water table aquifer could not get into deeper aquifers. We believe that the Petitioners have, indeed, raised new information concerning contamination of the Tuscaloosa aquifer; this fact, if true, suggests to us that the Tuscaloosa aquifer may not be as isolated from the surface as Applicants would have us believe. In addition, we feel we need to determine whether there are one or two deep aquifers, and whether these are hydraulically connected anywhere in the vicinity of the plant.

For the foregoing reasons we conclude that the Petitioners have raised a litigable issue in Contention 7. Therefore Contention 7 is accepted for litigation in this proceeding.

Proposed Contention 8

> Applicant has failed to enforce a quality assurance program in the construction of Plant Vogtle that provides adequately for the safe functioning of diverse structures, systems and components, as required by 10 C.F.R. Appendix B.

In their separate submittals of April 11, 1984, both Petitioners originally proposed the same identical contention (as stated above) and offered identically worded bases to support it. These bases included a discussion of standby diesel generator problems, which topic both Petitioners proposed to exclude from this contention and to include same in a new Contention 14 proposed by each Petitioner. Staff and Applicants offered no objection to this change (Tr. 62-63). New proposed Contention 14 will be addressed below.

CPG, in its filing of May 25, 1984, revised its Contention 8 to read as follows:

> Applicant has not and will not implement a quality assurance and quality control program which will function as required by 10 C.F.R. 50 Appendix B. By restricting quality assurance methods to explicitly designated procedures in regard to more comprehensive standards of engineering practice, the Applicant has undermined

confidence in the critical functioning of welds in both the reactor coolant and containment systems of Plant Vogtle.

CPG stated that its revised contention is restricted to a consideration of welds (Tr. 41) and that the contention faults both the quality assurance program and its implementation (Tr. 62), as they apply to the adequacy of welds. The supporting basis of this revised contention cites certain irregularities involving weldments. During the prehearing conference, CPG explained that it was not complaining about the adequacy of specific welds, *per se*, but rather that the methodology of the quality assurance program and its implementation do not generate confidence that welding practices generally meet the professional standards intended by the NRC regulations and ASME Code requirements (Tr. 41-43).

By contrast, GANE, at the prehearing conference stated that it had also modified its proposed contention, but in a different manner than CPG. GANE promised a copy of its revised language (Tr. 48), but the Board is unaware of its having been submitted. Thus, we assume that GANE is adhering to the original statement of the contention cited above. By way of amplification, GANE stated that "systematic quality assurance deficiencies have existed and continue without resolution in the following areas . . ." (Tr. 49). Those areas were identified by GANE (Tr. 49) as "[p]roper welding, vendor surveillance, inspection, testing, implementation of procedures and procurement." The Board is thus now confronted with two different proposed Contentions 8 from CPG and GANE.

Applicants' submittal of May 7, 1984, presents a lengthy detailed rebuttal supporting the adequacy of their QA program in which they make, in summary, the following points:

- No violations were more severe than severity levels IV and V;
- Applicants identified and voluntarily corrected many of the anomalous conditions adverted to;
- NRC SALP and I&E reports commended the Applicants' QA program; and
- Intervenors' identification of several anomalous matters does not impugn the adequacy of Applicants' QA program but rather evidences a lack of appreciation of how a QA program functions.

(Applicants' Response, May 7, 1984, at 46-63).

The Staff, in its May 14, 1984 response, found the original proposed contention broad and lacking in specificity; and judged the contention not to be susceptible to focused litigation (Staff Response at 12-13). During discussion at the conference, Staff counsel opined that CPG's

amended and narrowed contention approaches admissibility. However, Staff still considers the GANE contention to be too broad to be admitted (Tr. 56-57).

Despite the representations of Applicants and Staff, the Board is concerned about the possible impact upon the operational safety of the Vogtle Plant in view of the many instances of noncompliance that have been cited. Thus, we feel that an evidentiary inquiry is justified to determine whether Applicants have formulated and implemented an adequate QA program. Although we do not decide the merits of these two proposed Contentions 8 at this time, we are mindful of the concerns of Applicants and Staff with respect to what a focused litigation might comprise: they and we have a right to know more specifically what is to be litigated. Accordingly, the Board now instructs Applicants, Staff, CPG and GANE to confer about the language of these contentions with the objective of rewording them in a manner that is susceptible to more focused ligation; and the Petitioners should consider consolidating the two contentions. The results of such a conference (be it a stipulation as to acceptable wording or statements of positions regarding the reasons for continued disagreement) are to be reported to the Board 30 days after service of this Memorandum and Order subsequent to which we will rule upon its acceptability. Proposed Contentions CPG 8 and GANE 8 are admitted to the extent indicated.

Proposed Contention 9

> Novel design features must be discussed and described adequately in the PSAR and FSAR as required by 10 C.F.R. 50.34. The Applicant has embarked on the implementation of the reactor coolant system primary loop at Plant Vogtle using a pipe restraint system design that differs substantially from that currently required. Although assertions of the effectiveness of this new design have been issued, substantiating mechanical modelling and empirical justification have been withheld. The Applicant has therefore failed to provide even the minimal information required to understand and assess the safety repercussions of this innovative design.

At the Special Prehearing Conference, Applicants agreed to provide Petitioners with additional information on the matter under a protective proprietary agreement. CPG agreed that within 30 days after receiving the document it would either decide to amend or withdraw the proposed contention. GANE agreed that it would follow suit. By letter dated July 26, 1984, CPG notified the Board of its withdrawal of proposed Contention 9. No separate expression was received from GANE. Based on Petitioners' taking identical positions for the handling of the proposed con-

tention at the Special Prehearing Conference, we consider it withdrawn from the proceeding.

Proposed Contention 10

> Applicant has not shown that safety-related electrical and mechanical equipment and components will be environmentally qualified at the onset of operations and throughout the life of the plant as required by General Design Criteria 1, 2 and 4 of 10 C.F.R. 50, Appendix A and other applicable NRC rules.

In their submittal of May 7, 1984, Applicants used the identical supporting discussions of CPG and GANE to identify eleven specific subcontentions; Applicants then addressed the admissibility of each. At the prehearing conference, Staff and the Petitioners agreed to this breakdown into eleven subcontentions as the basis for determining admissibility and the scope of any litigation of this contention. Staff's request to comment upon each of these was granted (Tr. 77-78). We now discuss each subcontention.

10.1 Integrated Dose vs Dose Rate

This subcontention alleges that Applicants' testing methods are inadequate because the Applicants only use high levels of radiation or integrated dose. Petitioners cite research performed at Sandia Laboratory for the proposition that many materials, including polymers found in cable insulation and jackets, seals, rings and gaskets at Vogtle may experience greater damage from lower dose rates. In its submittal of June 27, 1984 (affidavit accompanying same), Applicants' affiant quotes Regulatory Guide 1.131 as limiting the qualification test exposure rate to 10^6 rad/hr. Neither Applicants nor Staff (in its June 20, 1984 submittal) object to this subcontention if it is restricted to the polymers identified in the Sandia study report, NUREG/CR-2157, "Occurrence and Implications of Radiation Dose-Rate Effects for Material Aging Studies," June 18, 1981. With this restriction to the particular polymers so identified, Subcontention 10.1 is admitted for litigation.

10.2 Synergism

This topic deals with another Sandia study examining the effects of synergism. Petitioners state that this Sandia study (NUREG/CR-2156, "Radiation-Thermal Degradation of PE and PVC: Mechanism of Synergisms and Dose-Rate Effects," June 1981) examined the combined ef-

fects of radiation, heat, and (in some experiments) oxygen concentration and determinated that "the greatest amount of degradation was found upon exposure to heat followed by exposure to radiation." Petitioners further allege that the existence of synergistic effects established by this report have not been considered by the Applicants.

The Staff does not object to admitting this subcontention (Staff Supplemental Response, June 20, 1984). However, the Applicants, in their May 7, 1984 Response, note that the Vogtle FSAR does address synergistic effects in cables. The Board's review of the FSAR indicates that the results of cable testing (cables are said (without reference) to be the only component in which synergism has been identified) will not be available until testing has been completed. Thus cables, at least, are being tested for synergistic effects, an example that Applicants point out seems to have been ignored by Petitioners. Nor can we find that Petitioners have identified any other equipment or components which they believe to be susceptible to synergistic effects, despite the Sandia report's identification of PE and PVC as possibly susceptible materials.

We find this subcontention to lack a specific basis and we deny its admissibility.

10.3 Cable in Multiconductor Configurations

Again, Petitioners cite a Sandia study (not identified) for the proposition that in tests of EPR cable material, multiconductor configurations performed "substantially worse" than single-conductor configurations and that qualification testing implying only single conductors may not be representative of multiconductor performance. Petitioners further allege that the results of this report have not been considered in Applicants' testing program. The Staff does not object to the admission of this subcontention, nor do Applicants. Based on the foregoing reasons, we admit Subcontention 10.3.

10.4 Terminal Blocks

Applicants' affiant states that there are no terminal blocks associated with safety-related applications that will be exposed to, and therefore need to be qualified in, a steam environment (Affidavit attached to Applicants' letter response of June 27, 1984). In its letter response of July 26, 1984, CPG withdrew this subcontention. Although Staff had previously offered no objection to the admission of this subcontention and GANE has not responded to Applicants' affidavit, there appears to be no basis for its support. We deny its admission.

10.5 Solenoid Valves

This subcontention challenges the qualification of solenoid valves used at Vogtle. The contention is based upon test results performed by ASCO and Franklin Research Center and upon an NRC Board Notification issuance. The Staff and the Applicants do not object to the admission of this subcontention. Having found a sufficient basis for, and no opposition to, the admission of this subcontention, the Board deems it to be acceptable for litigation.

10.6 Limitorque Motor Operators

Petitioners cite IE Notice 81-29 for the proposition that motor operators manufactured by Limitorque have exhibited failures upon exposure to steam spray. Further tests by Westinghouse confirmed the unacceptability of the motor design. Applicants' affiant (Affidavit attached to Applicants' letter response of June 24, 1984) stated that new motors designed by Westinghouse and Limitorque had been successfully qualified in a 420°F steam environment, and that these new motors have been ordered as replacements. This would seem to moot this matter; and, indeed, CPG, by letter of July 26, 1984, advised that CPG will not raise this issue. Although GANE has not replied, we consider this issue to be mooted and we deny admission of the instant subcontention.

10.7 Hydrogen Recombiners

Petitioners have presented three ingredients in this subcontention:

(a) Rockwell catalytic recombiners have components that did not pass certain environmental qualification tests;

(b) The entire recombiner system, as a unit, has not been qualified; and

(c) A recombiner with unqualified transducers was delivered to another nuclear facility.

The Applicants' responses have mooted (a) and rebutted (c) by pointing out that a Westinghouse electric recombiner is to be used in the Vogtle Plant (Applicants' Response, May 7, 1984, at 69), and by stating through its affiant that no pressure transducers are contained in the Westinghouse unit (Affidavit attached to Applicants' letter response of June 27, 1984). Petitioners do not clarify whether item (c), above, exclusively relates to pressure transducers; nor do Applicants make clear that there are no transducers of any type present in their recombiner.

Furthermore, although the attachments to the above-cited affidavit indicate that radiation testing of certain recombiner components has been performed, these attachments have been expurgated in a manner that does not report or permit a critique of some of the test results. For this reason, it is difficult to determine whether a radiation-hot steam environmental test of the overall recombiner unit is appropriate. The Staff does not oppose the admission of the portion of this subcontention dealing with the radiation testing of transducers.

We believe further inquiry is necessary in the areas embraced by the following questions:

> Are there any types of transducers or sensors important to the proper functioning of the Vogtle electric-type hydrogen recombiner in an accident environment that require environmental qualification testing in an accident environment; if so, what testing is planned or completed and with what results?
>
> If environmental qualification testing in an accident environment of an entire prototype recombiner is not required, what is the basis for this conclusion? If such testing is planned or has been completed, what is the nature of the test and what criteria exist for assessing the adequacy of the test results?

The Board deems the subcontention to be acceptable for litigation.

10.8 Fire Protection

Petitioners contend that Applicants have not satisfied 10 C.F.R. § 50.48 with respect to a showing that in the event of a fire the Vogtle Plant can be safely shut down. They cite the lack of an NRC testing program on the qualification of safety equipment against fire, and a challenge by the Union of Concerned Scientists of the adequacy of NRC's fire protection requirements. There is no such NRC testing program and no regulatory requirement that Applicants' safety equipment satisfy an NRC testing program. Nor have Petitioners identified any portion of the Vogtle Plant wherein specific safety features, equipment or components have not met applicable regulatory requirements. Applicants and Staff would have us deny this subcontention as lacking any specific or particularized basis. Applicants further allege that the subcontention challenges the Commission's regulations regarding environmental qualification and fire protection. We find that the lack of an adequate basis is sufficiently compelling to justify denial, without addressing the question of an attack upon the regulation. Thus, the Board denies admission of Subcontention 10.8.

10.9 Seismic Qualification

Intervenors cite NUREG-0606, "Unresolved Safety Issues Summary," August 20, 1982, for the proposition that design criteria and methods for seismic qualification of equipment in nuclear plants have undergone significant change, requiring a reassessment of Vogtle. However, they fail to note that USI-46, "Seismic Qualification of Equipment in Operating Plants," which we assume to be the focus of their attention, is addressed to the question of the need for any backfitting of operating plants. No nexus to Vogtle is offered nor is any specific Vogtle Plant equipment or component alleged to have not met seismic qualification requirements. We agree with Applicants and Staff that this subcontention lacks an adequate basis. We deny the admission of Subcontention 10.9.

10.10 Shortcomings to Qualification Methodologies

This subcontention is vaguely based upon a Sandia Laboratory consideration of the adequacy of qualification methodologies applied to the testing of safety equipment. Petitioners identify no methods applied to components or equipment associated with Vogtle that would cast doubt upon any safety feature of the plant. Absent more, we again must agree with Staff and Applicants that there is an insufficient basis to define or support a litigable issue. We deny the admission of Subcontention 10.10.

10.11 Accident Parameters

Petitioners cite post-TMI-2 accident investigation issues raised in 1979 for the proposition that accident parameters and post-accident functionality requirement times for Vogtle safety features have not been given proper consideration. Again, no specific Vogtle inadequacies have been identified that fail to meet the Commission's upgraded (1983) qualification requirements; and again we agree with Applicants and Staff that no definitive basis has been provided to support a litigable issue. We deny admission of Subcontention 10.11.

Proposed Contention 11

In its amended supplemental petitions filing of May 25, 1984, CPG altered its version of proposed Contention 11. At the May 30, 1984 prehearing conference, GANE stated that it agreed with this change. Thus, the proposed contention now reads as follows:

Applicants' failure to consider defects in the Vogtle steam generator system constitutes an undue risk to public health and safety in violation of 10 C.F.R. 50.34(b), and 50 Appendix A, Appendix B.

Petitioners cite an NRC summary of Unresolved Safety Issues (August 20, 1982) for the proposition that Westinghouse PWR steam generator tubes have shown evidence of degradation from several causes. Thus Petitioners have safety concerns about Vogtle, during normal operation and under accident conditions, that they allege Applicants have not considered. Petitioners cite the following causes of steam generator tube degradation: "corrosion-induced wastage, cracking, reduction in tube diameter, degradation due to bubble collapse water hammer and vibration-induced fatigue cracks." (Supplement to Petition, filed April 11, 1984, at 26, and CPG's Second Amendment to Supplement, filed June 13, 1984, at 1.)

Applicants cite Vogtle FSAR references wherein specific measures are described to protect against water hammer effects and corrosion effects that include denting and stress corrosion cracking. Petitioners have not indicated in what specific manner any of these measures adopted by Applicants are inadequate.

Applicants do not, however, address bubble collapse or vibration-induced fatigue cracking mechanisms for tube degradation that could contribute to accidents associated with tube failure occasioned by these mechanisms. The Board concludes that an evidentiary airing of a selected portion of this contention is appropriate. Hence we admit for litigation proposed Contention 11 restated and narrowed in scope as follows:

Applicants have not demonstrated their basis for confidence that no unacceptable radiation releases will occur as the result of steam generator tube failures occasioned by vibration-induced fatigue cracking and by bubble collapse within the Vogtle steam generators.

Proposed Contention 12

The applicant has not properly assessed the amount of salt and chlorine gas release from the cooling towers and the extent of consequent adverse agricultural and environmental damage in the area of Plant Vogtle.

The gravamens of this contention are that (1) the expected salt drift from the Plant Vogtle cooling towers is in the range that can damage vegetation; and (2) chlorine gas will also be released from the cooling towers, and no consideration was given this fact in the Vogtle CP-FES or the OL Environmental Report (OL-ER). Petitioners point out that

the CP-FSAR estimates salt drift to be at the annual rate of 305 lbs/acre within 1 mile of the plant, and they state that in the OL-ER this rate of salt deposition "is admitted to be presently considered to be in the range of potential damage to vegetation." (GANE Supplement, April 11, 1984, at 29.) In fact, their citation to the OL-ER referred to a question from Staff to Applicants relating to the conclusion in the CP-FES that a deposition of 305 lbs/acre/year would be negligible. The Staff indicated that such a rate of deposition is now considered to be damaging to plant communities. (OL-ER, Question E290.3, Amend. 1, 2/84.) With regard to chlorine, Petitioners argue that chlorine gas will be injected into the circulating water system at a maximum rate of 10,000 lbs/day; consequently there is the potential for the release of thousands of pounds of chlorine gas per day from the cooling towers. They argue that the released chlorine may have an adverse environmental effect, and its impact has not been assessed.

Applicants responded by stating that the impact of the expected salt drift was assessed in the CP-FES and determined to be negligible.[2] Further, Applicants stated that in the OL-ER the estimate has been revised downward to 31 lbs/acre/year on site and 21 lbs/acre/year off site. (Applicants' Response at 78-80.) With regard to chlorine, Applicants acknowledged that chlorine would be used to prevent biofouling of the cooling towers, and Applicants' counsel commented on the chemical behavior of chlorine in the cooling tower water. (Tr. 91-93.)

Petitioners challenged the revised salt drift estimates during the Special Prehearing Conference, and stated that the NRC Staff had suggested that the calculation might have to be redone. Petitioners alleged, further, that the OL-ER did not describe how the recalculation was performed. (Tr. 88-89.) Our own inspection of the OL-ER, supplied to us by the Applicants subsequent to the Special Prehearing Conference, revealed that the Applicants' reassessment of salt deposition was based on the salt deposition reduction ratio obtained from data on salt drift deposition at Susquehanna. No detailed information about the reassessment was presented, however. (OL-ER, Response to Question 451.17, Amend. 1, 2/84.)

The Staff opposes this contention on the grounds that the Petitioners have shown no new information that has become available since the CP stage. (Staff Response at 15.) In response to a question from the Board,

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[2] At first glance it might appear that the Staff's finding in the CP-FES that a deposition rate of 305 lbs/acre/year would have a negligible impact is contradictory to the Staff's statement in Question 290.3 of the OL-ER. We note, however, that in Question 290.3 Staff stated that 305 lbs/acre/year is "presently considered" to be potentially damaging to vegetation, and we assume that the apparent change in position by Staff resulted from information accrued since the CP-FES was prepared.

Staff counsel stated that he believed that the technical Staff was working on another salt drift calculation. (Tr. 94.)

Applicants' reassessed salt drift estimates are certainly new, contrary to Staff's assertion that the Petitioners have failed to show that new information has become available since the CP stage of this proceeding. Applicants point out that it would be ludicrous to assert an order-of-magnitude *reduction* in the estimates as a basis for reopening this question. We would agree, were it not for the fact that the Staff apparently is still working on its own calculations of salt drift or still working on its review of Applicants' reassessment, or both. We are unwilling to accept as dispositive the meager information about the reassessment contained in responses to questions in the OL-ER, absent an evaluation of the reassessment by Staff. We desire a more definitive estimate and a determination of whether that amount will be damaging to vegetation. Moreover, we are also dissatisfied with the record on the effects of chlorine; more definitive information is required on this matter as well.

We conclude that the Petitioners have raised issues in this contention that need to be litigated. Therefore, proposed Contention 12 is admitted.

Proposed Contention 13

> Petitioner contends that Applicants' proposed emergency plan fails to ensure that protective measures can and will be taken in the event of a radiological mishap at Plant Vogtle as required by 10 C.F.R. 50.33, 50.47, 50.54 and Appendix E to Part 50.

Prior to the holding of the Special Prehearing Conference on May 30, 1984, CPG, GANE, Applicants and Staff met and it was agreed Petitioners would refile Proposed Contention 13 based upon information contained in emergency plans of Richmond and Burke Counties, expected sometime in the Fall of 1984. It has been agreed by the participants, and we concur, that the revised contention is not to be considered a late filing subject to the provisions of 10 C.F.R. § 2.714(a)(1) pertaining to tardy filings, if filed within the time prescribed for its submission.

Applicants have a target date of October 1, 1984, to revise their emergency plans. It was represented that the revision is to contain the Richmond and Burke County emergency plans. Based upon the foregoing, issuance of Applicants' emergency plans should provide the basis for measuring the time from when the revised proposed contention is due. Petitioners have 30 days from the issuance of Applicants' emergency plan in which to respond. Applicants and Staff are given the time prescribed in the regulations in which to reply.

Proposed Contention 14

> There is no reasonable assurance that the emergency diesel generators manufactured by TDI to be used at Plant Vogtle will provide a reliable and independent source of onsite power as required by 10 C.F.R. Part 50, Appendix A, General Design Criteria #17, in that adequate design, manufacture and QA/QC have resulted in substandard engines which are subject to common mode failures.

The bases for the proposed contention were contained in three paragraphs which were originally a part of CPG's Proposed Contention 8 and an identical GANE contention. Prior to the holding of the Special Prehearing Conference on May 30, 1984, they were removed and made the bases for proposed Contention 14.

We find the proposed contention has adequate bases for a litigable contention. CPG stated that Applicants were made aware of problems with the diesel generators manufactured by Transamerica Delaval, Inc., as early as December 1981. Applicants reported problems on two occasions with components that could result in the nonavailability of engines. Another defect was reported as late as September 1983.

Petitioner further asserts Applicants should have made a general assessment of the suitability of the Transamerica Delaval, Inc., diesel generator for this important emergency function and alleges that its failure to do so has brought Applicants' own quality control capabilities into question, undermining confidence in the safe functioning of its operating plant in contradiction to NRC QA requirements.

At the Special Prehearing Conference both Applicants and Staff stated that they had no objection to the contention.

We find Contention 14 to be admissible and it is so admitted.

DISPOSITION OF THE GANE PROPOSED CONTENTIONS

Proposed Contention 1

> Applicant has not adequately nor correctly assessed the potential release of radionuclides from Plant Vogtle during normal, transient, and accident conditions, nor the somatic, teratogenic and genetic effects of the ionizing radiation. Applicant thus fails to meet the requirements of 10 C.F.R. 50.34, 50.36, 20.103, 20.203 and Appendix I of Part 50, and, further, underestimates the human cost of the project in the cost-benefit analysis required by 10 C.F.R. 51.21, 51.20(b) and (c) and 52.23(a).

The Board cannot discern a basis for this contention. GANE argues: that the existing radiological burden of people residing in the area, resulting from releases at the SRP, has not been considered by the

Applicants; that low-level radiation has a cumulative effect (*citing* J. Goffman); that doses to which pregnant and lactating women would be exposed and the effects of those doses have not been assessed; that the risk of releases to the food chain (including the human food chain) has not been considered; and that radiocesium released into the Savannah River will pose an unacceptable threat to persons consuming fish from the river. (GANE Supplement, April 11, 1984, at 1-3.) These assertions might be considered subcontentions, but they fail to inform us on what basis GANE believes the estimates of releases have not been adequately or correctly assessed.

Applicants, who oppose admission of this contention, point out that GANE has failed to explain why it believes the estimates contained in the Vogtle Final Safety Analysis Report (FSAR) are incorrect. Applicants argue, further, that the environmental assessments and cost-benefit balancing required by 10 C.F.R. Part 51 are the responsibility of the NRC Staff and not the Applicants. (Applicants' Response, May 7, 1984, at 10-21.)

Staff also opposes admission of this contention on the ground that GANE has not stated with adequate specificity the bases for its concerns. Staff characterizes the contentions as a "generalized discussion stating that operation of the plant will involve environmental impacts without specifying what these impacts will be." (Staff Response, May 14, 1984, at 4.)

At the Special Prehearing Conference held in Augusta, Georgia, on May 30, 1984, the Board expressed its reservations with regard to the vagueness of the contention and the lack of bases for it. The Board provided GANE's representatives an opportunity to shore up the contention by an oral presentation. GANE responded by stating that it lacked the engineering and scientific expertise to really assess the data in the FSAR, but that it "just seems that there are [radiation] levels that are in question." (Tr. 100-01.)

The Board agrees with the position of the Staff. GANE's Contention 1 is not specific enough to put the Applicants on notice as to what they must defend against, nor has GANE set forth any specific basis for the contention, as is required by 10 C.F.R. § 2.714(b). Further, the Applicants are correct in stating that compliance with the requirements of 10 C.F.R. Part 51, which sets forth the NRC's policy and procedures for complying with the National Environmental Policy Act of 1969 (NEPA) (83 Stat. 852), is the responsibility of the NRC Staff and not the Applicants. NEPA requires that all *agencies* of the Federal Government conduct a careful consideration of environmental aspects of any major agency action which might significantly affect the quality of the human

environment. (*See* 10 C.F.R. §§ 51.1(a) and (b).) No such requirement is placed on the Applicants by NEPA, although 10 C.F.R. § 51.20 does require an applicant to submit an environmental report with an application for a construction permit or an operating license.

For the foregoing reasons, we conclude that GANE's Contention 1 must be dismissed.

Proposed Contention 2

> Applicant has failed to assess the environmental and public health effects of the addition of Plant Vogtle within 20 miles of the SRP and to quantify this factor in its consideration in violation of 10 C.F.R. 20.103, 50.34(a)(4), 51.21, 51.23(b), 104, 105, 106 and 201.

GANE argues that Applicants have failed to adequately address the cumulative impact on health and safety, and on the environment, of radioactive releases projected for Plant Vogtle plus those from the SRP. GANE places particular emphasis on the proposed reactivation by the Department of Energy (DOE) of the L-reactor at SRP; it alleges that DOE has failed to make an adequate assessment of the impact of again operating the L-reactor, and that therefore it is impossible for Applicants to accurately assess the cumulative impact of Plant Vogtle and the SRP facilities. (GANE Supplement, April 11, 1984, at 3-7.)

At the Special Prehearing Conference, GANE stated that within the week preceding the conference, additional new information had become available as a result of the issuance of the environmental impact statement for the reactivation of the L-reactor and the release by DOE of documents that apparently had been previously classified. GANE argued that this information had not been, but should be, considered by the Applicants in assessing the cumulative impact of Plant Vogtle and the SRP facilities. (Tr. 109-10.)

Counsel for Applicants stated that Applicants have addressed the cumulative effects in the CP-FSAR, but GANE's representative stated that the new information indicated that the SRP releases are greater than those estimated at the time of the Vogtle construction permit. (Tr. 110-11.) Applicants maintained, further, that because the proposal to reactivate the L-reactor occurred after the proposal to construct Plant Vogtle, the responsibility for considering the cumulative effects of releases from the two plants fell on DOE, not Applicants. (Tr. 112.) Counsel for Applicants indicated that the final environmental impact statement for the L-reactor did assess the cumulative effects of SRP, Plant Vogtle, and other potential facilities in the area; he stated that he

thought the tritium estimate was higher but other estimates were lower. (Tr. 113.)

Counsel for Staff argued that the only incremental impact open for litigation in this proceeding was that from Plant Vogtle. Staff argues that other facilities contributing to the cumulative effect must be accepted as a given for this hearing because this Board and the NRC has licensing authority over only Vogtle. (Tr. 116-17.)

Subsequent to the Special Prehearing Conference, GANE filed an amplification to its bases in support of Contention 2.[3] (GANE filing, June 13, 1984.) The GANE filing consists primarily of a discussion of radioactive releases from SRP facilities and ground water contamination resulting from SRP releases. The filing fails to address, except in vague, unmeaningful terms, the incremental impact of Vogtle. Nor does it attempt to show how or why the assessment of SRP releases contained in the Vogtle FSAR is in error or needs to be reexamined. Consequently the filing fails to provide support for Contention 2.

Finally, it appears to this Board that GANE's primary concern is with the radioactive releases and environmental contamination resulting from the operation of the L-reactor and other facilities at the SRP. This Board and the NRC have no responsibility or authority over the SRP. GANE may want to address its concerns about the L-reactor and other SRP facilities to DOE, the agency responsible for those facilities.

For the foregoing reasons, we find GANE Contention 2 inadmissible for litigation in this proceeding.

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[3] GANE's untitled document containing amplified bases for Contention 2 was filed on June 13, 1984. (GANE filing, June 13, 1984, at 1-2.) In it, GANE addressed the five factors which must be considered pursuant to 10 C.F.R. § 2.714(a)(1) when a party seeks admission of a late-filed contention. Staff stated that this effort by GANE was misplaced; Staff has never asserted that the "amended" contention is late-filed. Indeed, Staff pointed out that in the Staff Response dated May 14, 1984, it had suggested that GANE consider information available to it and either explain why the information is inadequate or why it shows some specific indication of harm to the public. (Staff Response, June 27, 1984, at 4).

The Applicants, on the other hand, took the position that the tardy filing could only be accepted upon a showing that the five factors set forth in 10 C.F.R. § 2.714(a)(1) militate in favor of the Petitioner. Applicants argued that none of the five factors should be decided in favor of the Petitioner and urged us to disallow the late-filed document.

GANE's filing consists of a document prepared by W.F. Lawless, who gave an oral presentation of bases to support Contention 2 at the Special Prehearing Conference. (Tr. 118-21.) We view the material contained in GANE's filing as providing essentially an amplification of the material contained in the oral statement of Mr. Lawless. We agree with Staff that we need not apply the criteria set forth in 10 C.F.R. § 2.714(a)(1) for considering a late-filed contention. Therefore we have accepted and considered the GANE filing.

Proposed Contention 3

> Applicant fails to show that the fear caused by living adjacent to a nuclear facility will not threaten the security and well-being of the community, in violation of various laws and rules and regulations.

The gravamen of the proposed contention is that Applicants fail to address the alleged psychological impact of the threat of nuclear contamination or nuclear explosion upon the public. Petitioner asserts that laws, which were unspecified, require Applicants to do so. To the contrary, the law does not place any such requirement upon any of the parties.

The Commission in 1982 instructed licensing boards not to entertain psychological stress contentions absent evidence of a "unique and traumatic" nuclear accident in the vicinity of the plant. *Consideration of Psychological Stress Issues; Policy Statement*, 47 Fed. Reg. 31,762 (1982). There is no allegation that there has been a "unique and traumatic" nuclear accident in the vicinity of Vogtle. The rule prohibits consideration of the proposed contention.

More recently, the U.S. Supreme Court, in *Metropolitan Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 103 S. Ct. 1556 (1983) held that the National Environmental Policy Act does not require the Nuclear Regulatory Commission to consider whether risk of accident might cause harm to psychological health and community well-being of residents of the surrounding area, in deciding whether to permit a company to resume operations. The case held that NEPA must address environmental effects of federal action; and the effects must have a close connection to the physical environment, which stress, a psychological condition, does not meet.

Proposed Contention 3 does not present the Board with a matter that it can consider. It is therefore dismissed.

Proposed Contention 4

> The Applicant has underestimated the danger to lives and health of human, livestock and plants exposed to the electromagnetic radiation of the proposed 500-kV transmission lines from Plant Vogtle in violation of 10 C.F.R. 51.20 and 51.21 and the National Environmental Policy Act of 1969, 42 U.S.C. 4321 *et seq.*

Petitioner cited several authorities for the alleged proposition that nonionizing electromagnetic radiation is injurious to health in general; and, in particular, that Applicants' proposed 500-kV transmission lines will produce undesirable health effects. In their responses of May 7,

1984, and during the prehearing conference, Applicants provided information demonstrating that, taken in full context, none of the cited authorities in reality provides a substantive basis of support for this contention. Additionally, Applicants hold that GANE has not identified any inadequacies in Applicants' and Staff's construction permit evidentiary assessment. Petitioners countered that there have been incidents (unspecified and undetailed in nature) of farmers having been knocked off their tractors while working in the vicinity of transmission lines. No attempt was made to relate such incidents to conditions that might obtain around Vogtle-type transmission lines, accepted by the prior Board at the CP stage. Applicants and Staff both find the basis for this contention to be inadequate. We concur, and we deny admission of proposed Contention 4.

ADMITTING CPG AND GANE AS PARTY INTERVENORS

Based upon the foregoing we find CPG and GANE have each submitted at least one allowable contention as required by 10 C.F.R. § 2.714(b) and they have otherwise fulfilled the requirements to be admitted as party intervenors in the proceeding. We therefore admit them as party intervenors.

The CPG and GANE contentions we have admitted are identical or one fully encompasses the other. Obviously it is to everyone's interest not to treat these in a repetitious and cumulative manner. To that end it would be appropriate for CPG and GANE to look to consolidating their efforts in the manner discussed in 10 C.F.R. § 2.715a. It may well prove more effective for a single Intervenor to be wholly responsible for an individual contention. The Intervenors shall advise the Board how they intend to proceed as to this matter within 20 days of service of this Memorandum and Order. This may obviate the need to issue orders under 10 C.F.R. §§ 2.715a and 2.757.

DISPOSITION OF THE CCCE PETITION

In our unpublished Memorandum and Order of March 9, 1984, we found that CCCE had provided no basis for intervention in the subject proceeding in its petition of January 27, 1984. As an organization seeking representative participation, it had not shown that the action being challenged could cause injury in fact to one of its members.

Petitioner was given the opportunity to cure the deficiency in its filing and to submit a contention for litigation by April 12, 1984. It failed to

make an attempt to do so, nor did CCCE appear at the Special Prehearing Conference on May 30, 1984, as directed.

On the basis of the foregoing, we deny and dismiss its petition. CCCE is ineligible to become a party intervenor having failed to establish that its interest may be affected by the subject proceeding and to submit a litigable contention, as required by 10 C.F.R. § 2.714. Its failure to appear, as directed, at the Special Prehearing Conference on May 30, 1984, provides an additional ground under 10 C.F.R § 2.707 to deny it entry to the proceeding.

PROCEDURAL MATTERS

The Parties have been able to stipulate to the following discovery schedule:

1. There will be two rounds of discovery consisting of an initial round of discovery requests and responses and a follow-on of requests and responses. Additional discovery shall be had only as provided in ¶ 6, below.
2. All initial-round discovery requests shall be served within 60 days after the date of the Licensing Board's Order allowing the contention to which the discovery request is addressed.
3. Responses to initial-round discovery requests, shall be served within 30 days after service of the request.
4. Follow-on discovery requests shall be served within 120 days after the Licensing Board's Order allowing the contention to which the request is addressed.
5. Responses to follow-on discovery request, shall be served within 30 days after service of the request.
6. Further discovery shall be had only (a) by agreement of the affected parties or (b) by order of the Licensing Board for good cause shown.

We find it acceptable and adopt it as the discovery schedule for the proceeding.

As to the matter of future locations for the holding of conferences and hearings, the decision will be made as each occasion arises and will be appropriate to the circumstances. Each participant has expressed its views extensively on the matter. We are fully aware and appreciative of the various positions and will take them into account in making our determination. No further information is desired on this issue.

Order

Based upon all of the foregoing, it is hereby Ordered that:

1. Petitioner CCCE is not admitted as a party intervenor in this proceeding.

2. Petitioners CPG and GANE are each admitted as party intervenors in this proceeding.

3. GANE's proposed Contentions 1 and 4 are withdrawn as well as CPG's and GANE's proposed Contention 9.

4. CPG's proposed Contentions 2 and 3 are dismissed as well as CPG's and GANE's proposed Contentions 6, 10.2, 10.4, 10.6, 10.8, 10.9, 10.10 and 10.11.

5. GANE's proposed Contentions 1, 2, 3 and 4 are dismissed.

6. CPG's and GANE's proposed Contentions 7, 8, 10.1, 10.3, 10.5, 10.7, 11, 12 and 14 are admitted, in the manner stated.

7. The Board defers further ruling on CPG's and GANE's proposed Contention 5 for the reasons stated.

8. Intervenors may refile their proposed Contentions 13, as discussed.

9. The discovery schedule contained in the Memorandum shall be followed. The period for discovery, as set forth, will commence immediately with the service of this Order.

10. The Board shall be advised by Intervenors within 20 days of service of this Order of their intended course on consolidating the contentions and how they will assume responsibility for handling them.

11. This Order shall control the subsequent course of the proceeding unless modified by further order of the Board. Under 10 C.F.R. § 2.751a(d), objections to this Order may be filed by a party within five (5) days after service of the Order, except that the Staff may file objections within ten (10) days after service. *See* 10 C.F.R. § 2.710.

12. This Order is appealable by Applicants, Staff and CCCE under the provisions of 10 C.F R. § 2.714a to the Atomic Safety and Licensing

Appeal Board within ten (10) days after service of the Order. *See* 10 C.F.R. § 2.710.

THE ATOMIC SAFETY AND
LICENSING BOARD

Morton B. Margulies, Chairman
ADMINISTRATIVE LAW JUDGE

Gustave A. Linenberger, Jr.
ADMINISTRATIVE JUDGE

Dr. Oscar H. Paris
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 5th day of September 1984.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Marshall E. Miller, Chairman
Glenn O. Bright
Elizabeth B. Johnson

In the Matter of

Docket No. 50-322-OL-4
(Low Power)
(ASLBP No. 77-347-01C-OL)

LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station, Unit 1)

September 5, 1984

Upon reconsideration, the Licensing Board grants summary disposition as to all issues relevant to proposed fuel loading, precriticality testing, and cold criticality testing. Although the site lacks a fully qualified onsite source of emergency AC power, no such power is needed to protect public health and safety during the requested activities; thus, they may be authorized without contravention of applicable regulatory criteria.

OPERATING LICENSE: LOW POWER

Fuel loading, precriticality testing and cold criticality phases of proposed low-power program require no onsite emergency AC power.

REGULATIONS: GENERAL DESIGN CRITERIA

Although GDC 17 is applicable to low-power operations, it may be applied in view of a "rule of reason" where requested activities require no emergency AC power to protect public health and safety.

ORDER
RECONSIDERING SUMMARY DISPOSITION OF PHASE I AND PHASE II LOW-POWER TESTING

On July 24, 1984, we issued an Order (unpublished) granting in part and denying in part LILCO's motions for summary disposition on Phase I and Phase II of its low-power testing program.[1] LILCO's motions were based upon its assertion that even if the Shoreham facility lacks a qualified onsite source of emergency AC power, the activities to be performed in Phases I and II require no emergency AC power to perform any of the safety functions specified by the General Design Criteria (GDC), specifically GDC 17.[2] We granted the LILCO motions as to certain uncontroverted statements of material facts, but denied them as to the ultimate issues which would permit LILCO, prior to decision on LILCO's pending application for exemption from GDC requirements, to proceed with the fuel loading, precriticality testing, and limited low-power testing and activities of Phases I and II.

In reaching our decision on the motions we looked for guidance to the Commission's Order of May 16, 1984 (CLI-84-8, 19 NRC 1154), in which the Commission held that GDC 17 is applicable to low-power operation and that, in the circumstances of this proceeding, LILCO would either have to demonstrate compliance with GDC 17[3] or apply for and

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[1] Phase I: Fuel load and precriticality testing; Phase II: Cold criticality testing.

[2] Appendix A to 10 C.F.R. Part 50.

[3] GDC 17 states, in pertinent part, that:

> An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified 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.
>
> The onsite electric power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure.

(10 C.F.R. Part 50, Appendix A, Criterion 17).

receive an exemption to it pursuant to 10 C.F.R. § 50.12(a) before a low-power license could be issued.

However, it has become increasingly clear that the Commission's Order (CLI-84-8) is not without serious ambiguities. Although summary disposition motions regarding LILCO's Phases I and II were technically before the Commission when its Order was written, that Order does not consider or address permission for fuel loading or initial criticality, and it cannot be construed as even purporting to be dispositive of Phase I and II issues. We also looked to the NRC Staff, with its professed expertise in the interpretation and analysis of Commission regulations and rulings, for assistance in interpreting the Order in question.

Prior to the Commission's Order, the Staff had taken the position that the requirements of GDC 17 "should be applied with flexibility and dependent upon the nature of the activity sought to be licensed."[4] However, the Staff in its June 13, 1984 response to LILCO's summary disposition motions, said that in arguing that no emergency AC power is needed during Phases I and II, LILCO was essentially arguing that GDC 17 did not apply at that level of operation. The Staff stated its belief that CLI-84-8 stands for the proposition that GDC 17 means the same for low-power operation as for full-power operation, and that in the absence of a fully approved onsite power system, an exemption from GDC 17 is needed before any low-power operating license may be issued (Staff's June 13 Response at 4).

Subsequent to our decision on summary disposition, LILCO on August 2, 1984, moved for referral and/or for directed certification to the Commission of that decision. In its August 17 Response, the Staff rather abruptly and without adequate explanation again changed its position and now supported LILCO's motion because "early Commission guidance would be helpful" in interpreting CLI-84-8. The Staff did not explain why, if the Commission's Order was as clear as it originally contended, any further (presumably different) guidance would be helpful or necessary. Instead, it merely stated that "the question raised by LILCO here, whether (or how) GDC 17 should be applied to fuel loading and low-power testing, is an issue that may well involve other general design criteria and other license applications" (Staff's Response at 4). The Staff further revealed that "in a similar situation to that posed by LILCO, the Staff recently granted an exemption from GDC 17 to Duke Power Company to permit fuel loading and precriticality testing at the Catawba facility" (Staff's Response at 5 n.4).

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[4] NRC Staff Response to LILCO's Motion for Directed Certification of the Licensing Board's July 24, 1984 Order (August 17, 1984), at 3. *See also* SECY-84-290 (July 17, 1984).

It now appears that the Staff, subsequent to our original summary disposition Order, "has already met with the Commission once (on July 25, 1984) for guidance on how to apply CLI-84-8 to other license applications" (Staff's August 17 Response at 4-5). That meeting with the Commission was apparently triggered by a July 17, 1984 paper or communication from the Executive Director for Operations to the Commission, to "request Commission guidance on the need and standard for exemptions from the regulations in light of the Commission's *Shoreham* decision, CLI-84-8 (SECY-84-290)." That Staff paper further stated in pertinent part:

> The *Shoreham* decision, involving compliance with NRC regulations during the early stages of operation, the need for exemptions from the regulations and the standards for granting exemptions under 10 C.F.R. § 50.12, establishes practices and requirements for licensing which differ significantly from prior regulatory interpretation and practice. . . .
>
> Prior to the Commission's May 16, 1984 decision in *Shoreham*, the staff had viewed the requirements of the regulations as being reasonably flexible, with various regulatory requirements applicable or important from a health and safety standpoint only for certain modes of operation and operation at certain times and power levels. . . .
>
> In *Shoreham*, CLI-84-8, the Commission had occasion to examine the matter of the applicability of General Design Criterion (GDC) 17 to fuel loading and low power operation. Therein, the Commission ruled that GDC 17 does apply to such operations below full power and at least implicitly found that an exemption from GDC 17 must be granted if Shoreham is to be licensed for fuel loading or low power operation prior to compliance with GDC 17. . . .
>
> In the context of exemptions related to plant operations, these determinations regarding "exigent circumstances" and "as safe as" are wholly new requirements going beyond anything explicitly required by 10 C.F.R. § 50.12. (The concept of "exigent circumstances" had previously been considered a factor only in exemptions granted pursuant to 10 C.F.R. § 50.12(b), issuing limited work authorizations.). . . .
>
> (5) Does the Commission intend, by its *Shoreham* decision, to modify those regulatory standards for granting exemptions set forth explicitly in 10 C.F.R. § 50.12(a) by adding the standards on "exigent circumstances" and "as safe as" which are raised in CLI-84-8?
>
> (6) Is it the Commission's intent that the "as safe as" standard be read literally or is there some *de minimus* reduction in safety that would be acceptable in granting an exemption under the Commission's standards in *Shoreham*?

(*Id.* at 1-3, 5).

As a result of the Staff's request for clarification of the *Shoreham* decision, the Commission held a Discussion of Commission Practice on

Granting Exemptions at an open meeting on July 25, 1984.[5] The General Counsel had filed a written discussion of various aspects of the ramifications of the *Shoreham* exemption decision. Among other things, it stated that "[s]ome regulations, including some GDC, may properly be considered inapplicable to fuel loading and low power testing if such a conclusion is fairly compelled by simple logic and common sense . . . ."[6]

Finally, the Staff has recently modified and restated its interpretation of CLI-84-8 in the instant proceeding. During closing arguments on August 16, 1984, the Staff stated that the "as safe as" rule laid down in CLI-84-8 is a "comparable level of safety" rule.[7] It further agreed that a comparable level of safety is "some kind of a rule of reason" (*id.*). And the Staff also stated that its recommended comparable level of safety rule is the same as "substantially as safe as."[8]

Given this rich diversity of views regarding the Commission's intent and meaning in its Order CLI-84-8, we conclude that the Staff's original advice to the Board regarding the summary disposition motions on Phases I and II, was not correct. We are also concerned that a court of law reviewing these orders might well conclude that LILCO was being discriminated against and treated differently than other utilities similarly situated, contrary to the equal protection of the laws and the due process requirements of the Fifth Amendment to the United States Constitution. Accordingly, our Order of July 24, 1984, denying summary disposition of Phases I and II of LILCO's low-power testing program, will be reconsidered and reversed.

In its original summary disposition motion, LILCO argued that as to Phase I fuel loading and precriticality testing, there are no fission products in the core and no decay heat. Therefore core cooling is not required, and with no fission product inventory, fission product releases are not possible. Because no core cooling is required, no AC power (either on site or off site) is needed "to permit functioning of structures, systems, and components important to safety" (GDC 17).

As to Phase II cold criticality testing, LILCO asserted that any self-sustaining nuclear reaction will be conducted at extremely low power levels and for very short periods of time, and that radioactive fission products produced will be negligible. A review of the accident and transient events contained in Chapter 15 of the Shoreham FSAR shows that there are no consequences even assuming no onsite AC power source,

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[5] Although a transcript of this open meeting is readily available, we have not considered or relied upon it in light of the Commission's Disclaimer Statement and the provisions of 10 C.F.R. § 9.103.

[6] General Counsel's Discussion of Exemptions, dated July 24, 1984 (SECY-84-290A), at 26.

[7] Tr. 3043.

[8] Tr. 3045-47.

and in fact no AC power is required to protect the core. In essence, LILCO seeks summary disposition as to Phases I and II, because no onsite or offsite AC power is necessary to perform the safety functions needed to protect the public health and safety. We believe that such summary disposition should be granted. In reconsidering Phases I and II summary disposition motions, we note that an evidentiary hearing has been concluded and that uncontroverted factual information is available to the Board. The following material facts were not controverted and were therefore admitted in this proceeding.

Phase I

(7) During Phase I fuel loading and precriticality testing, there are no fission products in the core and no decay heat exists. Therefore, core cooling is not required. In addition, with no fission product inventory, there are no fission product releases possible. Rao, *et al.*, Tr. 283-84; Sherwood Affidavit at ¶ 11; Hodges Affidavit at ¶ 4.

(8) Even a loss of coolant accident would have no consequences during Phase I since no core cooling is required. . . .

(9) No core cooling is required during Phase I and, therefore, no AC power is necessary during Phase I to cool the core.

Rao, *et al.*, Tr. 285; Sherwood Affidavit at ¶ 13; Hodges Affidavit at ¶ 3.

Phase II

(8) Because of the extremely low-power levels reached during Phase II testing, fission product inventory in the core will be only a small fraction of that assumed for the Chapter 15 analysis. The FSAR assumes operation at 100% power for 1,000 days in calculating fission product inventory; inventory during Phase II low-power testing will be less than 1/100,000 (0.00001) of the fission product inventory assumed in the FSAR. Rao, *et al.*, Tr. 295; Sherwood Affidavit at ¶ 17.

(9) If a LOCA did occur during the cold criticality testing phase (Phase II), there would be time on the order of months available to restore make-up water for core cooling. . . . With these low decay heat levels, the fuel cladding temperature would not exceed the limits of 10 C.F.R. § 50.46 even after months without restoring coolant and without a source of AC power. Thus, there is no need to rely on the TDI diesel generators, or any source of AC power. Rao, *et al.*, Tr. 292-94; Sherwood Affidavit at ¶ 19; Hodges Affidavit at ¶ 8.

(10) During Phase II cold criticality testing conditions, there is no reliance on the diesel generators for mitigation of the loss of AC power event or the feedwater system piping break event. . . .

(12) None of the events analyzed in Chapter 15 could result in a release of radioactivity during cold criticality testing that would endanger the public health and safety. Rao, *et al.*, Tr. 296; Sherwood Affidavit at ¶ 17.

(13) Even if AC power were not available for extended periods of time, fuel design limits and design conditions of the reactor coolant pressure boundary would

not be approached or exceeded as a result of anticipated operational occurrences, and the core would be adequately cooled in the unlikely event of a postulated accident. Rao, *et al.*, Tr. 295-96; Sherwood Affidavit at ¶ 22.

(Board Order entered July 24, 1984, at 10-13.)

The Board interprets the Commission's Order of May 16, 1984 (CLI-84-8), as implicitly containing a rule of reason in applying the requirements of GDC 17 to fuel loading and low-power testing. If no emergency AC power is required for core cooling during Phases I and II, then the proposed changes in the AC power source could have no effect on the "functioning of structures, systems, and components important to safety," as required by GDC 17. Accordingly, "simple logic and common sense" indicate that LILCO should be permitted to conduct fuel loading and low-power testing as proposed in Phases I and II, and it is so ordered. This result is consistent with the recent action of the Staff in permitting Duke Power Company to load fuel and conduct precriticality testing at the Catawba facility.[9] It is also consistent with the Commission's action regarding use of similar TDI diesel generators at the Grand Gulf facility.[10] Such a result is compatible with the Commission's underlying reasoning and with the Staff's widespread practice over a number of years. It also gives the Applicant the same treatment as that accorded other utilities under the same or similar circumstances, and hence complies with the constitutional requirement of nondiscrimination and equal protection of the laws.

Finally, in CLI-84-8 the Commission expressly reserved its power to conduct an immediate effectiveness review of any initial decision authorizing the grant of an exemption. Accordingly, this Order Reconsidering Summary Disposition of Phase I and Phase II Low-Power Testing is

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[9] Staff's August 17, 1984 Response at 5 n.4. *See* Catawba SSER No. 3, at 8-1 through 8-3, NUREG-0954.

[10] Safety is the paramount concern of the Staff at whatever stage of operation or procedural posture.

transmitted herewith directly to the Commission for its appropriate action.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Marshall E. Miller, Chairman
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 5th day of September 1984.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Peter B. Bloch, Chairman
Herbert Grossman, Esq.
Mr. Walter H. Jordan

In the Matter of

Docket Nos. 50-445-OL-2
50-446-OL-2
(ASLBP No. 79-430-06A-OL)

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

September 17, 1984

The Licensing Board orders the Office of Investigations (OI) to provide to the Board and parties, subject to protective order, a copy of each of the investigation reports that OI had offered to provide to the Board *ex parte.*

RULES OF PRACTICE: *EX PARTE* CONTACTS

In a case in which serious allegations of intimidation have been the subject of intensive hearings, it is not proper for the Licensing Board to receive reports of twenty-two related investigations *ex parte,* without providing the parties the opportunity to comment on the relevance of the reports. The proper way to handle the matter is to provide the materials under protective order to the parties, making whatever provisions are necessary in the circumstances to avoid release of the names of confidential informants. In the past, sensitive security matters have been handled in this way. So too should confidentiality matters.

MEMORANDUM AND ORDER
(Directing Release of OI Reports)

On August 28, 1984, the Nuclear Regulatory Commission Staff (Staff) issued Board Notification 84-149 listing Office of Investigation (OI) reports as important documents related to Comanche Peak Steam Electric Station not previously submitted to this Board. The Staff indicated its intent to transmit to the Board for review *in camera, ex parte* any reports the Board deems pertinent to this proceeding. By this Order, the Board directs OI to release to the Board and parties (under protective agreement) all OI reports listed in Board Notification 84-149.

Board Notification 84-149 lists twenty-two OI reports on Comanche Peak which have not previously been released to this Board. *See* Board Notification 84-149, Enclosure 1. Without reviewing the text of these reports, the Board cannot make an intelligent evaluation of their relevance to issues pending before it and cannot decide whether the record in this proceeding is adequately developed and can be closed. Based upon a review of the subject of the reports as listed by the Staff, we find all of these reports to be potentially relevant to matters pending before the Board. Therefore, we direct OI to release under protective agreement copies of all twenty-two reports to the Board and parties for review.

The Board will not review these reports *ex parte* as suggested by the NRC Staff, unless ordered to do so by the Commission. The Board agrees that *ex parte* review of investigation reports could be prejudicial to the rights of the Applicants and other parties. The Applicants have in the past objected to *ex parte* review by the Board of OI reports.[1] *Ex parte* information in the context of this formal adjudication would violate fundamental principles of administrative due process.[2]

Ex parte contacts between interested parties and agency decisionmakers have consistently been held to be improper in administrative proceedings. *See, e.g., Sangamon Valley Television Corp. v. United States*, 269 F.2d 221 (D.C. Cir. 1959). Secret exchanges of information are inconsistent with reasoned decisionmaking based upon a public record. *Home Box Office, Inc. v. FCC*, 567 F.2d 9, 54-56 (D.C. Cir. 1977). The problem is exacerbated in a situation such as this where a formal adjudicatory hearing is under way. *National Small Shipments Traffic Conference, Inc. v.*

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[1] *See* "Applicants' Motion to Obtain Access to Information Regarding Investigations at Comanche Peak or for Alternative Relief" (May 10, 1984).

[2] *See* our unpublished May 17, 1984 "Memorandum and Order (Secret Communications from Office of Investigations)."

ICC, 590 F.2d 345, 350 (D.C. Cir. 1978). The hearing requirements of the Atomic Energy Act and due process mandate that all parties be afforded a full, fair, expeditious, and open hearing.

Where OI reports have been prepared and made available to this Licensing Board, they must also be made available to all parties. *Ex parte*, extra-judicial information will not be relied upon in any manner by the Board. To do so would reduce the hearing to something less than the adversary proceeding required by the Atomic Energy Act. Fundamental principles of fairness require that all parties be aware of the content of information presented to the Board, be given the opportunity to test its reliability or truthfulness, and be given the opportunity to present rebuttal testimony if deemed necessary. *Green v. McElroy*, 360 U.S. 474, 495-96 (1959).

Ex parte communications are no less troublesome because they come to the Board from the agency Staff, in this case OI. *See* 10 C.F.R. § 2.780; *see also United States v. B&O Southeastern Railroad Co.*, 226 U.S. 14, 20 (1912). Even if OI alone is given the opportunity to present *ex parte* information which may form a basis for the Board's ultimate decision, the public's perception of the Board's independence would be lost.

The Commission has issued a Policy Statement to provide guidance to licensing boards and the Staff for cases in which pending investigations are related to matters in controversy and there is a conflict between the need for disclosure to the Board and parties and the need to protect an inspection or investigation.[3] The Commission suggests that in cases where unrestricted investigation could compromise the investigation, the Staff should provide information to the Board *in camera ex parte*. 49 Fed. Reg. at 36,033-34. However, the Commission has emphasized that "[a]s a general rule [it] favors full disclosure to the boards and parties . . . ." and that its Policy Statement does not abrogate the well-established principle of administrative law that a licensing board *may not* use *ex parte* information presented *in camera* in making its decision. *Id.* at 36,033.

The Board believes that a protective order could be used in order to avoid the need for *ex parte* examination while providing some assurance that necessary confidentiality is not compromised. Through such protective agreements, all parties to NRC proceedings have been given access to such sensitive information as the security plans for power reactors, when issues have been raised in connection with those plans. *Pacific Gas*

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[3] "Statement of Policy; Investigations, Inspections and Adjudicatory Proceedings," 49 Fed. Reg. 36,032 (September 13, 1984).

and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-80-24, 11 NRC 775 (1980). There is little reason to believe that the information here is more important than security plans that have been previously disclosed. The Board is willing to limit those included in the protective order to two legal representatives for each party in an effort to maintain a strict level of confidentiality. Alternatively, the Board proposes that OI set forth a protective order which it feels will meet the needs and purposes of its investigation program.

In this case, the parties have vigorously litigated issues which may well be the subject of the OI investigations, and they are entitled to a prompt decision by this Board on those issues. Applicants are coming close to the date on which they will be ready to load fuel. For this proceeding to be held in abeyance because another arm of the agency is unwilling to share what could be relevant information is fundamentally unfair to the parties and makes it difficult for this Board to do its job. Accordingly, the Board believes that the rights of the parties to a fair hearing on issues relating to intimidation could be prejudiced without disclosure of the reports to the parties as well as the Board. We are therefore directing that the twenty-two enumerated OI reports be released under a protective agreement to the parties in this proceeding.

If the Office of Investigation is unwilling to comply with this Order, the Board urges OI to explain to the Board and parties those important considerations which prevent it from carrying out this Order, and the

Board requests that OI suggest a course of action which will provide an acceptable means of meeting the needs of the Board, OI, and the parties.

IT IS SO ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Herbert Grossman
ADMINISTRATIVE JUDGE

Walter H. Jordan (not participating)
ADMINISTRATIVE JUDGE

Bethesda, Maryland
September 17, 1984

Cite as 20 NRC 933 (1984) **LBP-84-37**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Morton B. Margulies, Chairman
Dr. Frank F. Hooper
Dr. Robert M. Lazo

In the Matter of

Docket Nos. 50-413-OL
50-414-OL
(ASLBP No. 81-463-06-OL)
(Emergency Planning)

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

September 18, 1984

In this Partial Initial Decision, the Licensing Board completes consideration of all emergency planning issues and authorizes the issuance of an operating license to Applicants subject to certain conditions.

LICENSING BOARDS: RESPONSIBILITY IN EMERGENCY PLANNING

A responsibility of the Licensing Board in deciding emergency planning issues is to determine if the planning is in conformity with regulatory standards. Although the Intervenors may "desire that the level of the emergency preparedness be enhanced to the maximum extent possible," the Licensing Board's role is not to require that measures be taken which exceed the requirements of the regulations and regulatory guides.

EMERGENCY PLANS: INFORMATIONAL REQUIREMENTS

The Commission's emergency planning regulations and regulatory guide require that informational brochures must advise the public by unobtusive language that high levels of radiation are harmful to health and may be life-threatening. *See* 10 C.F.R. § 50.47(b)(7) and Part 50, Appendix E, § IV.D.2; NUREG-0654/FEMA-REP-1, Rev. 1, § II.G.1.

EMERGENCY PLANS: INFORMATIONAL REQUIREMENTS

The Commission's emergency planning regulations and regulatory guide require that warning signs and decals must not be so general in their message that they do not state that the warning relates to a nuclear emergency. There should be made available to transients a source of local emergency information so that they too have the opportunity to become aware of how to cope in a nuclear emergency prior to the time an event may occur. *See* 10 C.F.R. § 50.47(b)(7) and Part 50, Appendix E, § IV.D.2; NUREG-0654/FEMA-REP-1, Rev. 1, § II.G.2.

EMERGENCY PLANNING ZONES: LIMITS OF THE PLUME EPZ

The Commission's emergency planning regulations and regulatory guide do not require the inclusion within the plume emergency planning zone any portion of the City of Charlotte, North Carolina, whose city limits come within 9.7 miles of the plant. *See* 10 C.F.R. § 50.47(c)(2) and NUREG-0654/FEMA-REP-1, Rev. 1, § I.D.2.

EMERGENCY PLANS: LICENSING CONDITION

Although the Commission does not require that all aspects of emergency plans be complete before a final licensing decision is reached, where the planning for the evacuation of a theme amusement park, that can have in excess of 25,000 attending at a time, is being readdressed and the process is not near completion, it is appropriate for the Licensing Board to require as a condition of licensing the plant that plans be completed within a specified time to the satisfaction of the NRC Staff.

APPEARANCES

J. Michael McGarry, III, Anne W. Cottingham, Mark S. Calvert, Albert V. Carr, Jr. and **Ronald V. Shearin** for Applicants.

Robert Guild for Intervenor, Palmetto Alliance.

Jesse L. Riley, Phillip L. Rutledge and **Betsy M. Levitas** for Intervenor, Carolina Environmental Study Group.

Henry J. McGurren and **George E. Johnson** for the Nuclear Regulatory Commission Staff.

Richard P. Wilson for the State of South Carolina.

TABLE OF CONTENTS

SUPPLEMENTAL PARTIAL INITIAL DECISION ON EMERGENCY PLANNING

I. SCOPE OF DECISION

This is a contested operating license proceeding within the meaning of 10 C.F.R. § 2.4(n). In this Partial Initial Decision we consider the emergency planning issues in the application of joint owners Duke Power Company (Duke or the Company), North Carolina Electric Municipal Power Agency Number 1, North Carolina Electric Membership Corporation and Saluda River Electric Cooperative (the Applicants) for operating licenses for Units 1 and 2 of the Catawba Nuclear Station (Catawba). Duke has exclusive responsibility for the design, construction and operation of Catawba.

The Catawba facility consists of two pressurized water nuclear reactors designed to operate at core power levels of up to 3411 thermal megawatts with a net electrical output of 1145 megawatts per unit. It is located on Applicants' site in York County, South Carolina, 6 miles north-northwest of Rock Hill, South Carolina. The facility is in the north-central part of the State and a 10-mile radius drawn from it takes in parts of Gaston and Mecklenburg Counties, North Carolina.

There were ten contentions litigated in the proceeding challenging various aspects of the offsite emergency plans for Catawba. In this Supplemental Partial Initial Decision, we rule on the adequacy of emergency planning for the facility. We find, based on the weight of the evidence, that the emergency plans for Catawba meet the requirements of the applicable law and regulations except to the extent indicated.

II. PROCEDURAL BACKGROUND

This Board came into being on February 27, 1984, to preside over all emergency planning issues, in the captioned proceeding for an operating license.

This action came about as the result of a motion before the original Board, by Applicants supported by Nuclear Regulatory Commission Staff (Staff) and opposed by Intervenors, Palmetto Alliance and Carolina Environmental Study Group (CESG) to split the proceeding along safety and emergency planning issues. By an unpublished memorandum and order of February 21, 1984, the presiding Board concluded that the procedure would prevent significant unnecessary delay and be consistent with a fair and thorough hearing process. It recommended instituting the bifurcated process to the Chief Administrative Judge, Atomic Safety and Licensing Board Panel, who followed the recommendation with our establishment on February 27, 1984.

The original Board issued a Partial Initial Decision in this proceeding on June 22, 1984. LBP-84-24, 19 NRC 1418. It covers the safety issues and contains a relevant procedural history. The Board ruled on the safety contentions for the most part in Applicants' favor. Some matters were decided conditionally and the Board has retained jurisdiction to hear an additional safety matter.

By unpublished orders of August 17, 1983, and September 19, 1983, the original Board had ruled upon and admitted ten emergency planning contentions sponsored jointly by the Intervenors. These became the subject of the adjudicatory proceeding held by this Board. Hearings were held on May 1-4 and May 7-11 at Rock Hill, South Carolina, May 23-25 at Charlotte, North Carolina, and June 5-8, 1984, at Rock Hill, South Carolina. Limited appearance statements were taken at evening sessions at Rock Hill and Charlotte.

Testimony was taken from forty-nine witnesses, who were presented by all of the parties. Attached as Appendix A is a witness list. A total of eighty-six documents were identified, of which seventy-two were admitted into evidence.[1] Attached as Appendix B is a list of documents that

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[1] The exhibits admitted during the emergency planning phase of this proceeding are numbered separately from those admitted during the previous safety phase, and are designated as "Ex. EP-1," etc. The transcript pages have also been numbered anew beginning with the appointment of the emergency planning Licensing Board. All transcript references are to the emergency planning hearing sessions unless otherwise indicated.

The format for citations to the emergency planning record is as follows: transcript citations include the page numbers, the speaker and the date, i.e. (Tr. 161, Carter 5/1/84); and citations to the prefiled testimony include the exhibit number, the name of the person or persons sponsoring the testimony, and the page number, i.e. (App. Ex. EP-7, Pugh at 1). Citations to the record of the safety phase of the hearing will be designated "S. Tr. ___"

were identified and admitted. The record was closed on June 8, 1984 (Tr. 4622), with the exception of the Board's future ruling to be made on Intervenors' proposed Contention 20, which was submitted on May 30, 1984. We ruled on July 11, 1984, to reject the proposed contention and closed the record for all purposes as of that date.

Applicants' proposed findings of fact and conclusions of law were submitted on July 9, 1984. Intervenors' were filed on July 27, 1984, following the grant of an extension of time, and Staff's on August 8, 1984. A response was submitted by Applicants on August 20, 1984.

It should be noted that all of the proposed findings of fact and conclusions of law submitted by the parties have been considered and those not incorporated directly or inferentially in this Partial Initial Decision are rejected as unsupported in fact or law or are unnecessary to the rendering of this decision.

III. REGULATORY REQUIREMENTS

The regulatory scheme for emergency planning issues was outlined as follows (with footnotes omitted in part) by the Appeal Board in *Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit No. 1), ALAB-727, 17 NRC 760, 764 (1983).

> 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 C.F.R. 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 C.F.R. 50.47(a)(2).[3]
>
> 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

[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.

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 materia 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.

Offsite emergency response plans must meet the sixteen standards set forth in 10 C.F.R. § 50.47(b). In addition to the criteria contained in § 50.47, Appendix E to Part 50 sets forth in greater detail certain information which Applicants' emergency plans must contain.

Guidance as to how these regulatory standards can be satisfied is provided by an NRC regulatory guide, entitled 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.[2] These criteria are intended for use in drafting and reviewing emergency plans. Reviewers of emergency plans may determine that measures other than those the criteria recommend are adequate to bring the plans into conformity with the standards in § 50.47(b). *See Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-644, 13 NRC 903, 937 (1981). NUREG-0654 is entitled to "considerable weight" by NRC licensing boards when evaluating emergency plans.[3]

The finding a board must make on emergency planning is necessarily a predictive finding. Emergency planning is an ongoing process and should continue through the life of a plant. Thus the NRC does not require that all aspects of the plans be complete before a final licensing decision is reached. *See Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-730, 17 NRC 1057, 1066 (1983). Furthermore, boards do not need to inquire into the details of implementing procedures. *Louisiana Power and Light Co.* (Waterford Steam Electric Station,

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[2] This document was written by a joint committee of Staff from the Commission and the Federal Emergency Management Agency (FEMA). It is cited hereafter as NUREG-0654. This Board has taken official notice of NUREG-0654 (Tr. 4615-17, Margulies, J., 6/8/84).

[3] NUREG-0654 was specifically considered in the rulemaking proceeding in which current emergency planning regulations were developed, and the language of the regulations restates the standards set forth in NUREG-0654. The regulations require that emergency response plans must meet the standards addressed in NUREG-0654. *See* 10 C.F.R. § 50.47(b) and footnote 1 thereto and 10 C.F.R. Part 50, Appendix E, § IV and footnote 4 thereto. This NUREG has therefore been held to carry "considerable weight." *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), LBP-83-32A, 17 NRC 1170, 1177 n.5 (1983). *See also Duke Power Co. v. NRC*, No. 80-2253, slip op. at 1 (D.C. Cir. Sept. 29, 1981).

Unit 3), ALAB-732, 17 NRC 1076, 1103-04, 1106-07 (1983). On the basis of the record before us, we need find only reasonable assurance that adequate measures can and will be taken.

The Commission's regulations do not require that extreme or unreasonable emergency planning measures be taken. *See Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528 (1983). The planning standards of 10 C.F.R. § 50.47(b) and NUREG-0654 provide a reasonable planning basis rather than absolute planning requirements. This Board does not have to find that all individuals are covered by the plans under all circumstances. The Commission explained in *San Onofre*:

> 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.

17 NRC at 533 (emphasis in original). Therefore, in reaching our decision on the Intervenors' contentions, we have applied the basic test of whether or not the Applicants' emergency plans take the necessary "*prudent* risk reduction measures."

The Commission gives great weight to FEMA's views on the need for and adequacy of specific offsite protective planning measures. *Id.*

We are a body of limited authority with a responsibility to determine if the emergency response planning is in conformity with regulatory standards. Although we recognize Intervenors' "desire that the level of emergency preparedness for those residing near the Catawba Nuclear Station be enhanced to the maximum extent possible," our function is not to require that measures be taken which exceed the Commission's requirements. The agency is charged with establishing standards that are adequate to preserve the public's health and safety. We accept that the Commission's laws, rules and regulations establish requirements that will accomplish the intended purpose. Our role is not to substitute other standards for those set by the Commission, which are binding upon us.

In apparent recognition of the complexities of the Commission's emergency planning requirements and the limited control that applicants exercise over offsite emergency planning, 10 C.F.R. § 50.47(c)(1) provides that a failure to meet the standards set forth in 10 C.F.R. § 50.47(b) will not necessarily result in the denial of an operating

license. Rather, the applicant will be given "an opportunity to demonstrate to the satisfaction of the Commission" that deficiencies in the plan "are not significant for the plant in question," that "adequate interim compensating actions" have been or will be taken, or that there are "other compelling reasons" to permit plant operation.

IV. FINDINGS OF FACT

A. Intervenors' Emergency Planning Contentions 1 and 7 — Public Information and Education

These contentions have been treated together throughout the proceeding and the practice will be followed here.

1. Intervenors' Emergency Planning Contention 1 (EPC-1) reads as follows:

> Public information provided by Applicants and state and local officials is not adequate to ensure appropriate responses to notification procedures.
>
> The principal source of information is Applicants' brochure, which is inadequate, intentionally deceptive regarding potential health effects of radiation, and misleading, in that:
>
> > A significant body of scientific evidence that indicates health effects at very low levels of radiation is not cited. Therefore, people with compelling reasons to stay (such as farmers tending to livestock) may not take the threat seriously, especially after being repeatedly told in the past that radiation is not particularly harmful, and that a serious accident is extremely unlikely. It does not indicate that there is danger in accumulated radiation dosage. It does not give adequate information on protection from beta and gamma rays. It does not specify how young "very young" is. There is no chart to indicate overexposure during non-routine releases or accident to put into perspective the possible dose received before or during an evacuation. It does not specify ingestion dangers from contaminated food and water. It does not specify the importance of getting to reception areas for registration for purposes of notification for evacuees' re-entry to their homes, nor of emergency notification for evacuees, accounting for fiscal aspects of evacuation and for the basis of establishing legal claims which might result from the evacuation, as specified in "Catawba Site Specific NUREG Criteria" p. B2, #3. In fact, citizens are told they may go directly to "stay with friends or relatives living at least 15 miles from the plant" (p. 10, #5). Neither does it state that the reception areas exist to provide decontamination of people and vehicles. It states that in an emergency at Catawba, citizens "would be given plenty of time to take necessary action." This cannot be guaranteed in the event of a sudden pressure vessel rupture, where sheltering would be indicated. This eventuality is not mentioned. It assumes all recipients can read, and at a certain level of comprehension.

As a primary source of information, it is imperative that all have access to and understanding of the emergency procedures to be taken. There is no information concerning the existence of a "plume exposure pathway," which would influence a citizen's choice of escape route. Although this information may be available via other media during a crisis, it is important for citizens to be aware of this phenomenon beforehand. Although the North Carolina state plan calls for emergency information to be distributed as detailed in Part 1, Section IV, 2, 3, and 4, no such material other than Applicants' brochure has been made available. When and if such material is formulated, it should include information on points of concern as listed in this contention. The emergency brochure falsely reassures residents that they "would be given plenty of time to take necessary action" in the event of an emergency. In the event of a vessel rupture, such as one resulting from a PTS incident, a catastrophic failure of the containment is a proximate likelihood. In that event, significant releases would reach residents well before they were able to remove themselves from harm even under Duke's overly optimistic evacuation time estimates.

2. EPC-7 provides as follows:

The Applicants' emergency plans and public brochure and the plans of relevant State and local authorities do not adequately address the preparations that should be made to achieve effective sheltering, nor the actions that people should take when advised to seek shelter. Hence, the plans and brochure fail to provide a reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency as required by 10 C.F.R. 50.47(a)(1).

The regulations governing public education and information efforts as part of emergency planning are set forth at 10 C.F.R. § 50.47(b)(7) and Part 50, Appendix E, § IV.D.2.

Section 50.47(b) provides that onsite and offsite emergency plans must meet certain standards, including:

(7) 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.

Part 50, Appendix E, § IV.D.2 provides that an applicant's emergency plans should contain information needed to demonstrate compliance with various elements, including, as to notification procedures:

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.

3. Guidance as to how these regulatory standards can be satisfied is provided in NUREG-0654, § II.G. Paragraph 1 provides:

> 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.

4. The thrust of Intervenors' position on the contentions is that the public information presently provided by Applicants and State and local authorities has not been demonstrated to be adequate to assure appropriate responses in the event of a radiological emergency at the facility. It levels specific criticisms at the design and content of Applicants' emergency plan brochure. They believe that whatever useful information is contained in the brochure is undermined by the public relations efforts conducted by Duke and directed at the Catawba EPZ population. Intervenors' claim State and local authorities have failed to demonstrate effective implementation of the commitments made in their own emergency plans and fail to share in the coordinated responsibilities for effective public information.

5. More particularly as to Contention 7, Intervenors contend that the efforts of Applicants and State and local authorities, including the brochure, fail to adequately address the subject of in-place sheltering such that inadequate protective action would result if sheltering were the advised response. It is alleged there has been a failure to provide clear, concise and adequate instructions on the subject for the public to adequately protect themselves.

6. Central to the contentions is the 1984 emergency plan brochure for Catawba (App. Ex. EP-5), which was prepared by Duke. The brochure is fourteen pages in length and has a tabular index with head-

ings: How a Nuclear Plant Works; About Radiation; Definitions; Emergency and You; Evacuation Procedures; and Protective Action Zones and Maps. Distribution was to all plume EPZ households in January 1984. An updated version will be distributed in September 1984 which will reflect comments of State and local officials.[4] Annual revisions will be made to improve upon it.

7. The 1984 brochure replaced a 1983 version (App. Ex. EP-8), on which Contentions 1 and 7 were based. Applicants responded to the criticisms in the contentions by specifying in the revised 1984 brochure: how young "very young" is; by setting forth procedures that will be taken when there are "ingestion dangers from contaminated food or water"; by noting that in evacuations there should be registering at shelters before "choosing to stay with friends or relatives"; by adding information about the services of insurance companies being available at shelters and that shelters would have facilities for decontamination of evacuees and their vehicles; and by omitting from the brochure the statement that in an emergency people "would be given plenty of time to take necessary action." We find these areas in which objection was raised are no longer matters of contention and will not be considered further.

8. FEMA has reviewed Duke's 1984 brochure and has found it complies with all five evaluation criteria of the NUREG-0654 emergency planning standard applicable to public information (Staff Ex. EP-2, Heard and Hawkins at 7; Tr. 1519, Heard 5/9/84).[5]

9. The 1984 brochure was further changed from that preceding it in response to Intervenors' allegation in Contention 1 that the 1983 brochure "assumes all recipients can read, and at a certain level of comprehension." Duke revised the earlier version of the brochure to reduce complexity and verbosity. Narrative portions of the current brochure are written on an eleventh grade level, while instructional sequences are written on a seventh grade reading level (App. Ex. EP-7, Duckworth at 14-15; Tr. 444-46, 450, Duckworth 5/2/84). It is stated on page 1 of the brochure, "[i]f you know someone who is blind or does not read well read this information to them. Talk to them about what to do in an emergency."

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[4] By letter dated September 7, 1984, Applicants advised that, because of a delay in preparation, the next edition of the brochure is expected to be distributed in November 1984, rather than in September.

[5] FEMA issued an Interim Findings Report on the adequacy of radiological emergency response preparedness for Catawba on April 17, 1984. The Interim Findings Report, Staff Ex. EP-3, and its conclusions are referred to throughout the findings. On July 27, 1984, following the close of the record, FEMA in a letter to the NRC, confirmed its prior findings as to the adequacy of State and local emergency plans for offsite preparedness for Catawba. The letter was prepared after inquiries about the plans were made by FEMA to the States of North and South Carolina and their responses were received. The Interim Findings referred to in these findings remain unchanged.

10. Duke's reading specialist, Dr. Susanna V. Duckworth, testified that in her opinion, the 1984 brochure effectively communicates how the public would be notified of a radiological accident at Catawba and what actions the public should take in such an emergency (*id.*, Tr. 450-51). She is an expert in the area and we find her testimony convincing.

11. Intervenors contend the required information in the brochure is obscured by secondary information, thereby assuring the reader of the plant's safety and Duke's goodwill. To substantiate their position they presented the testimony of Arlene Bowers Andrews, a doctoral candidate in Clinical-Community Psychology at the University of South Carolina and Ruth Wanzer Pittard, the Director of Audio-Visual Services at Davidson College.

12. Ms. Andrews' critique of the brochure is "[a]s presently designed [it] does not provide the clarity and direction needed by individuals in a state of anxiety and potential psychological crises" (Int. Ex. EP-38, at 4). In her opinion the brochure fails to adequately promote effective emergency response by individuals because information regarding what to do is "embedded in lengthy text about the power plant and radiation" (*id.* at 4-5). Ms. Andrews further testified she was not familiar with Commission regulations and guidance on emergency planning (Tr. 1759, Andrews 5/10/84), and was unaware of whether Duke's brochure complied with such requirements (*id.* at 1760).

13. Ms. Pittard found the required message specified in NUREG-0654 to be obscured by the "design theme" of the brochure. The design theme involves factors such as the location of the message within the text, repetitiveness of the message, use of illustrations to enforce the message, boldness of print, use of colors, placement of the message, the language made and volume of the material to be read (Int. Ex. EP-38, at 7). She acknowledged that the brochure repeats at least eight times that the public should listen to the EBS broadcasts in the event of an emergency (Tr. 1735-42, Pittard 5/10/84). The witness admitted that Duke's brochure minimally complies with the requirements of NUREG-0654 but objects that the required message is not presented effectively (*id.* at 1731).

14. We agree with the Licensing Board in *Consumers Power Co.* (Big Rock Point Plant), LBP-82-60, 16 NRC 540, 544 (1982) that the purpose of the emergency planning brochure is to provide information to the readers that they are to respond to audible alarm systems and to be sufficiently knowledgeable to understand the importance of responding. In order to do that the brochure must be clear, concise and well organized. *See also Louisiana Power and Light Co.* (Waterford Steam

Electric Station, Unit 3), LBP-83-27, 17 NRC 949 (1983). We find the 1984 Catawba brochure meets these requirements.

15. We agree with Dr. Duckworth, the reading specialist, that the 1984 emergency planning brochure effectively communicates the information required by the regulations. Even Intervenors' expert Ms. Pittard agrees that the requirements of NUREG-0654 are met. No one would deny the brochure cannot be enhanced, but in its present form it meets the regulatory requirements as found by FEMA.

16. The testimony of Ms. Andrews is insufficient to upset that conclusion. The brochure has its first six pages devoted to general information with the last eight pages given to emergency response information. Tabular indexing identifies the various sections. What minor spillover there is in the various kinds of information is not sufficient to render the brochure inadequate under the regulations and evaluation criteria. The message still comes across effectively. The brochure must be directed to normally functioning individuals. In that it is always available to the public, the opportunity is there to read it in other than an emergency situation when crisis is not a factor. The emergency response information is readily available to a reader even in a crisis situation because of the way it is segregated and identified.

17. There is no convincing evidence of record that Applicants have prepared the brochure in such a manner so as to obfuscate or defeat the effective transmission of the message required by the regulations. Emergency planning is an ongoing process which is fully recognized by all of the parties. Although the brochure meets the regulatory requirements, that is not to say it cannot be improved. That is a reason why the brochure is to be revised annually. No one is precluded from offering recommendations for its improvement and they have been accepted in the past.

18. Specific criticism of Intervenors of the content of the brochure includes the claim that the brochure fails to cite "a significant body of scientific evidence that indicates health effects at very low levels of radiation" and that people with compelling reasons to stay, such as farmers, may not take the threat seriously, especially after being repeatedly told in the past that radiation is not particularly harmful, and that a serious accident is unlikely.

19. Basic elements of the charge are unsupported in this record. The uncontroverted testimony is that there is no significant body of scientific evidence that indicates health effects at very low levels of radiation (App. Ex. EP-7, Birch at 7). There is no evidence of record that people such as farmers have been told repeatedly in the past that radiation is

not particularly harmful. There is no basis for the criticism in this record or evidence that a material problem exists that must be rectified.

20. Applicants' response in part to the above criticism is that the brochure clearly indicates that radiation is harmful. It relies upon three of its aspects. The first is the statement contained at page 4 of the brochure, "[e]xposure to high levels of radiation causes health effects." The others are that the brochure gives instructions as to what to do in an emergency and that it does not attempt to discount the possibility of an emergency at Catawba (App. Ex. EP-5, at 4, 9).

21. Of the three we cannot accept Applicants' claim that the statement "[e]xposure to high levels of radiation causes health effects" makes very clear to those to whom the brochure is directed that radiation is harmful. Although it may be so to those familiar with health physics that the term health effects means that radiation is harmful, i.e., Intervenors employed the very term in Contention 1 to that end, at best to the lay individual it is obtuse. The language used should state directly that high levels of radiation are harmful to health and may be life-threatening. Also it would better serve the reader of the brochure for it to at least contain such a statement within that section of the brochure that deals with action to be taken in the event of an emergency.

22. Intervenors allege that the Duke brochure "does not indicate that there is danger in accumulated radiation dosage"; that it does not contain a chart indicating "over exposure during nonroutine releases or accident" to put into perspective the possible dose received before or during an evacuation; and that it does not give adequate information on protection from beta and gamma rays. On the one hand Intervenors take the position the brochure is overly voluminous to be effective and on the other they want to add to it. We find that the brochure, through the protective action it instructs be taken, inherently addresses the matters sought to be covered. We agree with FEMA's findings that nothing more is required. Intervenors have not established the need to specifically add such additional information to the brochure.

23. Intervenors allege that the brochure contains no information "concerning the existence of a 'plume exposure pathway,' which would influence a citizen's choice of escape route," and that "it is important for citizens to be aware of this phenomenon beforehand." In ¶ 107 at page 69 of their brief Intervenors cite with approval a description of the plume transport phenomenon in *Big Rock Point*, LBP-82-60, *supra*. The equivalent is contained in the 1984 brochure at page 9, where it is stated, "[t]he areas affected [within 10 miles] would depend on such things as wind speed and wind direction. It would also depend on how serious the accident is." Intervenors' criticism is without merit.

24. Other specific criticism leveled at the 1984 brochure is contained in Contention 7. It alleges the information presented is inadequate because it does not address preparations for effective sheltering or the actions that should be taken when one is advised to seek shelter. We agree with FEMA that NUREG-0654 does not require that any "pre-planned preparations" for effective sheltering be addressed in emergency plans (Staff Ex. EP-2, Heard and Hawkins at 14). We find no regulatory requirement for that which Intervenors seek.

25. The brochure contains six steps that should be followed when one is advised to be sheltered. Intervenors find them inadequate. It notes, for example, the instructions call for the placement of a "damp cloth over your nose and mouth," whereas there are more effective measures that can be taken.

26. We find that the brochure addresses the subject of sheltering adequately and meets applicable regulations. The steps listed are in conformity with environmental protection action guides. They are in accord with NRC standards as found by FEMA (*id.*). The instructions provide the reader with the necessary basic information on what to do when sheltering is called for. That more detailed and informative information can be provided is unquestionable. The information contained in the brochure represents a reasonable approach in getting the required message to the public. That there may be other methods does not render that employed as inadequate.

27. Duke had prepared and distributed a Catawba emergency plan brochure designed especially for schoolchildren (App. Ex. EP-6). It is directed to familiarizing students, their parents and teachers with their respective roles in the event of a radiological emergency at the facility. There is no regulatory requirement for such brochure. Intervenors are critical of the brochure in the same manner they were of the brochure for general distribution, i.e., not accomplishing stated purposes and suffering from design and content problems. We find the brochure to provide valuable information to a segment of the plume EPZ populace with special concerns. It makes a positive contribution to emergency planning. As with the other brochure, it is capable of being improved upon. A local high school teacher, Ms. Brenda Best, testified that although the brochure states that the students' teachers and principals had been taught what to do, she had not been effectively educated in that regard (Tr. 4565-66, Best 6/8/84). We expect that the brochure plans will be implemented and the education will be provided in the near term.

28. Intervenors further contend the public information provided to transients is inadequate. Applicants have posted signs at Lake Wiley, where recreational boating is popular. The signs read that "[i]n the

event of an emergency requiring evacuation of the lake you will be notified by sirens and red smoke or flares. If these signals are observed, please (1) Leave the lake immediately; (2) Turn on radio or television for information and instructions." Decals, 3" x 5" in size, are being distributed to public facilities that were unspecified. They contain the message, "[y]ou are in an area covered by an emergency warning system. If you hear a steady three minutes siren, tune a radio to an Emergency Broadcast System station and follow the broadcast instructions" (App. Ex. EP-9; Tr. 269-72, Carter 5/2/84). Intervenors' criticism is that there is no evidence that the information is being disseminated to transients at places where they usually are, including the Carowinds theme amusement park and the Heritage U.S.A. religious retreat. They are locations where there are large numbers of transients.

29. The posting of signs and decals is required by Evaluation Criterion II.G.2 of NUREG-0654, which provides:

> 2. The public information program shall provide the permanent and transient adult population within the plume exposure EPZ an adequate opportunity to become aware of the information annually. The programs should include provision for written material that is likely to be available in a residence during an emergency. Updated information shall be disseminated at least annually. Signs or other measures (e.g., decals, posted notices or other means, placed in hotels, motels, gasoline stations and phone booths) shall also be used to disseminate to any transient population within the plume exposure pathway EPZ appropriate information that would be helpful if an emergency or accident occurs. Such notices should refer the transient to the telephone directory or other source of local emergency information and guide the visitor to appropriate radio and television frequencies.

30. Although we agree with the North and South Carolina emergency planning officials that the more general wording of the warning signs and the decals enhanced their effectiveness by broadening their applicability to all hazards (Tr. 276-78, 526-28, Pugh and Lunsford 5/2/84, 5/3/84), they are sufficiently cryptic that the importance of the message is defeated and lost. The signs and decals should specify the emergencies covered, to at least include nuclear.

31. The messages contained on the signs and decals do not conform to NUREG-0654 Evaluation Criterion II.G.2 for providing information to transients. The last sentence of the guide provides that the notices should refer the transient to (1) the telephone directory or (2) to a comparable other source of local emergency information, and also (3) should guide the visitor to appropriate radio and television frequencies. Applicants' messages eliminate steps (1) and (2) and only provide for step (3). There is good reason for steps (1) and (2). The health and safety of a transient is of no less importance than that of a resident and

they should be treated equally, within reason. Transients too should have the opportunity to become aware of how to cope in a nuclear emergency before the event occurs. Further, it cannot be expected that the overwhelming number of transients will have accessibility to radios and television receivers at the time an emergency occurs. Information as to how they are to react in an emergency should be made available to them before any event. Evaluation Criterion II.G.2 provides the methods as to how this should be done. Applicants have the option of making such information available in the telephone directory or other source of local emergency information. The signs and decals should state the method being used and if it is (2), where the information is available. If Applicants choose not to make the information available in the telephone directory, the comparable source should be similarly accessible to the transients.

32. We require the foregoing changes to be made in the signs and decals and that emergency response information be made available to transients in the manner indicated. There shall be reflected in Applicants' emergency plans the kinds of locations within the plume exposure EPZ where the signs and decals and emergency response information will be placed and the procedures employed to assure that sufficient numbers are being distributed to effectively reach the transients. Applicants shall promptly implement the foregoing and make the appropriate distribution.

33. Intervenors urge that the overall impact of Duke's public information program for the facility is to falsely reassure the public regarding the hazard in a potential nuclear accident and, therefore, lulls the public into a false sense of security and reduces the likelihood of effective response in the event of an actual accident. They rely in large measure on an internal Duke memorandum authored by Duke's General Manager for Community Relations, entitled "Catawba Information Programs." The memorandum reports on Duke's public acceptance efforts, which focus on issues admitted in some form as contentions. It states that media efforts are "designed to humanize the plant." A number of its community programs were reported to have focused on the emergency planning zone for Catawba. Examples of activities included, "[w]e let people know the sirens were going in and what their purpose was." Emergency planning matters, presented at thirteen meetings, were handled by Duke staff with presentations made by county and State emergency planning personnel. Various public relations activities were also reported upon. The memorandum stated that opinion researching in the facility emergency planning zone "confirmed the success of our Catawba information programs" (Int. Ex. EP-7, at 5). In further support

of their position, Intervenors rely on a statement made in a brochure, by Michael E. Bolch, the Emergency Preparedness Coordinator for the Catawba Nuclear Station, that "[t]he possibilities of us ever having a serious problem are very, very low — but they're not zero . . . that . . . is why we have an extensive emergency plan for this plant." Intervenors assert that Applicants unduly emphasize Duke being a good neighbor rather than providing effectively communicated information on emergency preparedness.

34. Marvin Chernoff, a subpoenaed witness of Intervenors who was responsible for Duke's opinion research, found that Catawba EPZ residents are less concerned about radiation effects and the possibility of a radiological accident than the general population as a whole. He felt the residents are "comfortable with the information in support of Duke" (Tr. 4304-05, Chernoff 6/7/84).

35. Rather than accepting Intervenors' interpretation that the residents have been "lulled into a sense of false security" by Duke, Applicants' position is that the Catawba EPZ residents have sufficient information to be reassured that if there were an accident, the officials involved know what they're doing about helping to protect the people (Tr. 4521, Turnipseed 6/8/84).

36. We see nothing nefarious in Applicants' seeking to find acceptance with the affected populace through public information programs which relied heavily on public relations but also have an edifying content. It would be rather unusual to expect Duke to want to exist in a community where there was acrimony and hostility rather than accord and harmony. Fully accepting Mr. Chernoff's public opinion findings, we have no reason to conclude that Applicants, through design or otherwise, undertook a program to destabilize and undermine the public information and education plan required to be provided to the public by Commission regulation. We find on the evidence of record, the required information and education plan, except to the extent noted, has been made available to the public in accordance with the applicable law. We find no support for the claim that the public has been lulled into a false sense of security which has reduced the likelihood of an effective response in the event of an actual accident. Intervenors' allegations are belied by Applicants' continuing effort to improve its program, including making revisions, in response to Intervenors' criticisms. Intervenors' citing Applicants' Emergency Planning Coordinator that a nuclear accident is possible and that there is an extensive emergency plan for the plant is not consistent with the argument that emergency planning and education are being denigrated, but to the contrary indicates its significance.

37. Intervenors criticize North Carolina for not utilizing the means called for in its plan for getting out required educational information. There are nine methods provided, ranging from the Catawba Nuclear Station Emergency Brochure to programs presented to civic organizations. The plan provides that the means used "may include, but not necessarily be limited" to the nine specified (IV.D.2). The plan further provides, "State and local governments and Duke Power Company share a joint responsibility for disseminating this type of information. Duke Power Company will serve as the managing agency for the production and distribution of the brochure" (*id.*).

38. We find as FEMA did, North Carolina is following the requirements of its plan. Under the plan it need not follow any number of the means listed. It has opted to use the Catawba brochure as its principal medium. North Carolina has input in its content so that it is a collaborative effort. As we have found, except for transients, the brochure provides the required educational information under the regulations.

39. The State of North Carolina uses other methods for providing education and information to the public. It prepared and distributes an all-hazards brochure entitled "Disaster and What to Do to Protect Yourself," which has a segment on nuclear power plant emergencies (App. Ex. EP-12). The Division of Emergency Preparedness participates in various educational programs presented to civic organizations and interested groups. There are radio and television interviews of State emergency planning officials (Tr. 293, 295-96, Pugh 5/2/84). Emergency planning is an ongoing process, which the State of North Carolina recognizes. It is in the process of hiring a full-time public information officer, who will expand public information efforts (App. Ex. EP-7, Pugh at 6; Tr. 532, Pugh 5/3/84). We find the North Carolina plans for providing information and education on emergency planning satisfactory and that they are being fulfilled adequately.

40. Intervenors find the South Carolina plans adequate but complain there is no evidence of real effort at implementation. Like North Carolina we find South Carolina meets the regulatory requirements. It too relies primarily on the brochure which is permissible. For farmers, they distribute a brochure that contains information on protective action that should be taken for livestock and agricultural commodities in the event of a radiological release (App. Ex. EP-10). A FEMA booklet, "In time of Emergency; A Citizen's Handbook on Nuclear Attacks and National Disasters" (App. Ex. EP-11) is distributed to the counties (Tr. 316-17, McSwain 5/2/84). Planning officials participate in annual press briefings to provide information on emergency planning exercises (Tr. 4514-16,

Turnipseed 6/8/84). State officials have attended public meetings sponsored by Duke, previously referred to. The Chief Area Coordinator of the Emergency Preparedness Division and the Public Information Officer for the Division of Public Safety in the South Carolina Governor's Office each agree that not enough has been done and that it requires a continuing effort (App. Ex. EP-7, Lunsford at 16; Tr. 223-24, Lunsford 5/1/84; Tr. 4530-31, Turnipseed 6/8/84). There is no reason to doubt that the State of South Carolina will not continue in its efforts to continually improve implementation of its plans.

41. We likewise find, as FEMA found, that public information and efforts at the county level fulfill the regulatory requirements. The counties also rely heavily on the brochure, which is acceptable. Their planning officials speak to interested groups. They publicize planning efforts on radiological response in local newspapers. They respond to requests by the public for information (App. Ex. EP-7, Phillips at 5, 7, Broome at 7-8, Thomas at 6). The efforts are commensurate with the local government responsibilities. There is no requirement that they each formulate and implement a wholly separate and independent program.

42. Philip Layne Rutledge, who has assisted CESG in other licensing proceedings and is informed in the area of emergency planning, was permitted to testify regarding recommendations for improving Catawba emergency planning (Int. Ex. EP-38, page titled *Recommendations*; Tr. 1788, Rutledge 5/10/84). His first recommendation is that a public committee be established to perform most of the public information functions now performed largely by Duke. His second recommendation is that the funds Duke spends on public education planning be placed in a "community chest," the use of which would be determined by a public committee. The Commission's regulations place responsibility on Applicants for emergency plans. *See* Part 50, Appendix E, § IV.D.2. There is no basis, legal or otherwise, to place authority in public bodies to carry out emergency planning activities and use Applicants' funds to do it, where Applicants have the responsibilities regarding those functions. The recommendations if implemented would result in a violation of fundamental rights and are without merit.

43. As to the third recommendation, Mr. Rutledge is concerned that the brochure might be misplaced or lost and suggests that a better medium would be a poster that could be hung in a permanent location where it can always be found. The record fails to indicate that possible misplacement or loss of the brochure will present a problem. There is no reason given why the brochure cannot be kept in a permanent location. The question of whether the necessary message would fit on a poster was not addressed. We find no basis to support the recommendation.

44. The fourth recommendation is that there is a clear need to strengthen the involvement of educational groups, civic groups and the media in disseminating information. An example given is to have the media repeat pertinent public service announcements. We have found that existing public information and educational efforts meet regulatory standards. Our function is not to review measures that might be taken which exceed the Commission's standards. It is up to Applicants and State and local governments to decide in what way they might enhance the current program. They are free on a voluntary basis to incorporate into the program whatever they may wish from the recommendation.

45. The last recommendation is that emergency plans should be reviewed and updated annually using results of surveys performed by an independent research firm responsible to a public body. The action that Mr. Rutledge recommends as to using surveys in the manner described to update the program is beyond the requirements of NRC regulations. Again it is not our function to review such measures. Applicants, State and local governments can on a voluntary basis decide on whether to employ survey information to revise existing programs, which we have found meet regulatory standards.

46. Except to the extent found in ¶¶ 21, 30, 31 and 32, *supra*, we find the Catawba offsite emergency planning for public information and education is in conformity with regulatory requirements, and Intervenors' Contentions 1 and 7 are without merit.

B. Intervenors' Emergency Planning Contention 3 — Adequacy of Food, Clothing, Bedding and Shelters

1. EPC-3 reads as follows:

> The Emergency Plans do not provide for adequate emergency facilities and equipment to support the emergency response as required by 10 C.F.R. 50.47(b)(8) in that:
>
> a) the plans do not provide for sufficient uncontaminated food, clothing, and bedding for persons who are evacuated. The plan does not attempt to estimate these needs nor provide specific information on how they are to be met.
>
> b) The plans do not demonstrate the unlikely proposition that just 14 reception centers/shelters are adequate to register and process some 75,000 evacuees. Indeed, the Catawba Nuclear Station Site Specific Plan (Part 4, SCORERP) provides that "all evacuees, both those ordered and those spontaneous, will be processed through their respective reception centers" (p. B-2). With no clear plan for controlling entry and exit from the reception centers, and no restrictions on who may enter, it is very likely that reception centers will

become overcrowded. Persons from outside the evacuation area will be understandably concerned about whether or not they have been exposed to radiation and might well proceed to a nearby reception center — exacerbating problems of crowding that already loom as serious given the enormity of the task of processing EPZ evacuees at reception centers with limited space and supplies.

2. The contention raises two basic concerns: First, the alleged absence of planning for provision of the specified "food, clothing, and bedding" to be utilized in the shelters in the event of an evacuation; and, second, the alleged inadequacy of the plans to provide for reception centers or shelters which can accommodate the registration, monitoring, decontamination and housing of the large numbers of persons who may evacuate upon instructions or spontaneously in the event of an accident at Catawba.[6]

3. The initial plans had proposed fourteen designated reception centers to process evacuees, which the contention raised as an issue. The reception center concept was then abandoned and instead evacuees will be directed immediately to thirty-eight primary shelters. It is estimated that these shelters can accommodate the entire population of the Catawba plume EPZ, from 70,000 to 80,000 people (App. Ex. EP-13, Pugh at 9). In addition, over 100 secondary shelters have been identified in the plans as well, which would be called upon if necessary (*id.*, McSwain at 11-12).

4. Under both the North and South Carolina plans, which address providing food, clothing and bedding to evacuees (App. Ex. EP-13, Pugh at 4-5, Gregory and McSwain at 2-3), the items will not be stored at the shelters on an ongoing basis. The supplies will be called upon as needed from the Red Cross, the Salvation Army and existing stocks controlled by the county, State, and/or federal governments (*id.*). The plans are not limited to providing for a specific number of people or a sheltering period of a specific duration (Tr. 688-89, 697, 750-51, Johnson 5/3/84). The plans provide that, should the situation develop that more supplies are required, they can be drawn from more distant areas. (Tr. 664, Neves 5/3/84). We find the plans to be adequate and are convinced there should be sufficient supplies of uncontaminated food, bedding and clothing at the emergency shelters designated for a Catawba emergency.

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[6] In raising Contention 3, Intervenors challenge compliance with 10 C.F.R. § 50.47(b)(8) which states: "Adequate emergency facilities and equipment to support the emergency response are provided and maintained." The areas deemed by NUREG-0654 to be covered by this requirement include, in pertinent part, provision for timely activation and staffing of the facilities and centers described in the plan, and the listing and maintenance of emergency equipment and instruments.

5. The witnesses testifying on the emergency evacuation and sheltering issues are highly qualified in the areas of providing disaster relief and very credible in their testimony. The Red Cross Disaster Specialist called to testify by the Applicants, Dennis Johnson, was personally involved in the sheltering of 52,000 refugees in a war in Nicaragua. The testimony of the witnesses was supported by specific figures as to the quantities of supplies that could be provided in an emergency situation. There is no reason of record to doubt the accuracy of the quantities involved or that they could be provided.

6. Under the State plans the primary foodstuffs would come from school lunch supplies located at the schools and in warehouses. This would be immediately available. Additional sources can be drawn from the Red Cross, the North Carolina Department of Corrections and commercial warehouses (App. Ex. EP-13, Neves and Pugh at 4-6, Gregory and McSwain at 2-4).

7. The State plans call for bedding to be supplied by the Red Cross. Large supplies of cots and blankets could be supplied immediately. All evacuees may not have a cot on the first day but we agree with the Red Cross that it is not necessary for all evacuees to have a cot immediately for the plan to be viable and adequate (*id.*, Johnson at 7-8).

8. The Salvation Army, under the State plans, will provide clothing to those persons who have become contaminated. The Salvation Army can clothe up to 75,000 people in 48 hours (*id.*, Needham at 3).

9. The arrangements already made for food, bedding and clothing will reasonably satisfy the needs of the 70,000 to 80,000 people that may be evacuated. We are convinced, based on the experience and expertise of the witnesses in disaster relief, that should additional supplies be needed they can be promptly located and made available (Tr. 750-51, Johnson 5/3/84; App. Ex. EP-13, Pugh and Neves at 8, Gregory at 6-8).

10. We find as did FEMA that the 38 primary relocation centers, which are capable of servicing the populace of the plume EPZ, and the 100 secondary centers are sufficient to accommodate the number of people expected to seek shelter (Staff Ex. EP-2, Heard and Hawkins at 9). Intervenors expressed concern about individuals outside of the planning areas who might evacuate to the shelters even if told not to do so. The Red Cross disaster specialist found the "shadow effect" hypothesis contrary to his experience. In his opinion, people in a disaster follow instructions (Tr. 725-27, Johnson 5/3/84). FEMA's experience is that approximately 20% of the people who evacuate actually seek shelter at the public facilities (Staff Ex. EP-2, Heard and Hawkins at 9). The witness from the Red Cross confirmed this (Tr. 717, Johnson 5/3/84). Even if the "shadow effect" exists, although the record is to the contrary, there

are ample sheltering facilities for all of those who can reasonably be expected to evacuate, including all of those from the plume EPZ.

11. FEMA has reviewed the plans submitted for the Catawba facility and found them to be adequate under NUREG-0654, which requires that the means for registering and monitoring evacuees at shelters be described (Staff Ex. EP-2, Heard and Hawkins at 10). The Red Cross in conjunction with the North and South Carolina Departments of Social Services, will have responsibility for administration of the shelters related to Catawba (App. Ex. EP-13, Pugh at 10, Gregory and Lunsford at 9). We agree that the planning conforms to the regulatory requirements.

12. Responsibility for the operations of the shelters in North and South Carolina will be that of the Red Cross, except in Union County, North Carolina, where the county has the lead role (Tr. 699-701, 728, Johnson 5/3/84). In North and South Carolina, State and county officials selected the shelters based on FEMA standards. The Red Cross standards are somewhat more stringent and will be employed for final site selection. As a result of the differing standards, shelters in York County were eliminated from the list because of inadequate showers. If any facilities are eliminated, as has occurred, others will be located and added to the list.[7] The Red Cross review has confirmed the shelter selection in Mecklenburg Counties, and the review of all shelters should be completed by the end of the year, if possible (App. Ex. EP-13, Johnson at 12-14, Gregory at 13; Tr. 735-36, Johnson 5/3/84).

13. Considering that the shelters already designated meet FEMA standards and that an upgrading is in the process, where needed, to assure that they will meet the Red Cross standard, we are satisfied that adequate facilities will be available to properly shelter any affected populace. Under *Fermi,* ALAB-730, *supra,* and *Waterford,* ALAB-732, *supra,* the emergency plans need not be complete or fully implemented before we make our finding.

14. Intervenors claim that the planning for employing shelters will not be carried out effectively, is not founded on convincing evidence and is without merit. The few examples given to support Intervenors' allegations are not of material significance. The Red Cross Shelter Coordinator for York County was not made aware of her assigned tasks until the January 1984 revision of the York County plan had been published (Tr. 4463-64, Anderson 6/8/84). In carrying out her duties she found the York County shelters did not meet Red Cross guidelines (*id.,* Tr.

[7] Applicants' post-hearing listing and maps show a total of 33 primary shelters and 103 secondary shelters. There are 30 primary sites in South Carolina and 3 primary sites in North Carolina (App. Ex. EP-22).

4465-67). The 1984 brochure listed four York County shelters as being available for use (App. Ex. EP-5, at 13). The January 1984 revision of the Mecklenburg County, North Carolina plan, placed in evidence, shows the University of North Carolina, at Charlotte, to have 20,100 designated shelter spaces (App. Ex. EP-1, pt. 3, at 34). The Red Cross had rated the facility as having space for only 5000 evacuees, when it reviewed the matter 2 years earlier in connection with another matter (Tr. 4474-81, Long 6/8/84).

15. The planning for the facility is in an early shakedown stage. It must be expected that not everything will go perfectly at the start. What has occurred has not established any major flaw and what did happen is correctable and is being corrected. The Red Cross Coordinator for York County is working very effectively. She eliminated from use the facilities that will not meet the higher Red Cross standards. The fact that four shelters were listed in the January 1984 brochure that should not have been can be corrected in the September 1984 brochure. Responsible officials will direct away any individuals that might seek out the York County facilities, despite the change in the brochure (Tr. 830-34, Gregory 5/4/84). Despite the incorrect listing of the capacity of the University of North Carolina, at Charlotte, there are enough spaces available for the County's affected population of 7000. There are more than twenty additional shelters that can be activated in Mecklenburg County, if necessary (Tr. 851-52, Pugh and Broome 5/4/84; Tr. 4482-84, Long and Anderson 6/8/84). The deficiencies that were disclosed were magnified out of proportion to their importance.

16. Staffing and logistical requirements for sheltering have been planned for and should be adequately met. Red Cross shelter managers will have received Red Cross shelter management training. Shelters will be staffed by a combination of Red Cross, State and volunteer personnel. Training of these individuals is not an important factor because the Red Cross is experienced in utilizing volunteers with little or no experience (App. Ex. EP-13, Johnson at 9-10). Red Cross procedures will be followed for registration. It will require approximately 2 minutes to register a person and 3½ for a family of four (*id.* at 15). There should be adequate staff to register the number of evacuees within required time limits. If additional staff is required to overcome bottlenecks, they will be found and put on the job, i.e., early evacuees can be used to assist in registration and shelter operations (App. Ex. EP-13, Pugh at 10). We find the registration of evacuees should not hinder the functioning of shelters.

17. Monitoring and decontamination will be performed at each of the thirty-eight shelters, which will be prior to registration. The proce-

dures have been prepared and are ready for implementation. Trained personnel will be provided by the counties (Tr. 702, Johnson 5/3/84). Supplies necessary for decontamination at the shelters are soap, water and towels, all of which are obtainable. The equipment necessary for monitoring has been identified and will be provided (App. Ex. EP-13, McSwain at 10). Sufficient personnel and equipment should be available to assure that evacuees are monitored within 12 hours (Tr. 803-04, Gregory 5/4/84). *See* Findings C.6 to C.10, *infra*. If there is any significant buildup of evacuees waiting to be monitored they can be sent to another facility (Tr. 703, Johnson 5/3/84).

18. Based on the foregoing findings of fact we conclude that Emergency Planning Contention 3 is without merit. Adequate provision has been made to give us reasonable assurance that sufficient uncontaminated food, clothing, and bedding will be available promptly at shelters in the event of an emergency. The 38 designated primary shelters and 100 secondary shelters should assure that there is adequate sheltering space for all who would call upon it for use. The Staff and equipment at shelters should also prove adequate to complete necessary registration, monitoring and decontamination functions without undue delay.

C. Intervenors' Emergency Planning Contention 6 — Preventing Contaminated Persons from Entering Noncontaminated Zones

1. EPC-6 provides as follows:

> The emergency plans do not provide reasonable assurance that adequate protective measures can and will be taken [10 C.F.R. 50.47(a)(1)] in that:
>
> > There are no adequate provisions for preventing contaminated persons from entering a noncontaminated zone. The plans do not make clear whether or not registration at a reception center/shelter is mandatory or not; if mandatory, by what procedures will it be enforced and what effect will these procedures have on evacuation times and traffic flow?

2. The issues raised by the contention are whether the emergency plans are adequate for preventing contaminated persons from entering a noncontaminated zone, whether adequate personnel and equipment will be available to perform decontamination functions and whether it can be accomplished without adversely affecting evacuation times and traffic flow. Intervenors' participation on the contention was to rely upon cross-examination. In the proposed findings they remain skeptical on the assurances given in the testimony that the tasks can be accomplished. We arrive at a different conclusion than that of Intervenors.

3. FEMA witnesses noted that NUREG-0654 has no requirement for offsite plans to contain provisions for preventing contaminated persons from entering noncontaminated zones or that registration at shelters be mandatory (Staff Ex. EP-2, Heard and Hawkins at 12). Information is provided to the public through the brochure about the need of going to the shelters, registering and being decontaminated (App. Ex. EP-5, at 4, 10). The information will be further provided through EBS messages (App. Ex. EP-14, McSwain at 1).

4. The expert opinion of several experienced emergency specialists is that the public will follow procedures for registration at shelters and for preventing contaminated persons from entering a noncontaminated zone (App. Ex. EP-14, Brown and Pugh at 3-4, Broome at 2, Thomas at 1; App. Ex. EP-13, Johnson at 2-3).

5. North and South Carolina emergency plans are designed to assure that evacuees will report to shelters to be monitored for possible contamination. In the event of an evacuation, personnel at checkpoints would monitor the vehicles and passengers and advise people to go to a shelter for further monitoring and registration (App. Ex. EP-14, Brown and Pugh at 3-4). Procedures to be followed at the shelter will keep contaminated persons from associating with the general population and keep from spreading contamination. Contaminated vehicles will be washed down for decontamination (App. Ex. EP-14, Broome at 1-2, McSwain at 2). Once an area has been evacuated, all persons would be monitored when entering and leaving the evacuated area (Tr. 915-16, Brown 5/4/84). The measures to be taken should result in keeping the rational individuals, who may be contaminated, from entering a noncontaminated zone. That is the recognized planning objective. *Compare San Onofre*, CLI-83-10, *supra*.

6. The testimony of North and South Carolina emergency planning personnel indicate that there will be a sufficient number of trained personnel and sufficient instrumentation available to screen all contaminated individuals and their possessions at the shelters (App. Ex. EP-14, McSwain at 2, Brown and Pugh at 4-5; Tr. 977, Pugh 5/8/84; Tr. 975, McSwain 5/8/84).

7. South Carolina has large stocks of monitoring equipment available to it in addition to that in the counties in and adjacent to the plume EPZ (App. Ex. EP-14, McSwain at 2-3). Additional equipment can be acquired from other States (Tr. 2882-83, Lunsford and Harris 6/5/84). In North Carolina there are stocks of monitoring equipment in Gaston and Mecklenburg Counties. The State Highway Patrol has monitoring equipment in its cars (Tr. 976, Pugh 5/5/84).

8. There is reasonable assurance that the monitoring equipment will be operated by properly trained personnel. Existing numbers of monitors in the involved counties are Mecklenburg, 300 to 350; Gaston County, approximately 110; and York County, about 100 (Tr. 926, Phillips and Broome 5/4/84; Tr. 951, Thomas 5/4/84). Gaston County expects to have a minimum of twelve persons at each shelter to monitor, with the capability of increasing the number to twenty-four. There are ongoing training programs for monitors in the States and counties involved (App. Ex. EP-14, Brown and Pugh at 5-6, McSwain at 3, Phillips at 2; Tr. 987, Pugh 5/4/84). Additional resources could be provided by neighboring counties or States (Tr. 981, Phillips 5/4/84; Tr. 984, McSwain and Brown 5/4/84). *See also* Findings B.9 and B.17, *supra*.

9. From the testimony of Bob E. Phillips, Director of the Gaston County Emergency Management Agency, on May 4, 1984, we are satisfied that Gaston County will provide necessary monitoring in an emergency. Because based on the February 1984 exercise evaluation, FEMA found that more staff trained in monitoring and decontamination procedures is needed for Gaston County (Staff Ex. EP-3, FEMA Interim Findings at 12), and the matter was not resolved of record, we direct that Applicants confirm to FEMA and the Staff that this matter has been addressed. The action that we order be taken does not involve a matter of sufficient consequence to the planning that we make it a basis for a licensing condition.

10. Registration at shelters is not expected to affect evacuation times and traffic flow since shelters are located outside the EPZ (Staff Ex. EP-2, Heard and Hawkins at 12). It is not anticipated that procedures for screening individuals, their possessions and their automobiles for possible contamination will have any significant adverse effect on traffic flow or evacuation times (App. Ex. EP-14, Brown and Pugh at 6-7, McSwain at 3-4, Phillips at 3). Having people go to shelters to be checked for radioactive contamination and to be decontaminated, if needed, should not have more than minimal impact on evacuation time and traffic flows since the evacuation time study makes the assumption that everyone who is a willing evacuee goes to a shelter (*id.*, Glover at 2).

11. After review of all of the evidence, we conclude that Intervenors' EP-6 is without merit. We find that there is adequate provision to prevent contaminated vehicles and evacuees from going into noncontaminated zones. We further find that traffic control measures designed to monitor for contamination and to route evacuees to shelters will not significantly impede traffic flow or evacuation times.

D. Intervenors' Emergency Planning Contention 8 — Coordination of Emergency Response Activities

1. Intervenors' EPC-8 reads as follows:

> There is no reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency in that the emergency plans of Applicants, the States of North Carolina and South Carolina, and the counties of Mecklenburg, Gaston and York fail to assign clear and effective primary responsibilities for emergency response and fail to establish specific responsibilities of the various supporting organizations. Conflict, confusion and lack of coordination are likely to prevail. Conditions may be the worst during the 7 to 8 hours after notification of state authorities of the existence of an accident at the Catawba Station while the North Carolina State Emergency Response Team (SERT) assembles and travels from Raleigh to the South Carolina Forward Emergency Operations Center (FEOC), located dangerously within the 10 miles EPZ at Clover, South Carolina.
>
> The FEOC itself would require at least three and one-half hours to be assembled and staffed from Columbia, South Carolina. While the formal authority to order evacuation of the plume exposure pathway EPZ straddling the North Carolina-South Carolina border rests with the respective state governors, a confusing and ineffective array of consultative and delegative authority appears to cloud the lines of primary responsibility. The residual responsibilities of the respective County governments, agencies and the support organizations are either unspecified or inadequate to the task of effective protective response.

2. In admitting the contention the Board ruled that the first few sentences were introductory and that it substantively started with the third sentence (S. Tr. 1088, Kelley, J., 8/8/83).

3. As provided in 10 C.F.R. § 50.47(b)(1), offsite emergency planning must meet the following standard:

> Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

Planning Standard II.A of NUREG-0654 repeats the above. Evaluation criteria include the following:

> 1.a. Each plan shall identify the State, local, federal and private sector organizations (including utilities), that are intended to be part of the overall response organization for Emergency Planning Zones. (*See* Appendix 5).
>
> b. Each organization and suborganization having an operational role shall specify its concept of operations, and its relationship to the total effort.

2.a. Each organization shall specify the functions and responsibilities for major elements and key individuals by title . . . The description of these functions shall include a clear and concise summary such as a table of primary and support responsibilities . . .

b. Each plan shall contain (by reference to specific acts, codes or statutes) the legal basis for such authorities.

Appendix 5 of NUREG-0654, a *Glossary,* provides the following under *State* organizations:

There may be more than one State involved, resulting in application of the evaluation criteria separately to more than one state. To the extent possible, however, one state should be designated lead.

4. FEMA found that the emergency plans of the States of North Carolina and South Carolina and the counties of Mecklenburg, Gaston and York assign clear and effective primary responsibilities for emergency response and specific responsibility of the various supporting organizations (Staff Ex. EP-2, Heard and Hawkins at 15). FEMA conducted an exercise testing the Catawba emergency planning in February 1984 and found that the assignment of responsibilities worked well (*id.*). FEMA officials further found that North and South Carolina worked effectively together and demonstrated an efficient and cooperative relationship throughout the planning and implementation of the exercise (Tr. 1660-63, Heard and Hawkins 5/9/84).

5. Intervenors contend that the exercise selected by FEMA was an ineffective test of the abilities of the authorities to respond because it involved a gradually unfolding incident with a minor release of radiation occurring on the second day and only involved Gaston County and not Mecklenburg County in North Carolina. Further, the Forward Emergency Operations Center (FEOC) for the South Carolina Emergency Response Team (SERT) had been set up at the Clover, South Carolina Armory in advance of the exercise.

6. We do not find the FEMA exercise inadequate to test the effectiveness of the Catawba emergency plan. Although the test was not as severe as Intervenors would have liked it to be, it presented a reasonable accident scenario. It would have been more realistic had the FEOC not been set up in advance of the exercise, but we find acceptable FEMA's satisfaction with this aspect of the exercise on the basis that the State of South Carolina had on at least three occasions previously demonstrated its capability of moving out of Columbia, South Carolina, to a forward armory to be used as a command center (Tr. 1643-44, Heard 5/9/84).

7. Nothing Intervenors have presented rebuts the FEMA findings on the adequacy of the State and county plans assigning clear and effective primary responsibilities for emergency response and specific responsibility to the various supporting agencies and the plans' workability in an actual test.

8. Intervenors' first charge is that primary and supporting emergency roles are not clearly and effectively delineated during the initial period after a radiological accident, before the South Carolina Forward Emergency Operations Center (FEOC) and the North Carolina State Emergency Response Team (SERT) headquarters are established. Intervenors' contention indicates that SERT is to assemble and travel to the South Carolina FEOC. This is not part of the plan. It is asserted that conditions of conflict, confusion and lack of coordination may be the worst during the 7 to 9 hours after notification of State authorities of the existence of an accident at the Catawba facility. The evidence of record is contrary to Intervenors' allegation.

9. In the event of a radiological emergency at Catawba the plant will notify the States of South and North Carolina and the counties of York, Gaston and Mecklenburg. Procedures for alerting State agencies are set forth in the South Carolina plan (App. Ex. EP-2, SCORERP, at 21-22). The State Emergency Operations Center (SEOC), which coordinates the offsite emergency response activities of State agencies, local governments, federal agencies and contiguous States, would be activated in Columbia, South Carolina. The field command headquarters, FEOC, would be dispatched to the Clover National Guard Armory, which is at the periphery of the 10-mile plume EPZ (App. Ex. EP-21, Lunsford and McSwain at 3-5). It is anticipated it will take 3½ hours to become operational (*id.* at 4-5). Once the FEOC is established, the role of the SEOC will be to support the FEOC (App. Ex. EP-2, at 22; App. Ex. EP-21, Lunsford and McSwain at 9).

10. Upon notification by the plant, the Director of the Division of Emergency Management of North Carolina would activate the State Emergency Operations Center (EOC) in Raleigh and notify members of the State Emergency Response Team (SERT) to assemble. SERT would then travel to its field command post at the North Carolina Air National Guard Headquarters at Douglas Airport in Charlotte, North Carolina. The estimated time required to complete activation of the SERT field command post is 7 to 9 hours (App. Ex. EP-1, at 4).

11. A joint field post for North and South Carolina officials is not feasible because of the large number of people involved (Tr. 2977-80, Harris, Lunsford and McSwain 6/5/84). To ensure coordination of the States' emergency response efforts, North Carolina will have a liaison in

the FEOC in Clover, South Carolina, and there will be a representative of South Carolina at SERT headquarters in Charlotte (Tr. 3948-49, Sanders 6/6/84).

12. Intervenors raised for the first time, in their proposed findings, Appendix 5 of NUREG-0654, which states "to the extent possible, however, one state should be designated lead." The record fails to establish any need for this to be done in the North Carolina-South Carolina plans. The two States have elected instead to act in a coordinated manner, with a representative in each other's command post. The coordination worked well during the February exercise. *See* FEMA's comments above. We do not find the failure to designate a lead State to be a breach of the regulatory guidance, so that a change would be required in their procedures. The guideline is not absolute but permissive in nature.

13. Until such time as the FEOC is operational in South Carolina, and before SERT begins operations at Douglas Airport in Charlotte, emergency response officials in the counties in the respective States have primary responsibility for offsite response (App. Ex. EP-21, Pugh and Harris at 4-5, Lunsford and McSwain at 9, Phillips at 2, Broome at 1-2). County officials, operating out of their individual Emergency Operations Centers (EOCs), have the authority and responsibility to implement protective actions for the respective counties (*id.*, Pugh and Harris at 4-5). During this time, the counties have access to State resources, if needed, and State emergency personnel (*id.*, Lunsford, McSwain, Pugh and Harris at 5).

14. In North Carolina, primary responsibility for offsite emergency response shifts from Gaston and Mecklenburg Counties once the SERT is established and is ready to assume its role. SERT then directs State agency participation in emergency operations and coordinates actions involving State and county agencies (App. Ex. EP-21, Pugh and Harris at 4; Tr. 3000-01, 3020, Harris 6/5/84). There need not be a declaration of emergency by the Governor for SERT to assume control (Tr. 3000-01, Harris 6/5/84; Tr. 4214A-15, Pugh 6/7/84).

15. In South Carolina the shift of primary authority from York County to the State is accomplished by the Governor's declaration of an emergency (Tr. 3005-06, Lunsford 6/5/84). Prior to this point, State officials would have been working to ready the SEOC in Columbia for operation and would have dispatched the FEOC to Clover. Once adequate State resources are in place and are operational, the Governor would declare the emergency. The declaration formally establishes the SEOC and the FEOC (Tr. 3006, McSwain 6/5/84; App. Ex. EP-21,

Lunsford and McSwain at 9). However the FEOC may not yet be operational at this point.

16. County emergency management officials confirmed that the responsibilities of county departments, agencies and support organizations are clearly assigned, understood by those involved, and the resources are available to carry out those responsibilities. (App. Ex. EP-21, Phillips at 1-2, Broome at 1, 5-8, Thomas at 1-2, 5-6). State officials found that county organizations with support responsibilities know what they are supposed to do, as well as who is in charge (Tr. 4235-36, Pugh 6/7/84; Tr. 3962, Sanders 6/6/84). These evaluations were borne out by these officials' observations that, during the February exercise, the various State and county organizations worked together without confusion as to who was in charge, and who was responsible for what (Tr. 3049-50, Harris, Broome, Phillips, McSwain, Lunsford, Thomas 6/5/84).

17. Sheriff J. Elbert Pope was subpoenaed by Intervenors to testify on his responsibilities in a radiological emergency. Sheriff Pope testified that he had delegated his responsibilities in this area to his Chief Deputy (Tr. 3969, 3978, 3980-81, 3984, Pope 6/6/84), who had in turn familiarized himself with the York County plan, attended various meetings with other county emergency response personnel, participated in the Catawba exercise, and generally assumed the lead role in the County Sheriff's Office on this matter (Tr. 3969, 3991-92, Pope 6/6/84). Accordingly, Sheriff Pope's personal knowledge of the plan's details and specific procedures was limited. Sheriff Pope corroborated earlier testimony of the county's response responsibilities in the event of a radiological emergency. He specified what the primary responsibilities of the Sheriff's Office would be in the event of an accident at Catawba (Tr. 3972-73, 3980, 3988, Pope 6/6/84). Sheriff Pope testified that his department had not noticed any confusion or lack of coordination during the Catawba exercise as to lines of authority or communications between State and county officials (Tr. 3986, Pope 6/6/84). This record shows that the York County Sheriff's Department is adequately prepared to function effectively in accordance with the York County Emergency Plans.

18. The foregoing establishes that the offsite emergency plans for Catawba satisfy [illegible]pplicable planning standards in that the plans provide clear and [illegible]ffective assignments of primary and support responsibility. There is nothing to support Intervenors' assertions that the assignments of responsibility and coordination of emergency response activities would be at the weakest during the first hours after a radiological accident at Catawba. The roles of the counties and States are clearly set forth as well as when they are to be exercised. No inadequacies were established as to the ability of each of the entities to fulfill the planning re-

quirements right from the start. The Board further finds based on the foregoing evidence that support responsibilities of the counties have been clearly assigned and that there is reasonable assurance that they will be effective for protective action response.

19. Another claim of Intervenors is that there is a confusing and ineffective array of consultative and delegative authority that appears to cloud the lines of primary responsibility. We find lack of merit in this allegation. The authorities enabling the counties and States to take necessary protective actions under the plans are readily understandable so that the operations can be conducted effectively.

20. Proof of lack of substance of the claim is that existing authorities in the plans permitted the carrying out of a successful exercise in February 1984. As discussed above, this was confirmed by State and county emergency response personnel as well as FEMA officials. In addition North Carolina officials pointed out that their respective plans have both been used in exercises for various nuclear power plants within the States, and have thus been "critiqued and fine tuned many times in the past" (App. Ex. EP-21, Pugh and Harris at 3).

21. Because the plans have been successfully tested, Intervenors' criticisms are more academic than substantive. One of their areas of concern is the delegation within the Office of the Governor of South Carolina. Under the State Constitution and by statute, the Governor has ultimate responsibility for decisions within the State in the event of man-made or national disasters. He alone has legal authority to "direct and compel" evacuation (App. Ex. EP-2, SCORERP, § I.B.3, at 1; Tr. 2935-36, 2942, Lunsford 6/5/84; Tr. 3099, Sanders 6/6/84). He has delegated to the Director of the Division of Public Safety, Frank B. Sanders, the authority to order (but not compel) evacuations. The Division of Public Safety is a unit within the Office of the Governor and SCORERP states that the Office of the Governor has the task of ordering evacuations (App. Ex. EP-2, SCORERP, at 1).

22. Intervenors raise as an issue whether the Office of the Governor is legally empowered to exercise the command and control responsibilities assigned to it under the South Carolina plan. In effect Intervenors are requesting us to legally interpret the State Constitution and a South Carolina statute to determine if the Office of the Governor is acting lawfully. That is not our function nor is it necessary for deciding the emergency planning issue at hand. Section II.A.2.b of NUREG-0654 only requires that the plan contain, by reference to specific acts, codes or statutes, the legal basis for such authorities. No legal interpretations by this Commission are called for. There is a presumption that State officials are carrying out their duties in a proper and lawful manner. If Inter-

venors question that, they should seek a more appropriate forum than this licensing proceeding. We conclude on the record before us that the Office of the Governor can exercise the command and control responsibilities assigned to it under the South Carolina plan. Furthermore, the Office of the Governor of the State of South Carolina readily functions effectively during emergencies under existing delegations as it has done recently in instances caused by tornados and a threatened dam rupture (Tr. 3923-35, 3965-66, Sanders 6/6/84). There has been a similar delegation by the Governor of North Carolina and for the same reason we make the same finding as to the adequacy of the assignment of command and control responsibilities in North Carolina and the sufficiency of the North Carolina plan in regard to it. The State of North Carolina also responds effectively under the existing delegation as it did during recent tornados (Tr. 4214A-20, Pugh 6/7/84).

23. Intervenors note that SCORERP makes no reference to the existence of the Division of Public Safety and the assignment to it of responsibility for ordering an evacuation. Neither does it name key individuals by title. Although this does not prevent a finding of substantial compliance with Planning Standard II.A, because the Division is a unit within the Office of the Governor, we believe the matter should be clarified in SCORERP and therefore direct Applicants to supply changes to the State plan, to FEMA and Staff.

24. No one disputes the authority of the Governor of South Carolina to "direct and compel" an evacuation and the Governor of North Carolina, with the concurrence of the Council of State, to do the same. It is understood that the ability to compel empowers the use of force and the ongoing delegations of authority by the Governors to order evacuation do not empower the subordinate officials to compel it. The thrust of Intervenors' argument appears to be that there is an attempt to bestow on the county level the authority to compel an evacuation. Local governments in North Carolina, including Gaston and Mecklenburg Counties, are authorized to issue orders of evacuation (Tr. 2988, Harris 6/5/84). The 1980 York County Ordinance provides for "directing evacuation."

25. Much examining was done about the authority of York County, as to whether it was limited to "warning or encouraging" an evacuation or "directing and ordering" it. South Carolina State emergency management officials and the emergency response official for York County all agreed, notwithstanding a differing Attorney General's opinion, that local authorities have the power to "direct and order" not simply "warn or encourage" an evacuation and that the use of the word "order" may be interpreted or perceived as being mandatory (Tr. 2968-69, 2974, Lunsford 6/5/84; Tr. 2968-69, 2975, McSwain 6/5/84; Tr. 2969-70,

2974-75, Thomas 6/5/84). At no point did anyone contend that York County could compel an evacuation.

26. The nature of the authority that the counties have in South and North Carolina in regard to evacuation is more academic than real for purposes of providing an effective emergency response. The decision-makers and emergency response personnel are clear as to what their responsibilities are and the limits of their authority during a radiological emergency, under current authorities. All recognize that they can recommend or encourage residents to evacuate but they cannot force or compel them to do so. No more authority than that given the counties is necessary to provide for an effective protective response. Even in a fast-breaking emergency, the plans do not call for the forceful removal of anyone. The counties can effectively execute their roles under existing planning and regulatory requirements by recommending or encouraging residents to evacuate. The responsibilities and authorities of the various entities are adequately set forth in the State and local plans. The States and counties know what their roles are and are equipped to respond with what is required.

27. With respect to the York County plan, Intervenors assert there is "a confusing and ineffective assignment of primary responsibility to York County officials." They point out that the 1980 York County Ordinance provides that the County Council may direct evacuation. They further note that Annex Q to the York Emergency Operations Plan, which applies to radiological accidents at Catawba, places responsibility for direction and control in: (1) the County Manager; (2) the Director, General Services; (3) the Emergency Preparedness Director; and (4) Support Services (App. Ex. EP-2, York County Plan, Annex Q, at Q-12). We find no real inconsistency in the assignment of responsibility within the emergency plan. The York County Ordinance, § III, establishes the Municipal-County Emergency Preparedness Agency as "the instrument through which the York County Council" shall exercise its authority in disasters. Responsibility for operation of the Emergency Preparedness Agency is delegated in § III of the Ordinance to the Emergency Preparedness Coordinator (Director) who is responsible to the County Manager. In an emergency the Director calls the County Manager and support staff (Tr. 4008, Dickson 6/6/84). Under the delegation the County Council would not be in charge. The Director has the necessary authority to call for an evacuation, if that is required, without a County Council meeting. The responsibility of responding to a radiological emergency rests with the County Manager (Tr. 4021-25, Dickson 6/16/84). The Board concludes that the responsibility for a radiological

emergency response in York County is adequately set out by the Ordinance and there is no conflict between the Ordinance and Annex Q to the York Emergency Operations Plan.

28. Applicants and State and local officials will be able to effectively coordinate emergency response activities through the availability of an adequate communications system. A "ring down" system is employed which avoids the use of local telephone lines. It is composed of both microwave and leased telephone circuits and has battery power as a backup. The system is like a party line and links Duke's emergency center at Charlotte, North Carolina, and Catawba, the three county EOCs, the FEOC, the SERT, the EBS control station and the Media Center in Charlotte (App. Ex. EP-21, Coleman at 2). Officials at any of the places can contact each other and will not be affected by possible overloads on the local phone system (*id.* at 3). There are also redundant communications systems that link the various centers.

29. The Board finds that the communications system will permit necessary coordination between the various State and county organizations, which helps to provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at Catawba.

30. We find that the offsite emergency response plans for Catawba satisfy the applicable regulations and guides as they bear on the issues under consideration. The plans provide clear lines of authority and the legal basis therefor, provide for the necessary coordination among the responding States and counties, and subunits thereof, and provide for adequate means of primary and backup communications to permit effective coordination and response. The action that we ordered be taken in ¶ D.23, *supra*, is for a minor clarification that does not significantly affect the adequacy of the response plans. The matters involved are not of sufficient magnitude so as to consider them the basis for licensing conditions.

E. Intervenors' Emergency Planning Contention 9 — Public Notification

1. In EPC-9 the Intervenors allege:

> The emergency plans for Catawba do not adequately provide for the early notification and clear instruction to State and local response organizations and the public that are required by 10 C.F.R. 50.47(b)(5) in that:
>
> (a) If the sirens do sound, not all citizens who would be affected and therefore require notification would be able to hear a warning siren. Such a situation

could arise as a result of hearing impairments, weather conditions, distance from sirens, etc.

(b) In the event of a power outage the public's access (and possibly the access of state and local authorities with emergency responsibilities) to emergency broadcast information would be seriously impaired. Without a specific, reasonable plan to deal with such a contingency, the emergency plans do not meet 10 C.F.R. 50.47(b)(6) as well as (b)(5)).

(c) [N]either the Carowinds Theme Park nor the Heritage U.S.A. religious retreat appear to have any notification plans or procedures. A conservative estimate of a peak summer crowd at Carowinds is 30,000 to 35,000 people. For such a crowd to be notified and given instructions on how to leave the park in a quick, orderly and safe manner clearly requires some set of special procedures that is yet to be formulated.

2. The Applicants presented as witnesses on the contention: R. Michael Glover of Duke; Dr. M. Reada Bassiouni, consultant for Acoustic Technology, Inc. (ATI); J.T. Pugh, III, for the State of North Carolina; P.R. Lunsford for the State of South Carolina; Bob E. Phillips for Gaston County; Lewis Wayne Broome for Mecklenburg County and Phillip Steven Thomas for York County. FEMA witnesses John C. Heard, Jr., and Thomas I. Hawkins addressed this contention.

3. On this contention the Intervenors called a rebuttal witness, James Thomas Oliphant, who testified on notification and evacuation of the Carowinds theme park. They also developed their case through cross-examination. Their examination focused on three primary issues: (1) the adequacy of the Catawba prompt alerting siren, (2) the effectiveness of the Emergency Broadcasting System (EBS) in the event of a power outage, and (3) the adequacy of notification and evacuation plans for Carowinds theme park and the Heritage U.S.A. religious retreat.

Adequacy of Siren Systems

4. Siren systems are evaluated by FEMA using the guidance of NUREG-0654, Appendix 3, and FEMA-43, "Standard Guide for Evaluation of Alert and Notification Systems for Nuclear Power Plants" September 1983. We have taken official notice of the latter document (Tr. 1597, Margulies, J., 5/9/84). FEMA had not evaluated the Catawba siren system at the time of the hearing. However, we have considered the acceptance criteria in the above FEMA documents and whether these criteria will be met in our evaluation of this contention.

5. According to FEMA-43, a siren alerting system may be designed so that the siren sound level either exceeds 10 dBC above the average outdoor daytime ambient sound levels, or be designed so that it provides

60/70-dBC acoustic alert coverage. Depending upon the population of the area, one or the other of these designs can be used (App. Ex. EP-17, Bassiouni at 2-3).

6. Applicants contracted with ATI of Boston, Massachusetts, to verify and field test the acoustic coverage of the siren system installed within the Catawba EPZ and to evaluate the sirens against the criteria of FEMA-43 (*id.* at 1-2). In its verification of the acoustical coverage of the sirens, ATI used field measurement of sound levels and an ATI computer model. Measured siren outputs at 100 feet were obtained through field tests of a sample number of sirens. These outputs were used to determine the extent of the 60- and 70-dBC acoustic coverage of the siren system for average daytime meteorological conditions. A series of predicted siren sound pressure levels for each of the measuring locations was then obtained from the ATI computer model of the Catawba siren coverage. These predicted sound levels were then compared with measured values and were found to be in excellent agreement (*id.* at 2). ATI then mapped the composite 60/70-dBC siren acoustic coverage (*see* App. Ex. EP-17, Bassiouni Attach. B, Map 1). For those areas outside the 60/70-dBC acoustic contour but inside the EPZ, ATI conducted a survey to measure average outdoor ambient background noise (*id.*, Bassiouni at 2-3). The average outdoor ambient noise levels were then compared to the 50-dBC acoustic coverage contours plotted for each siren location (*see id.*, Bassiouni Attach. B, Map 2).

7. Applicants' witness Bassiouni testified that ATI's evaluation verified that the Catawba siren system will meet FEMA-43 guidelines. ATI found that the installed siren system provides the required 60- and 70-dBC coverage for most of the Catawba EPZ (*id.*, Map 1; *id.*, Bassiouni at 3). There were areas outside the 60-dBC contours. However the installed siren warning system provides adequate notification in most of these areas because the siren levels will be more than 10 dBC above the ambient background noise (*id.*, Bassiouni at 3-4). The ATI analysis showed that acoustic coverage was not adequate to meet the FEMA guidelines for the remaining areas outside the 60-dBC contours in which the plume EPZ has been extended beyond 10 miles (*id.* at 4). The Applicants identified locations for ten additional sirens to be installed by September 1, 1984, to meet these deficiencies and bring the Catawba siren system up to guidelines for the entire plume EPZ (*id.*, Bassiouni Attach. C; Tr. 1822, Glover 5/11/84). The Board concludes that there is reasonable assurance that this commitment will be met and the Catawba siren system will provide adequate prompt public notification coverage for the plume EPZ. (*See Fermi*, ALAB-730, and *Waterford*, ALAB-732, *supra*).

8. One of the Intervenors' concerns with the sirens was the influence of weather conditions upon their operation. Witness Bassiouni, however, testified that FEMA considered weather conditions in setting the siren standards (App. Ex. EP-17, Bassiouni at 2). The "average summer daytime weather conditions" may be used in the analysis establishing the 60/70- and 10-dBC above-the-ambient criteria (FEMA-43, at E-7). The Applicants used average summer conditions as reported for the Charlotte, North Carolina airport in its model (App. Ex. EP-17, Bassiouni Attach. B, at 6-8). We therefore conclude that we are not required to give special consideration to the influence of weather conditions upon operation of the Catawba siren system in order to meet the guidance of FEMA-43.

9. The Intervenors have also questioned whether or not individuals that are indoors will be able to hear the sirens. Bassiouni testified that the FEMA-43 and NUREG-0654 requirements for sirens are expressly based on outdoor sound levels (App. Ex. EP-17, Bassiouni at 2-3; Tr. 1834, Bassiouni 5/11/84; *see* FEMA-43, at E-6; NUREG-0654, Appendix 3, at 3-9). There may be situations where the ambient noise inside a building may exceed the siren volume; however, these do not make the siren system inadequate. The requirements of FEMA-43 and NUREG-0654 were not intended as a guarantee that 100% of the population in the EPZ will actually hear the sirens in an emergency but rather were meant to establish a design objective for the siren system (*see* FEMA-43, at E-4 to E-5). We find Catawba sirens meet this objective and are in compliance with the acceptance criteria.

10. Individuals who do not actually hear the sirens can receive notification by other means. This can be done by word of mouth (Tr. 1903, 1874-75, Bassiouni 5/11/84) and by the EBS network which will broadcast messages on radio and TV (App. Ex. EP-17, Glover at 1) and by the tone alert radio system which will be used to notify special facilities (Tr. 1873, Glover; Tr. 1874-75, Bassiouni 5/11/84).

11. Route alerting will be another means of supplemental notification. Under the North Carolina plan, local law enforcement and volunteer fire department personnel will drive the roads and streets of the EPZ using loudspeakers to notify residents to take action (App. Ex. EP-17, Pugh at 1-2). In both Gaston and Mecklenburg Counties, this system of notification is initiated immediately upon activation of the fixed siren system. The vehicles, routes and personnel have already been designated in these two counties (*id.*, Phillips at 1-3, Broome at 1-3). In South Carolina, supplementary route alerting is the responsibility of York County (*id.*, Lunsford at 2). York County has available fifteen to eighteen vehicles with installed audio equipment for route alerting.

Additional vehicles not so equipped will be provided with bullhorns and used if necessary (*id.*, Thomas at 2). In York County, route alerting will not be utilized automatically but will be used in areas where volunteer firemen report that the sirens have not been heard (Tr. 1911-12, Thomas 5/11/84).

12. The Board finds that means of notification supplementary to the siren system which include route alerting, tone alerting, the EBS network as well as word of mouth, are sufficient to give reasonable assurance that the population within the Catawba plume EPZ will be promptly notified.

13. Concern was expressed by the Intervenors on cross-examination as to the large differences in perceived sound intensity which is created as the sirens rotate through 360 degrees (Tr. 1841-42, Glover 5/11/84). The siren signal is constant but rotation creates relative minima and maxima in the perceived acoustic output, depending upon the listener's location and the direction of the horn at any given time (Tr. 1843-44, Bassiouni 5/11/84). The FEMA guidelines for sirens refer to the steady signal strength, and not to the effective minima due to modulation in the signal caused by rotation. This modulation also acts to attract people's attention (Tr. 1844-45, Bassiouni 5/11/84). The Board finds that modulation due to the rotation does not make the sirens inadequate and does not decrease their effectiveness.

14. Contention 9 also considers the problem of notifying the hearing-impaired. The public information brochure mailed by the Applicants to all plume EPZ residents includes a statement that hearing-impaired persons should contact their local emergency management agency upon receipt of the brochure. The new brochure will contain a mail-back card for this purpose. In this way, arrangements can be made for special prompt alerting prior to an emergency (App. Ex. EP-17, Glover at 3). Provisions are also in place in the emergency plans for printed "crawl messages" on EBS television broadcasts (*id.*, Broome at 3). Steps are also being taken by local organizations to assure prompt notification of the hearing-impaired. Specialty notification lists are being compiled to identify hearing-impaired individuals to enable contact persons to go to their homes if necessary (*id.*, Thomas at 2, Phillips at 3; Tr. 1913-14 5/11/84).

15. The Board finds that the brochure statement, the TV "crawl messages" and the steps being taken by local organizations to notify the hearing-impaired are sufficient to give reasonable assurance that these individuals will be promptly alerted in an emergency.

16. The Board has considered all of the issues raised by the Intervenors in regard to the adequacy of the siren system at Catawba and finds

that there is reasonable assurance that the sirens will meet the requirements of FEMA-43 and in the event of an emergency will provide an adequate prompt alerting system.

Effectiveness of the Emergency Broadcasting System (EBS) During a Power Outage

17. The Intervenors contend that, in the event of a power outage, public notification could not depend upon broadcasts from EBS stations. A power outage would eliminate some of the broadcast systems and thereby limit notification to battery-operated radios. However, Applicants' witness Pugh testified that of the forty-one EBS stations in the Charlotte area, eleven are equipped with emergency backup power sources (App. Ex. EP-17, Pugh at 2).

18. Backup public notification will also be provided by the mobile alerting system discussed above (*see* ¶¶ E.10 and E.11). In Gaston County, vehicles with sirens and PA systems will be used to go through neighborhoods notifying people and advising them with appropriate messages. Vehicles, routes and personnel for this notification have already been identified. It is estimated that these routes can be completed in 14 to 22 minutes (App. Ex. EP-17, Phillips at 1-3). In Mecklenburg County, the volunteer fire departments are committed to this responsibility. Radio communications and PA systems are available in their vehicles, and standard operating procedures provide a taped message to broadcast over the vehicles' PA system (*id.*, Broome at 1-3). The maximum time to complete this function in Mecklenburg County is estimated to be 45 minutes (Tr. 1913, Broome 5/11/84). In York County, fifteen to eighteen vehicles with installed audio equipment and other vehicles with bullhorns will be utilized for backup notification. In some rural areas volunteer firemen will be used for door-to-door notification. Notification will require between 20 minutes and 2 hours (App. Ex. EP-17, Thomas at 2). The longer time will be required only for door-to-door notification (Tr. 1955-56, Thomas 5/11/84).

19. The Board finds that there are reasonable assurances that the backup facilities and personnel are adequate for prompt public notification, in the event of a power outage.

Notification and Evacuation of Carowinds and Heritage U.S.A.

20. A final Intervenors' concern is the adequacy of plans for notification and evacuation of Carowinds and Heritage U.S.A., two facilities within the plume EPZ. The contention argues that these special facilities

require specific plans for notification and evacuation, and that these plans are not yet formulated. Carowinds is a theme amusement park, mostly in Mecklenburg County, North Carolina, and extending into York County, South Carolina. It is on the fringe of the plume EPZ and is open each year from March to October. Heritage U.S.A. is a religious retreat in York County.

21. Notification of Carowinds in an emergency will be the responsibility of Mecklenburg County (App. Ex. EP-17, Broome at 3-4). Notification will be made by tone alert radio (*id.*, Thomas at 3). Mecklenburg County has made contact with Carowinds' officials and has discussed a procedure to provide support for an evacuation of Carowinds which will include bases for pickup and evacuation of children, and law enforcement personnel to assist in traffic and crowd control (*id.*, Broome at 4). The York County Sheriff's Department will also assist in traffic control for a Carowinds' evacuation (*id.*, Thomas at 5). Mecklenburg County cannot order Carowinds to close, but Carowinds management has agreed to accept the protective action recommendation of Mecklenburg County — whatever that recommendation might be (Tr. 1925-26, Broome 5/11/84).

22. Notification of Heritage U.S.A. in an emergency will be by telephone and by tone alert radio (App. Ex. EP-17, Thomas at 3, 5). Heritage U.S.A. has internal plans and procedures for notification and evacuation of visitors and employees in the event of an emergency (*id.*, Lunsford at 3). York County has been in contact with officials of Heritage U.S.A. and has reviewed their plans and procedures for evacuation. The York County Sheriff's Department will assist in traffic control; standard operating procedures to be relied upon to handle evacuating automobiles have been reviewed with Heritage U.S.A. (*id.*, Thomas at 5). There was no dispute during the hearing concerning the adequacy of the Heritage U.S.A. plans.

23. During cross-examination of the Applicants' panel on this contention, the Intervenors introduced into the record three documents describing emergency planning at Carowinds. These were: (1) the seven-page Carowinds all-purpose emergency evacuation plan with a covering letter dated December 27, 1983 (Int. Ex. EP-39); (2) a two-page letter from the Emergency Preparedness Division of the Office of the Adjutant General of the State of South Carolina titled "Carowinds/PTL Planning Meeting, 1 February 1983, York County ECC," which contains an agenda for a planning meeting for the evacuation of Carowinds (Int. Ex. EP-40); and (3) a two-page letter from Jerry Lutes of PRC Voorhees, an Applicants' consultant planning research corporation, to John Lee of Duke Power Company, dated March 9, 1981, titled

"Carowinds Evacuation," which includes a discussion of evacuation routes from Carowinds (Int. Ex. EP-41). These documents contain the Carowinds all-purpose emergency plan and describe on-going emergency planning efforts.

24. During cross-examination regarding the relevance of these documents, Lewis Broome, Administrative Officer, Charlotte-Mecklenburg Emergency Management Office, testified that many of the items considered in Intervenors' Exhibit EP-40 were outdated and either had been re-addressed or would be re-addressed in procedures within the standard operating procedures to implement the Mecklenburg County Emergency Plan. Included would be items discussed in ¶ E.21, *supra*. He stated that these procedures will be completed within 90 to 120 days (Tr. 1924-25, 1944, Broome 5/11/84).

25. The Intervenors subpoenaed Mr. James Thomas Oliphant as a rebuttal witness on EPC-9. Mr. Oliphant is the Loss Prevention Operations Manager at Carowinds and is responsible for emergency planning. Oliphant testified that because of the large number of people at the park and the time it will take to evacuate them, Mecklenburg County will provide Carowinds with an advance notification of any emergency at Catawba and as a precautionary measure Carowinds would evacuate prior to receipt of the public alert. He testified that Carowinds would give a "precautionary notice" of evacuation because of the numbers of people at this one location (Tr. 4352, 4417-18, Oliphant 6/7/84).

26. Witness Oliphant stated that, through discussions with Broome, he was refining the Carowinds evacuation plan to take into consideration nuclear emergencies and that this would be accomplished before the plant goes on line (Tr. 4424-26, Oliphant 6/7/84). The record is indefinite as to the status of this plan. When examined by the Intervenors' counsel, it was clear that it was not near completion (Tr. 4401-02, Oliphant 6/7/84).

27. The in-park count at Carowinds during peak usage can be 26,000 people (Tr. 4188, Oliphant 6/7/84). In his letter to Duke Power Company (Int. Ex. EP-41), the Applicants' planning consultant Jerry Lutes states:

> In summary, it appears that evacuation of Carowinds on a peak day is a monumental task requiring careful planning and good traffic control. But the time required for evacuation is well under the three hours and twenty-five minutes required to evacuate the residential population.

The Board notes the consultant's concern for planning and traffic control, and we conclude that a detailed and carefully coordinated plan

for evacuation of Carowinds is required. We do not find such a plan to be in place.

28. The documents introduced into the record by the Intervenors dealing with planning at Carowinds (Int. Ex. EP-39, at 40-41) and testimony of witnesses Glover, Broome and Oliphant demonstrates the existence of a general plan and the on-going process of revision. This record, together with the testimony of FEMA witnesses Heard and Hawkins which finds that plans have been made for evacuation of Carowinds (Staff Ex. EP-2, Heard and Hawkins at 21) provide the basis for a finding that there is reasonable assurance that the regulatory requirements will be met. However, the plans and procedures for Carowinds are not yet fully in place. Because of their importance in emergency planning for Catawba, we make the completion of adequate plans a condition of the operating licenses. We require that there be a comprehensive plan for early notification to Carowinds of a radiological emergency at Catawba and for evacuation of Carowinds. It shall describe the responsibilities of the emergency response organizations of Mecklenburg and York Counties and how their efforts will be coordinated among themselves and with officials at Carowinds. Provisions in the plans shall be made to immediately notify patrons and staff of Carowinds at the time of the precautionary closing of the park, of the cause of the emergency.

29. The Board's conclusion regarding EPC-9 is that there is reasonable assurance that the Catawba Prompt Alerting (siren) system, as augmented by the ten additional sirens to be installed, will meet the guidelines of FEMA-43 and therefore will be adequate. We conclude that the influence of weather conditions and the reduced sound levels to people indoors were considered in establishing these FEMA guidelines. We find that supplemental means of notification available, such as word of mouth, the tone alert system, the EBS network and mobile sirens, provide reasonable assurance that individuals within the plume EPZ will be notified of an emergency. We find that adequate measures have been taken to provide special notice to the hearing-impaired. We conclude that there are adequate plans for emergencies involving loss of offsite power; the fact that there is backup power available to many of the EBS stations and that local route alerting procedures are in place gives us reasonable assurance that timely public notification can be achieved. Finally, we conclude that provided the requirements of ¶ E.28, *supra*, are met for Carowinds, the plans for evacuation of Carowinds as well as for Heritage U.S.A. will be adequate and that they will meet the requirements of the regulations and NUREG-0654.

F. Intervenors' Emergency Planning Contention 11 — Expansion of the Plume EPZ into Southwest Charlotte

1. Contention 11 alleges:

> The size and configuration of the northeast quadrant of the plume exposure pathway emergency planning zone (Plume EPZ) surrounding the Catawba facility has not been properly determined by State and local officials in relation to local emergency response needs and capabilities, as required by 10 C.F.R. 50.47(c)(2). The boundary of that zone reaches but does not extend past the Charlotte city limit. There is a substantial resident population in the southwest part of Charlotte near the present plume EPZ boundary. Local meteorological conditions are such that a serious accident at the Catawba facility would endanger the residents of that area and make their evacuation prudent. The likely flow of evacuees from the present plume EPZ through Charlotte access routes also indicates the need for evacuation planning for southwest Charlotte. There appear to be suitable plume EPZ boundary lines inside the city limits, for example, highways 74 and 16 in southwest Charlotte. The boundary of the northeast quadrant of the plume EPZ should be reconsidered and extended to take account of these demographic, meteorological and access route conditions.

2. The appropriate regulation, 10 C.F.R. § 50.47(c)(2), provides in part:

> Generally, the plume exposure pathway EPZ for nuclear power plants shall consist of an area about 10 miles (16 km) in radius and the ingestion pathway EPZ shall consist of an area about 50 miles (80 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.

3. The Applicants and Staff argue that the plume EPZ boundaries which were established by local and State emergency planning officials conform to the Commission standards of "about 10 miles" and that the Catawba site does not differ from the average site contemplated by the Commission in regard to possible radiological hazards, demography, meteorology and access road conditions. Thus the plume EPZ does not require extension beyond the existing boundaries.

Radiological Considerations

4. Guidelines stated in NUREG-0654 give the basis for establishing the "about 10 miles" requirement for the plume EPZ.

> The size (about 10 miles radius) of the plume exposure EPZ was based primarily on the following considerations:

(a) projected dose from the traditional design basis accidents would not exceed Protective Action Guide levels outside the zone;

(b) projected doses from most core melt sequences would not exceed Protective Action Guide levels outside the zone;

(c) for the worst core melt sequences, immediate life-threatening doses would generally not occur outside the zone; and

(d) detailed planning within 10 miles would provide a substantial base for expansion of response efforts in the event that this proved necessary.

5. Projected doses from design basis accidents (consideration (a), above) were not in dispute. Both Applicants' witness Thomas E. Potter and Intervenors' witness Steven C. Sholly found that design basis accidents would not exceed upper Protective Action Guide (PAG) doses beyond the established plume EPZ (App. Ex. EP-19, Potter at 6-7; Int. Ex. EP-49, Sholly at 5-6).

6. For analysis of considerations (b) and (c), the Applicants relied on an analysis by witness Potter which compared possible core melt accident sequences calculated specifically for Catawba with comparable analyses used by the Commission in establishing the 10-mile EPZ (NUREG-0396). His analysis showed that there was no significant difference between the probability of exceeding PAG doses or life-threatening doses beyond the 10-mile EPZ at Catawba compared to similar probabilities calculated for the generic core melt accident contained in NUREG-0396 (App. Ex. EP-19, Potter at 7).

7. A somewhat similar set of calculations of probable doses beyond the 10-mile zone were performed by Intervenors' witness Sholly. His analysis projected early severe releases, and he therefore recommended emergency planning for southwest Charlotte (Int. Ex. EP-49, Sholly at 12-13, 22-23).

8. Witnesses Potter and Sholly both used probabilistic risk analysis (PRA), the approach used in NUREG-0396. Since a PRA based upon specific release categories for Catawba had not been performed, it was necessary for both Potter and Sholly to use data from other BWR reactors for which a PRA had been performed. Potter used WASH-1400 as a source for data characterizing the release categories and the probabilities of release for the Catawba analysis. Because WASH-1400 used Surry as its model BWR, and Surry has a large, dry containment whereas Catawba has an ice-condenser containment, Potter realized that this design difference between the two plants might make the WASH-1400 data inappropriate for use in calculating Catawba releases (Tr. 2073, Potter 5/23/84). Absent a plant-specific PRA for Catawba, Sholly used the data of the Reactor Safety Study Methodology Application Program

(RSSMAP) for Sequoyah Unit 1 (NUREG/CR-1659, Vol. I). Although he recognized that there were large uncertainties involved, Sholly felt the risk posed by Catawba was reasonably approximated by Sequoyah (Int. Ex. EP-49, Sholly at 10-11, 16-17).

9. Potter considered using as a data base the probabilistic risk assessment performed by the RSSMAP program for Sequoyah because it, like Catawba, has an ice-condenser containment. However, he did not use the Sequoyah RSSMAP analysis because it did not account for the presence of a hydrogen mitigation system, which is present at Catawba. Since Sequoyah sequences are premised on early containment failure due to explosive hydrogen burn, he considered the Sequoyah RSSMAP data misleading if applied to Catawba because the probabilities of severe radioactive releases to the atmosphere in the Sequoyah RSSMAP analysis were higher than one would expect at Catawba, which has an effective hydrogen mitigation system (Tr. 2074-75, Potter 5/23/84).

10. Potter made use of a study of the hydrogen mitigation system at the McGuire plant to calculate the impact of this system upon the release frequencies from RSSMAP study of Sequoyah. When this was done, the resultant release frequencies were virtually identical to those calculated for the Surry plant in WASH-1400 (Tr. 2076, Potter 5/23/84).

11. When questioned about the possibility of failure of the hydrogen mitigation system, Potter stated that his probability analysis allowed for failure of this system (Tr. 2074-75, 2079, Potter 5/23/84).

12. A second difference between Sequoyah and Catawba is the containment failure pressure. The Sequoyah containment, modelled in the Sequoyah RSSMAP, has a failure pressure of 30 psig, while the Catawba containment has a failure pressure of 72 psig. A higher containment pressure would delay failure and release of fission products. Sholly appeared to be unaware of this difference between these plants (Tr. 2407-08, Sholly 5/24/84).

13. The Board finds Potter's probability analyses of the accident sequences to be more credible than Sholly's because a more appropriate data base was used and because Sholly failed to consider the effects of a hydrogen mitigation system and the higher containment pressure at Catawba, as compared to Sequoyah.

14. Potter analyzed the probabilities of exceeding specified doses at various distances from the site using Catawba meteorology, and also using meteorological data from NUREG-0396. He then compared the Catawba-specific probabilities of exceeding given doses with those in NUREG-0396. His analyses evaluated considerations (b) and (c), above, and established that there is no significant difference between the probabilities of exceeding PAG doses or life-threatening doses

beyond 10 miles at Catawba, compared to similar probabilities calculated for the generic core melt accident analyses contained in NUREG-0396 (App. Ex. EP-19, Potter at 6-7, Potter Attach. B, at 8-10).

15. The Intervenors presented two additional witnesses on Contention 11 whose testimony was directed to the need for extending the plume EPZ into southwest Charlotte. Mr. Ray Twery's testimony attempted to show that southwest Charlotte was exposed to an unusually high risk which justified an expansion of the plume EPZ (Int. Ex. EP-48, Twery at 1-4). Cross-examination developed serious flaws in his analysis (Tr. 2343-59, 2364-84, Twery 5/24/84). The Board concludes that his testimony is entitled to little weight and that it does not demonstrate any unusual risk to the population of southwest Charlotte.

16. Intervenors' witness Jesse L. Riley relied on the Sandia Laboratories' study, NUREG/CR-2239, "Technical Guidance for Siting Criteria," ("the Sandia Siting Study") and the Catawba Final Environmental Statement ("FES") to arrive at estimates of injuries and fatalities in the event of a radiological emergency at Catawba (Int. Ex. EP-48, Riley at 1-3). Riley did not accept the fact that the Sandia Study does not represent risks and that it assumes no emergency responses beyond 10 miles for 24 hours (Tr. 2312-14, Riley 5/24/84).

17. Riley also criticized the practicality of estimating the probability of a reactor accident, as used in the Sandia Siting Study, in the FES and in the Reactor Safety Study (WASH-1400). (Int. Ex. EP-48, Riley at 3-5). Riley asserted that WASH-1400 did not consider accidents such as occurred at Three Mile Island, Browns Ferry and Enrico Fermi (*id.* at 4-5). Riley asserted that the FES's worst-case analysis projected the possibility of 24,000 fatalities of which the largest fraction would occur in Charlotte, but he was unwilling to accept the calculated probabilities associated with these fatality estimates (*id.* at 2-3; Tr. 2427, Riley 5/24/84).

18. Applicants' witness Potter refuted Riley's allegations in his discussion of "phenomenological analysis" which is an analysis based on a statistical analysis of the actual performance of plant systems and components over the approximately 1000 reactor-years of operating experience (Tr. 2061-64, Potter 5/23/84). By making a system-by-system treatment of reactor component failure data, it is unnecessary to wait for the occurrence of a major accident to estimate its probability since the major accident is based on the occurrence of a sequence which involves a number of low-probability events. In effect, the probability of the whole is projected from the probability of the parts (Tr. 2201, Potter 5/23/84).

19. The Board concludes that the testimony of witnesses Riley and Twery does not provide a justification for extending the plume EPZ into

southwest Charlotte. None of the testimony presented by these witnesses calls into question the correctness of the evidence presented by the Applicant and Staff. The Board accepts the method of calculation of probabilities outlined in Potter's testimony.

20. Potter's projected doses from most core melt sequences would not exceed the EPA's PAG levels outside the Catawba plume EPZ. For the worst-case core melt sequences, immediate life-threatening doses would generally not occur outside the Catawba plume EPZ. This is consistent with the generic analyses in NUREG-0396. Thus expected radiation doses at Catawba are no different from those accepted by the NRC in setting the plume EPZ at "about 10 miles." Hence there is nothing about Catawba in this respect that would justify altering the plume EPZ size (App. Ex. EP-19, Potter at 7-8). From these findings, the Board concludes that the plume EPZ boundary for the Catawba facility has been properly determined in relation to radiological considerations.

21. The fourth consideration used by the NRC/EPA Task Force that established the plume EPZ standard at "about 10 miles," item (d) above, states that "detailed planning within 10 miles would provide a substantial base for expansion of response efforts in the event that this proved necessary." The Task Force also stated "[t]herefore, although protective actions may be required for individuals located in areas further than 10 miles from the reactor, for an atmospheric release the actual measures used and how rapidly or efficiently they are implemented will not strongly influence the number of projected early health effects" (NUREG-0396, Appendix 1, at 52). We find NUREG-0396 does not require emergency planning beyond the 10-mile plume EPZ. However, Applicants' witness R. Michael Glover interpreted the guidelines as approval of "ad hoc" planning outside the 10-mile zone. He testified that the City of Charlotte All-Hazard Plan addresses the need for "ad hoc" planning outside the 10-mile zone (App. Ex. EP-19, Glover at 8-9).

22. The All-Hazards Plan (Int. Ex. EP-46) outlines protective action for residents of Charlotte and Mecklenburg County. Applicants' witness Lewis Wayne Broome, Administrative Officer, Charlotte-Mecklenburg Emergency Management Office, testified that this plan together with the resources of his agency are adequate to provide protective actions in southwestern Charlotte outside the 10-mile zone. He testified that the people and resources are identified in this plan to provide protective actions for a distance of 15 miles from Catawba for an additional 100,000 people (App. Ex. EP-19, Broome at 2-3). This plan was used successfully to notify, evacuate and shelter 2000 to 3000 residents of Charlotte during a chemical fire in 1982 (*id.* at 6-8).

23. In case of emergencies in southwest Charlotte, the All-Hazards Plan provides for notifying the affected population by means of mobile sirens, public address systems and the Emergency Broadcast System (EBS). It also provides for the necessary coordinating mechanism for protective action (*id.* at 3-5).

24. The testimony of Glover and Broome addresses consideration (d) of NUREG-0654, and demonstrated that current emergency planning in southwest Charlotte exceeds that contemplated in NUREG-0654 for areas outside the plume EPZ. Because of the planning in place in the All-Hazards Plan and the resources available from the Charlotte-Mecklenburg Emergency Planning Agency, the Board finds that protective action, if needed, can be implemented for Charlotte and Mecklenburg County residents outside the EPZ without extending the existing plume exposure EPZ in the direction of Charlotte.[8]

Meteorological Considerations

25. One of the Intervenors' concerns expressed in Contention 11 is that local meteorological conditions are such that an accident at the facility would pose a threat to the residents of southwest Charlotte. They suggest that the 10-mile radius of the plume EPZ should be extended because of the unique meteorological conditions of this area. Testimony of Applicants' witness Mark A. Casper and Staff witnesses James E. Fairobent and Leonard Soffer (1) provided information on site-specific meteorology, (2) compared the meteorology of this area with that of other plant sites, and (3) showed how site meteorology is related to meteorological conditions anticipated by the authors of NUREG-0396.

26. The applicable regulation in regard to size and configuration of the plume EPZ is 10 C.F.R. § 50.47(c)(2) which provides:

> Generally, the plume exposure pathway EPZ for nuclear power plants shall consist of an area about 10 miles (16 km) in radius and the ingestion pathway EPZ shall consist of an area about 50 miles (80 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.

Witness Soffer explained that this regulation considers conditions which might determine the exact configuration of the plume EPZ, including

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[8] There are various deliberations under way (Nurkin Committee) aimed at improving emergency planning in the Charlotte area. The ultimate results to be reached in the matter are not necessary to our deciding the relevant issues in this proceeding and they will not be given any further consideration.

demography, topography, land characteristics, access routes and local jurisdictions, but does not mention meteorological considerations because meteorology was taken into consideration by the authors of NUREG-0396 in determining that "about 10 miles" was appropriate for the plume EPZ (Staff Ex. EP-5, Soffer at 3-4). Thus, only meteorological conditions existing at this specific site, which are not anticipated by NUREG-0396, and which pose a threat to residents of Charlotte outside the existing EPZ, are relevant to this contention.

27. Witness Soffer testified that in NUREG-0654 FEMA and the Staff took into consideration not only design basis accidents but also the most severe core melt sequences (Class 9 accidents) in determining the size of the plume EPZ, and that very conservative meteorology was used in calculation of dose and in considering consequences from these accidents. Doses were calculated assuming the exposed individual was directly downwind of releases for both design basis and core melt accidents. This means that the fact that the wind may blow more in one direction than another at a given site had no bearing on the selection of 10 miles as the plume EPZ distance (*id.* at 8-10).

28. Staff witness Fairobent's testimony was directed toward showing that meteorology at Catawba was not unique and was within the range of conditions considered in analysis of severe core melt accidents in NUREG-0396 (Staff Ex. EP-5, Fairobent at 11-14). Fairobent compared atmospheric transport and diffusion conditions in the vicinity of the Catawba facility to conditions at other power plants in southeastern United States. At the Catawba site for the period December 17, 1975-December 16, 1977, stable conditions (Pasquill types "E," "F" and "G") occurred about 41% of the time. Most of these stable conditions occurred with wind speeds less than or equal to 2 m/sec (*id.* at 11-12). He noted that similar stable atmospheric conditions were observed at the Shearon Harris facility for the period February 1979-January 1980, and at the Virgil C. Summer facility for the period January 1975-December 1977. He testified that at Catawba, the prevailing wind direction is from the southwest, with winds from the south-southwest, southwest and west-southwest occurring about 33% of the time for the period December 17, 1975-December 16, 1977 (*id.* at 13). Meteorological observations at other nuclear power plants indicate that total frequencies of wind in the three 22½° sectors are in excess of 25%; they range from 26% at Shearon Harris to 36% at Limerick for equivalent time periods (*id.*). On cross-examination, Fairobent acknowledged that the difference between Limerick (36%) and Catawba (33%) was not significant (Tr. 2614, Fairobent 5/25/84).

29. Fairobent testified that better data available for Catawba would bring a reduction of the 33% wind direction frequency blowing towards the three northeast sectors to 28% (Tr. 2695-96, Fairobent 5/25/84).

30. At Indian Point, the site used in analysis of severe accidents in NUREG-0396, stable atmospheric conditions (Pasquill "E," "F" and "G") occur about 48% of the time, compared to 41% at Catawba, with most of these stable conditions (about 60% vs 75% at Catawba) occurring with wind speeds less than or equal to 2 m/sec (Staff Ex. EP-5, Soffer and Fairobent at 14). On cross-examination, Fairobent acknowledged that these differences between Catawba and Indian Point were based upon temperature differences at the observation sites which did not take into consideration the effect of other inversions aloft (Tr. 2623-25, Fairobent 5/25/84).

31. Applicants' witness Casper testified that rainfall at the site is average or below average for the southeastern United States (App. Ex. EP-19, Casper at 16).

32. The subject of the combined effect of prevailing wind direction and concentration of population arose in the testimony of Applicants' witnesses Robert F. Edmonds and Mark A. Casper. Edmonds' testimony contained a table showing that there were a large number of nuclear plants with adjacent population concentrations similar to Catawba (*id.*, Edmonds at 7). Witness Casper testified that there were a number of these plants at which there were large populations within the sector of the prevailing wind direction or within a sector with a greater wind direction frequency than given by a uniform distribution (*id.*, Casper at 13).

33. The subject of the relationship of wind direction and population concentration was further explored in the cross-examination of Edmonds and Casper by Riley. In this examination, data on incidence of wind direction and population in NUREG/CR-2239 (Technical Guidance on Siting Criteria Development) were considered. Table A.4-1 in that document contains windrose data for plants listed in Edmonds' table. When windrose frequency was multiplied by population to give a risk index, Edmonds acknowledged that Catawba became number one in risk among the plants listed in his table (Tr. 2021-23, 2179-80, Edmonds 5/23/84).

34. On re-direct examination, Edmonds identified Table D.3-1 of NUREG/CR-2239 which used an approach similar to that in Riley's cross-examination. This table combined population data and wind direction frequency data to arrive at a factor representing risk. This approach used data from all sectors, rather than a single sector. When data from this table are used, Catawba ranks tenth or eleventh on the list (Tr. 2180-81, Edmonds and Casper 5/23/84). Witnesses Edmonds, Glover,

Casper and Potter agreed that all plants listed in this table, including Catawba, meet the Commission's siting criteria (Tr. 2182-88, Edmonds, Glover, Casper and Potter 5/23/84). The Board finds that this approach used by Edmonds is more encompassing and therefore is preferable and accepted.

35. Casper testified that the city of Charlotte would create an Urban Heat Island effect which would increase dispersion and lower the frequency of inversions, and thus would give rise to a lower frequency of stable air conditions. He also testified that mechanical dispersion due to surface roughness increases dramatically as a plume travels from rural to urban areas (App. Ex. EP-19, Casper at 15-16). The Board finds the above meteorological conditions at Charlotte would reduce the potential hazard from severe accident releases.

36. Based on the testimony of the witnesses, the Board finds that the site-specific meteorology at Catawba is not a factor to be considered in determining the size and configuration of the plume EPZ surrounding the Catawba nuclear facility, and that meteorological conditions at this site are within the limits anticipated by the authors of NUREG-0396. Moreover, the evidence shows that the meteorology at Catawba is comparable to meteorology at other nuclear facilities in the southeastern United States and is comparable to the meteorology at the facility (Indian Point) used for the severe (Class 9) accident analysis in NUREG-0396.

Demographic Considerations

37. Contention 11 alleges that the demography of the Catawba area requires an extension of the plume EPZ into southwest Charlotte. The Intervenors allege that there is a substantial resident population in the southwest part of Charlotte near the plume EPZ boundary. Edmonds testified that the current plume EPZ boundary with southwest Charlotte approximates the transition from rural to urban conditions (Tr. 2015, Edmonds 5/23/84). The population density outside the current plume EPZ does not exceed 1300 persons per square mile until reaching 12 to 13 miles from the plant in the east-northeast sector, and 13 to 14 miles in the northeast sector (Int. Ex. EP-43). Thus only if southwest Charlotte was added to the plume EPZ would there be a "substantial population" adjoining the EPZ boundary.

38. The plume EPZ boundaries were established by the State and local officials and were based on local topography, demography and jurisdictional boundaries, in accordance with 10 C.F.R. § 50.47(c)(2). Duke Power Company made a review of the boundaries after their selection

by the government officials which led to an after-the-fact expansion of the plume EPZ in York County so as to make the boundary conform to an easily identifiable geographical feature. Jurisdictional boundary considerations caused these officials to include all of the city of Rock Hill within the plume EPZ (Tr. 2028-30, Glover 5/23/84; Tr. 2090-91, Broome 5/23/84; App. Ex. EP-19, Broome at 1).

39. There were good reasons for including Rock Hill, South Carolina, but not Charlotte, North Carolina, in the plume EPZ. The city limits of Rock Hill come as close as 5-7 miles from Catawba, with most of the city within 10 miles of the plant. The State and local planners did not want to divide Rock Hill so that most of the city would be in the plume EPZ, and a small part would be outside (Tr. 2027, Glover 5/23/84.)[9] Charlotte, on the other hand, at only one point comes as close as 9.7 or 9.8 miles from the plant. The city extends to some 15 miles beyond the plume EPZ boundary. Thus the planners used 9.7 or 9.8 as "about 10 miles" and excluded Charlotte from the plume EPZ (Tr. 344, Glover 5/2/84; Tr. 2670, Robinson 5/25/84).

40. The Board finds that the present EPZ boundaries reflect reasonable consideration of local geographic and jurisdictional boundaries, and that there is no compelling demographic consideration which would require extension of the plume EPZ into the southern portion of Charlotte.

Evacuation Considerations

41. The Intervenors' concern in Contention 11 that the flow of evacuees through Charlotte would necessitate expanding the plume EPZ was addressed by Applicants' witness Walter Kulash, a traffic planning consultant. Kulash's firm conducted two studies relating to evacuation of Charlotte. From these studies he testified that without expanding the plume EPZ, given normal weather, southwest Charlotte could be evacuated in about 5¼ hours and all of Charlotte in about 9 hours. Only with very adverse assumptions would any "voluntary" evacuation of Charlotte residents impede the evacuation of the current plume EPZ, and

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[9] By letter dated September 7, 1984, Applicants advised that it was their understanding that the plume EPZ was altered, in that a portion of Rock Hill was excluded. The new boundaries follow an unnamed creek, railroad tracks and a highway in addition to parts of the Rock Hill city limits. It was stated that the excluded portion of Rock Hill contains a city landfill area, the Plaza Shopping Center, and Castle Heights Junior High School. No permanent residences are said to be involved. The excluded area is 10.5 to 11 miles from the plant. The change alters the previous situation where all of the City of Rock Hill, as a jurisdictional entity, was included within the EPZ. This represents a minor change geographically and demographically. Although the point of using an undivided Rock Hill as an example for not splitting a municipality by the boundaries of the EPZ is lessened, it does not advance Intervenors' position for extending the EPZ boundary into Charlotte. Most all of Rock Hill is within a 10-mile radius of the plant, whereas the converse is true for Charlotte.

then only by lengthening slightly the evacuation time on only one route (App. Ex. EP-19, Kulash Attach. C, at 5-10; *id.*, Attach. B, at 8-9). We find the Kulash testimony is convincing and conclude that expansion of the plume EPZ would not materially assist in evacuation and therefore is not required.

42. Based upon all of the evidence presented, the Board's finding is that the allegations in Contention 11 lack merit. We find that the size and configuration of the plume EPZ as defined in the emergency plan have met the requirements of 10 C.F.R. § 50.47(c)(2), and that expansion of the boundaries into southwest Charlotte is not warranted. In arriving at this conclusion, the Board considered the potential radiological hazards to the population of southwest Charlotte, meteorological and demographic conditions of this area, and requirements for evacuation.

G. Intervenors' Emergency Planning Contentions 14 and 15 — Evacuation

Contentions 14 (EPC-14) and 15 (EPC-15) raise closely related issues and have been treated together throughout the proceeding. Accordingly, that practice will be continued here.

1. EPC-14 alleges:

> The Applicants have failed to demonstrate their ability to take effective actions to protect the health and safety of the general public in the event of an accident in that the evacuation time study presented by the Applicants is a piece of fiction in the guise of science and may not be relied upon for determining the ability of Applicants and public authorities effectively to evacuate residents of the Catawba EPZ in a timely manner.
>
> By overestimating the flow of traffic on evacuation routes, the Applicants' time study overestimates actual traffic movement by a factor of between three and twelve. A flow of no more than 900 vehicles/lane/hour should be assumed, according to preliminary estimates by Sheldon C. Plotkin of the Southern California Federation of Scientists.
>
> Traffic flows are further overestimated by failing to account for voluntary evacuation likely to take place from Charlotte via I-77. All of the study's estimates are premised only on estimates of traffic flow within the EPZ congestion. They fail to account for backups caused by extra-EPZ congestion, especially on I-77 in Charlotte.
>
> The Applicants' evacuation time estimates erroneously assume quick response by school buses and multiple school bus trips. School buses in South Carolina are driven by high school kids. No public official would dare to send high school kids into an evacuation zone to transport those without vehicles. Time must be allotted for finding drivers.
>
> The Applicants' study is fundamentally useless to making a determination regarding the time within which evacuation can be accomplished in that it makes numerous as-

sumptions regarding work and living habits which are apparently made up out of whole cloth. No references or other data bases are given for the assumptions underlying these evacuation time estimates and they cannot be credited.

The evacuation time estimates should be based only upon worst case conditions, rather than best case conditions. The Applicants' study is far too optimistic in assuming that worst case conditions will require only 156% of the time of best case conditions. The judges are asked to take notice of their own experience in Applicants' counsel trying to reach York, South Carolina, in the midst of what may be a modest snowstorm to Yankee eyes, but which had plainly immobilized the entire vicinity.

Further, Applicants' study naively fails to account for parents going first to their children's schools to pick up their children before evacuating.

Moreover, Applicants' study, by slight of hand, dismisses the major impact of the presence of large transient populations at Carowinds amusement park and Heritage U.S.A. Those populations will take longer to evacuate than the study assumes and will co-congest I-77 with resident traffic.

The fundamental test of the adequacy of an evacuation plan is whether it can be implemented in such a fashion as to effectively avoid or minimize the radiological effects of a radiation release. Absent a real life, real time evacuation drill to test the system,[10] any study presented in support of the adequacy of the emergency plans must be technically valid from a theoretical perspective and based upon assumptions having some relationship to the real world situation to which the study is supposed to apply. This study lacks either basis.

A more realistic estimate of evacuation time for the Catawba Nuclear Station in the South Carolina Piedmont is that evacuation will require a minimum of 33 hours, assuming a conservative 600 vehicles/lane/hour vehicle travel time. Applicants are, thus, unable to provide reasonable assurance of being able to avoid or meaningfully minimize radiation exposure in the event of a radiation release at Catawba.

The Applicants thus fail to meet the requirement of NUREG-0654, Rev. 1, Appendix 4, in that their evacuation time estimates may not be credited by the Commission and fail to meet Commission requirements that it be able to demonstrate the ability of local and state authorities to take effective protective actions.

2. EPC-15 alleges:

The Applicants and the local and state plans fail to provide adequate assurance that effective protective actions can be taken because the provisions in the several plans are inadequate with regards to transportation and related evacuatory activities in the event of an evacuation.

The emergency plans fail, fundamentally, to address the peculiar conditions of the areas surrounding the Catawba Nuclear Station. Large segments of these areas are

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[10] This paragraph relating to the necessity for a drill to test the system was not admitted as a substantive claim for relief (*see* S. Tr. 1095).

rural. Some of them contain lower income communities. The time estimates used by Applicants assume that 10% of families are without vehicles. But in many of these homes, that vehicle is not home during large parts of the day. Often, those homes will have children and elderly people at home without transportation. No census of varying conditions has been done.

Moreover, the plans are premised on using school buses to transport those without their own transportation. School buses in South Carolina are driven by high school students. Even if some public officials were prepared to leave emergency activities in the hands of sixteen year old youths, none would dare send such a child into an evacuation zone. No provision is made for backup drivers. Even if the drivers can be found, in many communities those school buses are kept at the driver's home at night and not at some central motor pool.

Applicants and the local and state planning officials have failed to demonstrate that adequate transportation facilities are available to evacuate the hospitals and nursing homes in the EPZ. Nor do the plans demonstrate that adequate provisions have been made for transporting young children at day-care facilities.

Numerous parents have informed members of Palmetto Alliance that in the event of an evacuation their first response will be to personally pick up their children regardless of paper plans. The state and local plans fail to address this reaction which will slow evacuation and add to confusion.

The experience at Three Mile Island demonstrates that many citizens will not leave in the face of a major threat. Southerners have a special commitment to land and home which no government to date has been able to overcome. Absent a full-scale exercise which demonstrated that these hard-headed Scotch Irishmen are going to leave, no assurance can be had that the public will leave in the event of an evacuation order.[11]

The emergency plans assume, but do not demonstrate, that adequate buses are available to move schoolchildren out in a timely manner. Multiple bus pickups may be needed.

Evacuation plans which fail to assume that human beings — and not computer modelled facsimiles thereof — are to be evacuated cannot but fail in the test. Applicants and state and local emergency planners are unable to provide assurance that the plans can be effectively implemented to protect the residents.

3. Contention 14 alleges that Applicants' evacuation time estimates are flawed and unreliable due to their failure to account for various factors. Similarly, in Contention 15 the Intervenors allege deficiencies in the State and local emergency plans concerning evacuation.

4. Testimony on these contentions was presented by the Applicants (Testimony of R.M. Glover and Walter M. Kulash); the State of North Carolina (Testimony of J.T. Pugh, III); the State of South Carolina

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[11] This paragraph relating to the necessity of a drill to test the system was not admitted as a substantive claim for relief (*see* S. Tr. 1096).

(Testimony of R. Lunsford); Gaston County, North Carolina (Testimony of Bob E. Phillips); Mecklenburg County, North Carolina (Testimony of Lewis Broome); and York County, South Carolina (Testimony of Phillip S. Thomas). Testimony was also presented by the Staff (Testimony of Thomas Urbanik, II, Concerning the Evacuation Time Estimate Studies for Catawba Nuclear Station). The Intervenors filed no written testimony on Contentions 14 and 15, but relied extensively on cross-examination. Intervenors also relied on the subpoenaed testimony of rebuttal witnesses: Brenda W. Best, J. Elbert Pope, Luther L. Fincher, Jr., Nathaniel Davis, Jr., and James T. Oliphant.

5. Essentially, Intervenors assert that the evacuation time study prepared for Applicants by PRC Voorhees for the Catawba Nuclear Station cannot be relied on by public authority for making decisions based on the time required to evacuate residents for a number of specific reasons: (a) the study overestimates the flow of traffic on evacuation routes; (b) it does not consider the voluntary evacuation of Charlotte (evacuation shadow phenomenon); (c) it does not give adequate consideration to the evacuation of schools, the number of buses and bus drivers required, and parents picking up their children at school; (d) the study lacks a data base for the estimates concerning work/travel times and, hence, uses erroneous assumptions; (e) it does not adequately address adverse weather considerations; (f) the transient population at Carowinds amusement park and Heritage U.S.A. was not considered; (g) the assumptions used are not valid and the methodology is unsound; and finally, (h) the study uses too high a vehicle/lane/hour capacity, and should assume a 600-vehicle/lane/hour capacity, yielding a minimum evacuation time of 33 hours. Each of these points will be addressed individually.

6. Evacuation time estimates are required by 10 C.F.R. Part 50, Appendix E, § IV and are used for two principal purposes:

a. to provide decisionmakers during an emergency with knowledge of the length of time required to effect evacuation under various conditions, which allows an informed choice of protective actions (e.g., between in-place sheltering and evacuation); and

b. to identify those areas or routes in the vicinity of a site where bottlenecks are likely to occur and traffic control would be appropriate.

7. The criteria for judging the acceptability of the evacuation time estimates which are required by 10 C.F.R. Part 50, Appendix E, § IV are set forth in NUREG-0654, Appendix 4. NUREG-0654 discusses several

elements which the NRC and FEMA believe should be included in evacuation time studies. These considerations include: (a) an accounting for permanent, transient, and special facility populations in the plume exposure EPZ; (b) an indication of the traffic analysis method and the method of arriving at road capacities; (c) consideration of a range of evacuation scenarios generally representative of normal through adverse evacuation conditions; (d) consideration of confirmation of evacuation; (e) identification of critical links and need for traffic control; and (f) use of methodology and traffic flow modeling techniques for various time estimates, consistent with the guidance of NUREG-0654, Appendix 4.

8. The Applicants provided an evacuation time estimate study for the Catawba plume exposure pathway EPZ, prepared under contract by PRC Voorhees (PRC), entitled "Catawba Nuclear Station Evacuation Analysis/Evacuation Time Estimates, April 1983" (App. Ex. EP-15, Attach. A). PRC also produced a number of subsequent reports in connection with this evacuation time estimate study including: "Summary of Method for Estimating Evacuation Time for Catawba Nuclear Station EPZ, March 1984"; "Adequacy of Planning for School Population Evacuation, March 1984"; "Assumptions Underlying Departure Times for Evacuation of the Catawba Nuclear Station EPZ, December 1983"; "Evacuation Time Estimates for Carowinds and Heritage U.S.A., March 1984"; and a report entitled "Transport-Dependent Population, April 1984." App. Ex. EP-15, Attach. B-F.

9. The Applicants' study used the PRC EVACPLAN model which was developed specifically for evacuation time estimate studies. The method for computing total evacuation time was the distribution method which is one of the two acceptable approaches outlined in NUREG-0654, Appendix 4. EVACPLAN consists of two major components: The EVACURVE module and the QUEUE module. The EVACURVE module calculates the final departure curves giving the distribution of times at which the vehicle-owning population completes preparations to leave home and enters the road system. The QUEUE module simulates the flow of traffic through the evacuation routes and identifies the location and extent of traffic congestion.

Traffic Flow Rates

10. The first issue (a) raised in Contention 14 is that the evacuation time study overestimates the flow of traffic on evacuation routes. The flow rate used by PRC is 1200 vehicles/lane/hour, which is a figure that is adjusted downward from the actual hourly flow of traffic on a single

lane of surface highway of 1800 vehicles/lane/hour, taken from the 1965 Highway Capacity Manual. This manual was compiled by the Transportation Research Board of the National Academy of Sciences and is the standard reference in the transportation profession for determining capacities. Use of the figure 1200 vehicles/lane/hour assumes a vehicle headway of 3 seconds, reflecting a level of traffic interruption that could be expected in an evacuation assuming the absence of traffic control measures.

11. Staff witness Dr. Thomas Urbanik, II,[12] testified that the capacities suggested by Intervenors in the contention were unreasonably low and not supported by experience or sound technical analysis. The Intervenors did not present a time estimate study of their own, nor an analysis of the study presented by the Applicants. Given the record before us, we have no reason to doubt that the traffic flow rate assumed in the Applicants' study is appropriate.

"Shadow" Evacuation

12. Testimony on the voluntary evacuation of residents of Charlotte outside the EPZ (b) was presented by Applicants. PRC performed two studies related to the evacuation of areas beyond the EPZ, one encompassing the voluntary evacuation of the entire Charlotte area, and the other, the southwest one-third of the city of Charlotte. The results of these studies were set forth in Attachment B to Mr. Kulash's testimony on Contention 11 (expansion of the EPZ boundary) (App. Ex. EP-19). However, we have considered that attachment here, since it is relevant to the impact, if any, on the traffic evacuation time study for the EPZ as currently drawn. That study indicated that impact of this traffic, assuming 100% of the Charlotte residents evacuating voluntarily, could delay EPZ evacuees using the only impacted route, I-77, 1 hour, which would delay completion of the entire EPZ evacuation by 30 minutes. Based on this evidence we find, contrary to the assertion in the contention, that

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[12] Dr. Thomas Urbanik, II, is Assistant Research Engineer, Texas Transportation Institute, Texas A&M University, and serves under contract to Battelle Pacific Northwest Laboratories, which is responsible under contract to the NRC for reviewing evacuation time studies of nuclear facilities. Dr. Urbanik was a principal author of NUREG/CR-1745 "Analysis of Techniques for Estimating Evacuation Times for Emergency Planning Zones" November 1980. He also provided input to the development of current guidance for evacuation time estimate studies which appears in Appendix 4 to NUREG-0654, Rev. 1 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" November 1980. Dr. Urbanik reviewed the initial evacuation time estimate study submittals of approximately 52 operating and near-term nuclear facilities for the NRC in light of NUREG-0654, Rev. 1, the results of which are published in NUREG/CR-1856 "An Analysis of Evacuation Times Estimates Around 52 Nuclear Power Plant Sites" May 1981.

Applicants have, in fact, considered the voluntary evacuation of residents of Charlotte.

Use of School Buses

13. Intervenors allege numerous difficulties with the evacuation of schools (c). Plans for the evacuation of schools, along with an analysis of the adequacy of such planning, were presented in Applicants' testimony. The State of North Carolina plans an early evacuation of children from schools and has adequate buses available to move the students without utilizing multiple bus pickups by bringing buses in from outside the EPZ. The State of South Carolina plans to use the high school student drivers only to pick up students. Phillips for Gaston County pointed out that there are adequate buses so that multiple trips will not be necessary. County employees, volunteer firemen or police could be used to drive the buses in place of the student drivers on return trips. Broome of Mecklenburg County testified that enough buses are available to avoid multiple trips, that these buses are a maximum of 30 minutes away, and only adult bus drivers would be allowed to return to the EPZ, not student drivers. Thomas of York County testified that student drivers might be used for multiple trips to evacuate the particular school they are assigned to, but would be replaced by volunteer firemen for any other evacuation purposes. Backup drivers are also available.

14. Kulash testified that he conducted a study entitled "Adequacy of Planning for School Population Evacuation/Catawba Nuclear Station Emergency Planning Zone," and that this study determined that an adequate number of buses exists to complete the evacuation in less than two trips per vehicle in each county. Dr. Urbanik testified that multiple trips could be conducted within the 4-hour evacuation time estimate due to the fact that a number of the buses are on site, can respond quickly, and can then return.

15. Each of the State and local officials pointed out that their policy is to discourage parents from driving to the schools to pick up their children because the current plans call for relocation of the students directly. Messages instructing parents not to attempt to pick up their children at school are also provided in the Applicants' brochures. Although it is anticipated that some parents will not follow these instructions and would not be prevented from picking up their children, this possibility was accounted for in the Applicants' evacuation time estimates.

16. Based on the record before us, we find that Applicants' evacuation time study has given careful consideration to the evacuation of

schoolchildren, the number of buses and trips required, and the necessity of providing alternative bus drivers (other than student drivers), and adequate planning has taken place to meet the needs identified in this regard.

Assumptions About Habits and Behavior

17. Contention 14 also alleges (d) the lack of a data base for the assumptions presented in the evacuation time estimate study concerning the length of time assumed for workers to return home for their families in preparation for departing the EPZ. Data regarding this concern are contained in Applicants' Exhibit EP-15, Attachment D, at 11.[13] Moreover, the assumptions of the study were reviewed by the Staff and FEMA and found reasonable (Staff Ex. EP-1, Urbanik at 5; Staff Ex. EP-2, Heard and Hawkins at 27). Work-to-home travel times are based on standardized trip length frequency distributions, as developed from home interview surveys throughout United States urban areas of all sizes. These distributions have proved to be predictable and stable for comparably sized areas. A maximum travel time of 20 minutes was adopted for a worker with both residence and workplace in the EPZ (corresponding to a distance of over 13 miles). The actual work/trip length frequency distribution used in the study assumed a work/trip length of up to 45 minutes; however, the small percentage of trips of between 20 and 45 minutes resulted in inclusion of this percentage within the 20-minute figure. It also assumed that at a length of more than 45 minutes, the driver would not return home or would be denied access to the EPZ. This is part of the distribution function used for preparation times in the EVACURVE module. Additionally, site-specific data compiled by PRC revealed that 85% of the people who work in York County also live in York County, lending further support to the assumptions regarding work/trip frequency distribution used in the Applicants' evacuation time estimate study.

18. One of the assumptions used to establish the work-to-home flow rates was that driver behavior would not be unusual, that is, not characterized by speeding, disregard of traffic regulations or using opposing lanes. Rather, congestion would limit urban speeds to 20 miles per hour (mph), while rural speeds could reach 40 mph. Because the average flow during an evacuation would range from 10 to 28 mph, the actual time is

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[13] Attachment D is entitled, "Assumptions Underlying Departure Times for Evacuation of the Catawba Nuclear Station Emergency Planning Zone," December 1983.

determined by congestion, rather than unusual driver behavior. Dr. Urbanik testified that the assumption of rational driver behavior is based on actual experience in disasters. We find, therefore, that there is a data base for these underlying assumptions, that they are reasonable and that no convincing evidence was presented challenging their adequacy.

Consideration of "Worst Case" Weather

19. With regard to Intervenors' concern (e), we note that Applicants' evacuation time estimate study assumed a reduction in roadway capacity of 40% for adverse weather conditions (App. Ex. EP-15, Kulash at 11). This represents restricted traffic flow due to ice, snow, heavy rain and winds, and traffic not totally stopped. Total blockage of the roadway due to clearing of snow, fallen trees or floods was not considered, as it is expected that average snowfall could accumulate as much as 3-4 inches before the roadways became completely blocked and resulted in a zero flow rate. The percentage reduction in roadway capacity to account for adverse weather remains fairly stable, although the causes could vary. Dr. Urbanik pointed out that if total blockage of roadways occurred due to snow, for example, the time to clear the roads must be added to the evacuation time estimates. The plan must be flexible enough to accommodate various scenarios. Consideration of adverse weather conditions is not intended as a "worst case" scenario, but rather assumes the roadway is still passable, at a reduced flow rate. There is an inherent danger in basing time estimate studies on only worst-case scenarios: it could lead to advising the population to shelter when evacuation is feasible and safer. Moreover, there is an overwhelming probability that any accident would occur during the time periods defined as "normal" or "adverse" weather as defined in Appendix 4 to NUREG-0654. Neither case study presented in the PRC analysis assumes best-case conditions. Normal evacuation already reduces the flow level from 1800 vehicles to 1200 vehicles which represents a reduced level of highway capacity. The adverse weather scenario further reduces this to only 60% of the capacity assumed for normal weather conditions. While this may not be "worst case," neither can either scenario be said to represent optimum conditions. If decisionmakers only had worst-case estimates available to them, they would be denied the flexibility essential to making a realistic determination of what protective action recommendation would best serve the public health and safety. Therefore, we find that the "normal" and "adverse" weather conditions used in the Applicants' evacuation time estimate study are appropriate and provide the best information to emergency planning officials for their decisionmaking. Accordingly,

there is no merit to Intervenors' concern about "worst case" weather conditions.

Transient Populations at Carowinds and Heritage

20. The next point raised by Contention 14, (f), asserts that the transient population at Carowinds amusement park and Heritage U.S.A. has not been considered in the evacuation time estimate study. Peak summer traffic from Carowinds and Heritage U.S.A. was, in fact, considered by PRC, but this study was not submitted as a separate study in the original evacuation time study since this did not impact the time estimates to any significant degree. However, this separate study is contained in Attachment E to Applicants' Exhibit EP-15. The study established that the transient population from both Carowinds and Heritage U.S.A. can be evacuated without lengthening the projected maximum evacuation times. The study was conservative (tending toward longer times) because such peak transient population, which would likely occur on a summer holiday, is assumed at the "critical" time period for working hours during the school year. However, the transient populations at Carowinds and Heritage U.S.A. are at a minimum during the school year during working hours. James Oliphant, Loss Preventions Operations Manager at Carowinds,[14] testified that Carowinds has its own evacuation plan in development. He also stated that the current State plan calls for the evacuation of the park before the general population evacuation, that is, at the alert stage before the sirens are sounded to notify the general population. The entire park could be cleared in 2.5 hours and it would only take 1.5 hours to clear the parking lot. Since the flow out of the parking lot will start as soon as the Carowinds staff begins directing people out of the park, congestion in the parking lot will have dissipated by the time the park itself is completely empty. The plan calls for Carowinds employees to direct traffic out of the parking lots and access routes, but State police have the responsibility to route traffic on the highways. Both Oliphant and Kulash testified that traffic from Carowinds will not back up on I-77 to a degree significant enough to have a major impact on the evacuation time estimates for the general population EPZ. We have no evidence before us to refute this testimony, and are satisfied that sufficient attention is being given to problems of transient traffic by State and local officials.

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[14] Mr. Oliphant, whose responsibilities include fire, security, first-aid and safety of Carowinds, was a rebuttal witness called by Intervenors.

Assumptions and Methodology

21. Contention 14 also questions (g) the methodology and assumptions used in the Applicants' evacuation time estimate study. The methodology and assumptions used are set forth in Applicants' Exhibit EP-15, Attachment D. Dr. Urbanik testified that the methodologies used are accepted and proven transportation planning, modeling and operating transportation systems, and are consistent with Appendix 4 of NUREG-0654. There is nothing in the record to indicate that the methodology and assumptions used in the PRC study are unsound, or have no empirical data base. The population figures used in the study are taken from the 1980 U.S. Census, which provides a solid data base. Additionally, the population for special facilities was derived from actual contact with the facilities. In short, the Intervenors have not presented us with any basis from which to question the adequacy of the methodology and assumptions used, nor are we aware of any.

Minimum Evacuation Time

22. Finally, we turn to the question (h) as to what is appropriate to assume as a "minimum" time for evacuation of the Catawba EPZ. The Intervenors assert that 33 hours is the minimum time that should be assumed. In this regard, we note that Dr. Urbanik, who has the primary responsibility for reviewing time estimates for the NRC, testified that there is not even one site in the U.S. where such an estimate would be reasonable. He pointed out that the general range of general population evacuation time estimates for all sites in the U.S. under normal weather conditions is from a minimum of 1 hour to a maximum of 12 hours. While Dr. Urbanik did not directly address what the time range is under a "worst case" scenario, he testified that a decisionmaker could add the amount of time necessary to clear the roads (e.g., a heavy snow) to the times estimated for adverse weather conditions. We have no reason to find that 33 hours is realistic for the Catawba EPZ. The evacuation time estimates before us for the Catawba EPZ considers various components, including adverse weather, special facility populations, transient populations, evacuation of schoolchildren, and the general population evacuation. The total evacuation times presented in the study range from 4 hours to 6 hours and 15 minutes, including considerations of adverse weather and special facility population evacuation (App. Ex. EP-15, Kulash Attach. A, at 4). We have no evidence to support Intervenors' theory that 600 vehicles/lane/hour is realistic. Dr. Urbanik drove the roadways in the Catawba EPZ and performed independent calculations of volume-to-capacity ratios to determine if any parts of the

network required times longer than those indicated in the Applicants' study, and found the analysis reasonable. The overwhelming evidence in the record before us supports our finding that the minimum time suggested by the Intervenors has no basis.

23. The longer evacuation time raised by the Intervenors involves an old, discredited estimate of the evacuation time for Catawba produced prior to NUREG-0654, which indicates that about 33 hours would be required to evacuate part of the plume EPZ near Rock Hill, South Carolina. This outdated document was apparently prepared under the loose guidance on estimating evacuation times which predated NUREG-0654. Contrary to Intervenors' assertion, none of the emergency planners who testified could recall having reviewed this old time estimate, let alone having endorsed it as accurate.

24. The mere existence of an earlier, conflicting estimate of evacuation time does not in any way cast doubt on the validity of PRC's estimate. Comparing the backgrounds of the two studies leaves no doubt as to which was the more accurate. The 33-hour estimate was based on an unknown method, produced results that cannot be duplicated, and is documented in a single-page letter. No witness was called who could testify to its validity. The 3- to 4-hour estimate, in contrast, is the product of a widely used, generally accepted method approved in NUREG-0654. It is supported by unrefuted expert testimony and is documented in an extensive series of reports. The method and results have been endorsed by independent experts and by State and local emergency management officials.

25. The Intervenors have identified no feature of the earlier estimate that is more reasonable or realistic than the PRC estimate. This Board has heard no evidence that calls into question either the accuracy of the evacuation time estimates produced for the Applicants by PRC or the use of these estimates by the emergency planning officials.

26. As a result of the foregoing, we find that the Applicants' evacuation time estimate study satisfies the criteria set forth in NUREG-0654, Appendix 4, and has given adequate consideration to evacuation of schools, Carowinds and Heritage U.S.A., adverse weather and has used acceptable methodology and assumptions regarding flow rates and people's work and living habits. We are fully satisfied that this time study provides decisionmakers with additional information and a basis on which a decision as to the feasibility of an evacuation could be made in the event of an emergency at the Catawba Nuclear Station. Thus, the Board finds that the allegations in Contention 14 lack merit.

27. Applicants' testimony on Contention 15 was combined with that on Contention 14, and consisted of a panel of witnesses from

Applicants, the State of North Carolina, the State of South Carolina, Gaston County, N.C., Mecklenburg County, N.C., and York County, S.C. FEMA's testimony also addressed this contention. Intervenors filed no written testimony on Contention 15, but relied on cross-examination and testimony of rebuttal witnesses Nathaniel Davis, Jr., James T. Oliphant and Brenda Best.

28. Essentially, EPC-15 asserts that proper provisions have not been made for the evacuation of the transit-dependent population, and the population in special facilities, such as hospitals and nursing homes, due to a possible shortage of buses and bus drivers. The problem of parents picking up their children at school and the evacuation of schoolchildren was addressed in the discussion of Contention 14 and will not be repeated here.

29. Components of the transit-dependent population include households who do not own vehicles, those people in vehicle-owning households who are at home while the family vehicle is away, and the institutional population of schools, nursing homes, hospitals and prisons in the EPZ. Each hospital, nursing home and penal institution in the EPZ was contacted to determine the number of evacuees, and a survey of EPZ residents was conducted to determine the number of household residents who would require transport in an emergency.

30. Pugh of North Carolina testified that while the North Carolina plan anticipates that most people without their own means of transportation will be able to secure transportation from neighbors or friends, nevertheless this planning includes the establishment of pickup points by publicly controlled buses for those in need of this service. Additionally, the State emergency medical services has established agreements with all rescue squads and ambulance services to respond for evacuation of threatened hospitals and nursing homes. Evacuation of day-care centers would be accomplished utilizing the staff of the facilities.

31. In York County, volunteer firemen and rescue squads would be used to evacuate hospitals and nursing homes. School buses would be used to transport those without private vehicles, and these buses would be driven by volunteers and could be supplemented by use of National Guard trucks. While it is true that these school buses are kept at the homes of the student drivers overnight, York County has adequate plans to deal with this contingency. The testimony shows that 250 buses are immediately available in the county, without the resort to these student-driven buses. However, if these buses are subsequently needed, volunteer firemen would then be instructed to either report to the individual bus locations to pick up the buses, or would gather at a central lo-

cation from which they would be taken as a group and let off one by one at the student drivers' homes.

32. The Gaston County plan calls for police officers and the central transport service to pick up the transit-dependent. The one day-care center would also be evacuated by use of the central transportation vans. There is no hospital in the Gaston portion of the EPZ, and the one nursing home has but five residents who would be evacuated by private auto.

33. The Mecklenburg County plan includes provisions for use of the City Department of Transportation buses as a primary source of transportation for the transit-dependent. While student drivers drive school buses in North Carolina, they would only be used to evacuate schoolchildren. If needed for transport of any of the dependent population, adult volunteers (firemen, police, emergency workers) would be used. There are no hospitals within the Mecklenburg County portion of the EPZ, and only one nursing home, which can handle its own needs. The day-care facilities have not indicated any need for transport assistance, with one exception, and a bus will be provided for this center.

34. Thomas of York County testified that the York County plan calls for the use of school buses driven by volunteer firemen to evacuate the transit-dependent. While buses driven by students will be used to evacuate schools, they will not be used for any other purpose. All of the hospitals and nursing homes and day-care centers in the York County portion of the EPZ have been contacted to determine the number of buses required for evacuation.

35. FEMA witnesses testified that each of the State and county plans contains provisions for evacuation of the transit-dependent population using school buses, ambulances and rescue squads.

36. The school bus supply and demand was analyzed in the Applicants' time estimate study in connection with separate studies of evacuation of schools and evacuation of the transit-dependent populations. Both these studies show that an adequate supply of school buses and additional transportation from other sources are available for evacuation of both schools and the transit-dependent population in the Catawba EPZ. We note that only York County anticipates the need for multiple bus trips to evacuate its School Districts 2, 3 and 4, and while this will be carried out by student drivers, any other use of these buses for the remainder of the transport-dependent population will be restricted to volunteer firemen as drivers.

37. Given the record before us, we find nothing in the record to contradict the assertion by both State and local emergency planners that an adequate number of buses and drivers will be available in the event of an emergency at the Catawba Nuclear Station. Identification of the

mobility-impaired and transit-dependent population is in the process of being carried out in North Carolina and South Carolina.

38. We find that, contrary to the assertions in the contention, careful attention has been paid to the needs of the transit-dependent population, including schools, and the Board is satisfied that the plans provide reasonable assurance that effective protective actions can be taken with regard to protection of the transit-dependent population.

39. Finally, regarding the concern that citizens will refuse to leave their homes, no evidence was presented by the Intervenors supporting this assertion. Instead, the record indicates that in emergency situations people follow the instructions of public officials.

40. We find that the emergency response plans developed by the States and counties are adequate and provide reasonable assurance that the EPZ can be safely evacuated. Thus, we find that the allegations in Contention 15 lack merit.

H. Intervenors' Emergency Planning Contention 18 — Adequacy of Local Telephone System

1. EPC-18 alleges that:

> In the event of an emergency, local telephone systems are inadequate to handle the immensely increased volume of telephone calls. Since notification of emergency personnel relies upon telephones and since those without vehicles are expected to call for a ride, major parts of the emergency communications system will be effectively knocked out. This applies especially to the notification of school bus drivers as specified in the plan.

2. The appropriate standards and criteria in regard to this contention are NUREG-0654, II.E and II.F. Criterion II.E.2 provides that: "each organization shall establish procedures for alerting, notifying and mobilizing emergency response personnel." Planning Standard II.F provides that: "provisions exist for prompt communications among principal response organizations to emergency personnel and to the public."

3. Applicants presented a panel of witnesses consisting of Stan D. Coleman, Jr., Michael E. Bolch, J.T. Pugh, III, P.R. Lunsford, Bob E. Phillips, Lewis Wayne Broome and Phillip Stevens Thomas. John C. Heard, Jr., and Thomas I. Hawkins testified for FEMA. The Intervenors did not present direct testimony on this contention.

4. In their proposed findings in ¶¶ 3 and 4 on page 186, the Intervenors state:

> Much of the concern which is founded upon the inadequacy of the local telephone system appears to be addressed through response by Applicants and the state and local planners who have identified a variety of alternative means including dedicated

lines, various radio equipment, and personal keepers, to accomplish notification of at least the key emergency personnel in the event of an emergency at the facility.

We have remaining concerns, however, regarding effects of the unavailability of the local telephone system on the implementation ability as it relates to the larger number of lesser emergency response workers as well as the members of the general public who, requiring special assistance, would seek to communicate by telephone with emergency management officials.

5. From the above statements we find that certain issues have been adequately addressed by the Applicants' witnesses and thus they are beyond the concern of the Intervenors and are no longer in controversy. These issues are (1) notification of the Station response team, (2) notification of officials of the three counties, and (3) notification of State and local officials. Applicants' witnesses Bolch, Coleman and Lunsford have addressed these aspects of this contention in detail and have found that a variety of communication systems are available for notification (App. Ex. EP-16, Coleman and Bolch at 1-7; Lunsford at 1-2). Their testimony leads us to agree with the Intervenors. We therefore find that the various means of communication other than public telephone lines are adequate for notification of these key emergency personnel in the event of an emergency at Catawba.

6. Remaining concerns of the Intervenors are the availability of the local telephone systems in the event of an emergency to (1) lesser emergency workers and (2) members of the general public who would seek to communicate with emergency management officials.

Notification of Emergency Response Personnel

7. In Gaston County, word of an emergency will be received by telephone or by radio at the county warning point and the county communications center. The warning point is staffed 24 hours a day, 7 days a week; at least two telephone communicators would notify twenty-five county department personnel on a priority basis if an emergency occurs. There is radio communication capability from the EOC to radio-equipped police, fire, ambulances and civil defense personnel (App. Ex. EP-16, Phillips at 1). Persons to be notified are listed in a standard operating procedure at the communications center. These persons would normally be contacted by the telecommunicators. However, in the event that the system became overloaded, radio communication would be used or a police officer would be sent to their residences (Tr. 1440-41, Phillips 5/8/84). Also, Gaston County has acquired a radio for two-way communication with EBS (Tr. 1404, Phillips 5/8/84).

8. In Mecklenburg County, if telephone systems become overloaded, emergency response personnel could be notified in a timely manner by radio, by sending a vehicle or by an emergency EBS announcement (App. Ex. EP-16, Broome at 1). Ten minutes is the maximum estimated time anticipated for notification of the essential personnel to man the Mecklenburg County EOC (*id.* at 2). If emergency management personnel are not in their office, they can be reached by pager or by broadcast to their radio-equipped cars. If they are at home and cannot be reached by telephone, a police car could be sent for them (Tr. 2887-88, Broome 6/5/84).

9. The York County Emergency Operations Plan states that the first person in York County's government to be notified in the event of a radiological emergency at Catawba is the dispatcher at the sheriff's department in Rock Hill (App. Ex. EP-16, Thomas at 1). The dispatcher has a predetermined list of persons to contact which includes the Director of the Emergency Preparedness Agency, people in the law enforcement system, his supervisor, the sheriff, etc. This can be accomplished either by telephone or through radio communication. The Emergency Preparedness Agency Director must in turn call four persons. It is estimated that this will take no longer than 5 to 7 minutes (*id.* at 1-2; Tr. 1423, 5/8/84). No problem is anticipated even if telephone circuits are overloaded in contacting emergency workers since backup methods of communication are available (Tr. 1438-39, Thomas 5/8/84). Backup sources of communication which are available for volunteer firemen, the emergency preparedness director and emergency management support (EMS) personnel are tone and voice pagers. EMS personnel also have walkie-talkies (Tr. 1430, Thomas 5/8/84).

10. The Board finds that in the event that telephone systems in Gaston, Mecklenburg and York Counties become overloaded, there is reasonable assurance that other means of prompt notification of county emergency response personnel will be available.

Transportation-Dependent Persons

11. In the event the telephone systems are overloaded, there are several ways of communicating with transportation-dependent persons. An EBS message would be used that would indicate locations at which people could be picked up. The supplemental mobile system for siren notification would also be available for people who need assistance. Persons needing transportation could contact personnel in these emergency vehicles (App. Ex. EP-16, Broome at 3). Transportation-dependent persons would be told by an EBS message to stand on their front porch or

hang a handkerchief on the door. Also, the Duke information brochure advises transportation-dependent persons to identify themselves to their local emergency management office in advance of an event as to their need for transportation (Tr. 1435-36, 1432, Thomas 5/8/84). Gaston County compiles a list of transportation-dependent persons annually (Tr. 1434, Phillips 5/8/84). In addition to picking up persons on prearranged routes, there would be emergency vehicles on the road looking for people who need transportation (App. Ex. EP-16, Phillips at 5; Tr. 1452-53, Thomas, Phillips and Pugh 5/8/84). In York County, school buses would be utilized to transport transportation-dependent persons. Rural volunteer firemen will serve as school bus drivers to transport these persons. Firemen can be notified by the sheriff's department through their tone and voice pagers (Tr. 1424-25, Thomas 5/8/84). In Gaston County, county vehicles rather than school buses will be used to pick up people who need transportation (App. Ex. EP-16, Phillips at 4-5).

12. From the above, the Board finds that in the event of an emergency there are adequate means of notification of transportation-dependent persons in Gaston, Mecklenburg and York Counties.

Notification of School Bus Drivers

13. Witness Broome testified that overloading of the telephone system would not interfere with notification of school bus drivers in Mecklenburg County because, if school were in session, drivers would be at the schools and would be notified by the tone alert system. If schools were not in session, there would be no problem or concern with school evacuation (App. Ex. EP-16, Broome at 4). Witness Phillips testified that in Gaston County if the schools were in session, to notify drivers he would call the principal of the school. If the schools were not in session, the school buses would not be needed (App. Ex. EP-16, Phillips at 4-5). Witness Thomas indicated that in the event the telephone systems of York County were overloaded, school bus drivers could be notified by the tone alert radios in the schools which would alert personnel to listen to EBS broadcasts. Bus drivers would be at the schools and would be notified by school officials (App. Ex. EP-16, Thomas at 5-6).

14. The Board finds that in the event of an emergency when schools were in session and the telephone system were to become overcrowded, there are adequate provisions for notification of school bus drivers. If schools are not in session, notification of bus drivers is not required except where buses are to be used for transportation-dependent people.

In these instances, the tone-alert and voice pagers can be utilized to contact drivers.

15. After consideration of all evidence bearing on the availability of the local telephone systems in case of an emergency, to lesser emergency workers and members of the general public who need to communicate with emergency management officials, we find that adequate alternate means of notification are available. We find that there is reasonable assurance that the requisite notifications can be accomplished even with overloading of local telephone systems. If there is overloading of the telephone systems, we find that transportation-dependent persons would be able to arrange for, or signal for transportation. Finally, we find that school bus drivers can be notified in a timely manner even though there is overloading of the local telephone systems.

V. CONCLUSIONS OF LAW

The Board has considered all of the evidence submitted by the parties in this proceeding on the emergency planning issues. Based upon a review of that record and the foregoing Findings of Fact the Board concludes that:

1. The emergency plans meet the requirements of 10 C.F.R. § 50.47, and Appendix E to 10 C.F.R. Part 50, as well as the criteria of NUREG-0654, and provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency;

2. The issuance of operating licenses to the Applicants, as conditioned in the Order, will not be inimical to the common defense and security or to the health and safety of the public; and

3. Pursuant to 10 C.F.R. § 2.760a and 10 C.F.R. § 50.57, that the Director of Nuclear Reactor Regulation is authorized to issue to the Applicants, upon making requisite findings with respect to the matters not embraced in this Supplemental Partial Initial Decision, licenses authorizing operation of Catawba Nuclear Station, Units 1 and 2, subject to the satisfaction of the conditions set forth in the Order.

VI. ORDER

Wherefore, It Is Ordered, in accordance with 10 C.F.R. § 2.760a and 10 C.F.R. § 50.57, that the Director of Nuclear Reactor Regulation is authorized to issue to the Applicants, upon making requisite findings with respect to matters not embraced in this Supplemental Partial Initial

Decision, the licenses authorizing the operation of Catawba Nuclear Station, Units 1 and 2, provided that the following conditions are met within 180 days following the initial issuance of an operating license.

1. (a) Applicants' Brochure shall state that high levels of radiation are harmful to health and may be life-threatening and such statement shall be contained within that portion of the brochure that deals with actions to be taken in the event of an emergency; (b) the warning signs and decals shall specify the types of emergencies they cover including nuclear; (c) the warning signs and decals shall notify transients as to where they can obtain local emergency information, as provided in NUREG-0654 Evaluation Criterion II.G.2; and (d) Applicants' emergency plans shall reflect the kinds of locations within the plume exposure EPZ wherein the warning signs and decals and emergency response information will be placed and the procedures employed to assure that sufficient numbers are being distributed to effectively reach the transients, and that the plans be implemented.

2. We require of Applicants that there be comprehensive plans for early notification to Carowinds of a radiological emergency at Catawba and for evacuation of Carowinds. They shall describe the responsibilities of the emergency response organizations of Mecklenburg and York Counties and provide for their efforts to be coordinated among themselves and with Carowinds' officials. Provisions in the plans shall be made to immediately notify patrons and staff of Carowinds at the time of the precautionary closing of the park, of the cause of the emergency. The means to implement the plans shall be made available.

3. Applicants shall fulfill the above conditions to the satisfaction of the Staff, within the time specified above.

Furthermore, not as a condition of the licensing, we direct that: (1) Applicants confirm to FEMA and the Staff that FEMA's finding arising from the February 1984 exercise, that more Gaston County personnel be trained in monitoring and decontamination procedures, has been addressed; and (2) Applicants obtain changes to the South Carolina Emergency Plan which will show the role and responsibilities of the Division of Public Safety in the Office of the Governor of South Carolina in ordering evacuations along with the identification of key individuals by title, and provide copies to FEMA and Staff.

Pursuant to 10 C.F.R. § 2.760(a) of the Commission's Rules of Practice, this Supplemental Partial Initial Decision will constitute the final decision of the Commission forty-five (45) days from the date of issuance, unless an appeal is taken in accordance with 10 C.F.R. § 2.762 or the Commission directs otherwise. (*See also* 10 C.F.R. §§ 2.764, 2.785 and 2.786).

Any party may take an appeal from this decision by filing a Notice of Appeal within ten (10) days after service of this decision. Each appellant must file a brief supporting its position on appeal within thirty (30) days after filing its Notice of Appeal (forty (40) days if the Staff is the appellant). Within thirty (30) days after the period has expired for the filing and service of the briefs of all appellants (forty (40) days in the case of the Staff), a party who is not an appellant may file a brief in support of or in opposition to the appeal of any other party. A responding party shall file a single, responsive brief regardless of the number of appellants' briefs filed (*See* 10 C.F.R. § 2.762(c)).

THE ATOMIC SAFETY AND
LICENSING BOARD

Morton B. Margulies, Chairman
ADMINISTRATIVE LAW JUDGE

Dr. Robert M. Lazo
ADMINISTRATIVE JUDGE

Dr. Frank F. Hooper
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 18th day of September 1984.

APPENDIX A

List of Witnesses

Linda Harris Anderson	Director, Chapter Manager of the Rock Hill Chapter of the American Red Cross
Arlene Bowers Andrews	College of Social Work University of South Carolina
Dr. M. Reada Bassiouni	Acoustics consultant, Acoustic Technology, Inc.

Brenda Wagnon Best	Schoolteacher, Olympic High School
Mary L. Birch	Systems Engineer, Radwaste Engineering Section, Duke Power Company
Michael E. Bolch	Emergency Preparedness Coordinator, Duke Power Company
Lewis Wayne Broome	Administrative Officer, Charlotte-Mecklenburg Emergency Management Office
Dayne Brown	Chief of the North Carolina Radiation Protection Section, Division of Facility Services
Phillip F. Carter	Director, Community Relations, Duke Power Company
Mary Cartwright	General Manager Public Relations, Duke Power Company
Mark A. Casper Engineering Department, Duke Power Company	Meteorologist for the Design
Marvin Chernoff	Polling Consultant, President, Chernoff Silver Associates
Stan D. Coleman, Jr.	Design Engineer, System Communications Transmission Department, Duke Power Company
Nathaniel Davis, Jr.	Director of Transportation for York School District No. 1
Harold Mason Dickson	Chairman of the York County Council
Dr. Susanna V. Duckworth	Assistant Professor, Winthrop College
Robert F. Edmonds, Jr.	Senior Engineer, Civil/Environmental, Duke Power Company
James E. Fairobent	Meteorologist, Meteorology Section, Meteorology and Effluent Treatment Branch, Division of Systems Integration, Office of Nuclear Reactor Regulation, Nuclear Regulatory Commission

Luther L. Fincher, Jr.	Acting Director for Emergency Management of Charlotte and Mecklenburg County
Dr. Samuel L. Finklea, III	Bureau of Radiological Health, South Carolina Department of Health and Environmental Control
R. Michael Glover	Emergency Response Coordinator, Duke Power Company
Kathleen B. Gordon	Emergency Management Planning Review Committee, Mecklenburg County
James Gregory, Jr.	Planner, South Carolina Emergency Preparedness Division
E. H. Harris, Jr.	Assistant Director for Emergency Response, North Carolina Division of Emergency Management
Thomas J. Hawkins	Emergency Management Program Specialist, Radiological Emergency Planning, FEMA Region IV, Liaison with North and South Carolina
John C. Heard, Jr.	Chief, Technological Hazards Branch, Natural and Technological Hazards Division, FEMA Region IV
Dennis Johnson	Disaster Specialist for the American Red Cross
Walter M. Kulash	Consultant on emergency management planning, Associate vice-president, PRC Engineering
Betty Long	Director of Service to the Armed Forces and Disaster Services for the American Red Cross covering Charlotte/Mecklenburg
Paul R. Lunsford, Sr.	Chief Area Coordinator, Emergency Preparedness Division, Office of the Adjutant General, State of South Carolina

William M. McSwain	Exercise Training Officer, South Carolina Preparedness Division
Major Philip Needham	Divisional Secretary of the Salvation Army for North Carolina and South Carolina
James Edward Neves	Regional Director, State Division of Social Services for the Western Region of North Carolina
James T. Oliphant	Loss Prevention Operations Manager, Carowinds
Bob E. Phillips	Director of the Gaston County Emergency Management Agency
Ruth Wanzer Pittard	Director of Audio-Visual Services, Davidson College
J. Elbert Pope	Sheriff of York County, South Carolina
Thomas E. Potter	Consultant on health and safety aspects of nuclear power, Pickard, Lowe and Garrick, Inc.
Jesse Thomas Pugh, III	Division Director, North Carolina Department of Crime Control and Public Safety, Division of Emergency Management
Jesse L. Riley	Carolina Environmental Study Group
Perry D. Robinson	Emergency Preparedness Specialist, Emergency Preparedness Licensing Branch, Division of Emergency Preparedness, Office of Inspection and Enforcement, Nuclear Regulatory Commission
Philip Layne Rutledge	Market Researcher, Astrovision
Frank B. Sanders	Director, Division of Public Safety, Governor Riley's Office, State of South Carolina
Steven C. Sholly	Technical Research Associate Union of Concerned Scientists

Leonard Soffer	Section Leader of the Accident Risk Section, Reactor Risk Branch, Division of Risk Analysis, Office of Nuclear Research, Nuclear Regulatory Commission
Phillip Steven Thomas	Acting Director of Emergency Preparedness, York County, South Carolina
Judith D. Turnipseed	Public Information Officer, Division of Public Safety, Office of the Governor of South Carolina
Ray Twery	Lecturer in Statistics, Department of Mathematics and Computer Science, University of North Carolina, at Charlotte
Dr. Thomas Urbanik, II	Associate Research Engineer associated with Texas Transportation Institute of the Texas A&M University System

APPENDIX B

List of Exhibits

No.	Description	Tr. Pg. Ident.	Tr. Pg. Rec'd
Applicants' Exhibits			
No. 1	North Carolina Emergency Plans	128	588
No. 2	South Carolina Emergency Plans	128	588
No. 3	Catawba Nuclear Station Emergency Plan	129	588

No. 4	Duke Power Company Crisis Management Plan for Nuclear Stations	129	588
No. 5	Catawba Nuclear Station Emergency Plan brochure, 1984 edition	130	588
No. 6	Catawba Nuclear Station Student Emergency Plan	130	588
No. 7	Applicants' Testimony on Emergency Planning Contentions 1 and 7	141	519
No. 8	Catawba Nuclear Station Emergency Plan brochure, undated	170	588
No. 9	Public Warning Decal	270	270
No. 10	Brochure: "Agriculture and Nuclear Power in South Carolina"	373	588
No. 11	Brochure: "In Time of Emergency, A Citizen's Handbook on Nuclear Attacks and Natural Disasters"	373	588
No. 12	Brochure: "Disasters, What to Do to Protect Yourself"	373	588
No. 13	Applicants' Testimony on Emergency Planning Contention 3	603	603
No. 14	Applicants' Testimony on Emergency Planning Contention 6	883	883
No. 15	Applicants' Testimony on Emergency Planning Contentions 14 and 15	1005	1005
No. 16	Applicants' Testimony on Emergency Planning Contention 18	1343	2809
No. 17	Applicants' Testimony on Emergency Planning Contention 9	1825 1829	1825
No. 18	Nurkin Press Release	1982	1982
No. 19	Applicants' Testimony on Emergency Planning Contention 11	2006	2006
No. 21	Applicants' Testimony on Emergency Planning Contention 8	2809	2809

No. 21A	Letter of 5/30/84 from Ms. Cottingham w/revised pp. 6 and 6A of Harris/Pugh testimony in App. Ex. EP-21	2817	2817
No. 22	Operations Map, Catawba Nuclear Station, of January 1984	Board Order of 6/15/84 assigning exhibit numbers	
No. 23	Ingestion Pathway Map, Catawba Nuclear Station, Sheet 1	Board Order 6/15/84 assigning exhibit numbers	
No. 24	Ingestion Pathway Map, Catawba Nuclear Station, Sheet 2	Board Order of 6/15/84 assigning exhibit numbers	

Intervenors' Exhibits

No. 1	Letter of April 13, 1983, to Jane Lesser	169	
No. 2	Letter from Pugh to Glover dated 6/28/83	395	397
No. 3	Letter from Glover to J. Moore, *et al.*, dated 4/21/83	401	
No. 4	Letter dated 4/22/83 from Duckworth to Carter	422	
No. 5	Letter dated 8/24/83 from Duckworth to Carter	442	
No. 6	Letter dated 2/8/84 from Duckworth to Carter	443	443
No. 7	"Catawba Information Programs" prepared by Mary Cartwright, dated 8/26/83	467	519
No. 8	"The New Generation," Vol. II, No. 4, December 1983	478	482
No. 9	Chernoff/Silver & Associates Community Issues Survey	493	
No. 10	Community Issues Survey dated 9/83	497	
No. 11	Brochure, "How Much Radiation Do You Receive?"	499	501

No. 12	Letter from Pat Osborne, addressed "Dear Neighbor," dated 5/6/83	571	572
No. 13	Applicants' Answers and Objections to CESG and Palmetto Alliance's First Round of Interrogatories, Questions 7-3 and 7-7; and 3/20 pleading, Applicants' Supplemental Answers	617	
No. 14	"Guidelines and Procedures, American Red Cross Disaster Services, Shelter Management Guide for Trainees"	734	
No. 15	List of Emergency Shelters	821	4504
No. 16	Letter dated 7/16/80 to H.R. Denton, from W.O. Parker, Jr., with 7-page attachment	1163	1165
No. 17	Letter dated 5/7/80 to Divine Savior Hosp. & Rock Hill Convalescent Ctr. from J.W. Hampton	1170	1170
No. 18	Letter dated 10/31/83 to Lee from Lutes	1178	1178
No. 19	Letter dated 11/8/83 to Hendricks from Glover (cover), with attachments of two letters	1180	1182
No. 20	Letter dated 12/2/83 to Hendricks from Glover	1183	1184
No. 21	Letter dated 1/18/83 to McSwain from Thomas	1184	1191
No. 22	Memo PRC Voorhees dated 1/24/83 to Kulash from Lutes, 12-page attachment	1206	1208
No. 23	Interoffice PRC memo 2/4/83 to Lee from Kulash & Lutes, w/attachments	1206	1208
No. 24	Letters dated 2/7/83 from Hager to Phillips, Carroll, Broome, Self and McSwain	1207	1208
No. 25	Letter dated 2/16/83 to Lee from McSwain	1207	1208

No. 42	Request for Board action on extension of EPZ	1981	1982
No. 43	1980 Population and Population Density	2017	1017
No. 44	Map Core Area of City of Charlotte	2149	2150
No. 45	Document entitled, "1982 High Accident Locations Priority Order"	2159	2159
No. 46	Charlotte All-Hazards Plan, 1982	2162	2162
No. 47	Glover memo to file dated 7/20/82	2165	
No. 48	Testimony of Riley & Twery	2248	2308
No. 49	Testimony of Sholly	2248	2308
No. 50	Map of City of Charlotte	2295	2295
No. 51	Document entitled "Tracking Survey"	4277	
No. 52	Report on Chemical Fire	4442	4442
No. 53	Letter dated 1/31/84 to teachers at schools in Catawba EPZ from S. Isolâ	4545	4545
No. 54	Announcement on Drills	4550	4550
No. 55	North Carolina Executive Order No. 72 dated 12/14/81	Board Order of 6/15/84 assigning exhibit numbers	

Staff Exhibits

No. 1	Testimony of Urbanik, Concerning Evacuation Time Estimate Studies	1258	1258
No. 2	Testimony of FEMA Witnesses Heard and Hawkins	1463	1463
No. 3	FEMA Interim Findings Report	1468	1468
No. 3A	Memo dated 5/8/84 to Jordan from Krimm	4081	4180
No. 4	FEMA Exercise Report 3/5/84, Catawba Nuclear Station Exercise Feb. 15-16, 1984	1662	
No. 5	Testimony of Soffer, Fairobent and Robinson	2573	2573

Cite as 20 NRC 1019 (1984) LBP-84-38

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Peter B. Bloch, Chairman
Dr. Oscar H. Paris
Frederick J. Shon

In the Matter of **Docket No. 50-155-OLA**
(ASLBP No. 79-432-11-LA)

CONSUMERS POWER COMPANY
(Big Rock Point Plant) **September 25, 1984**

In this Supplemental Initial Decision, the Licensing Board dismisses four remaining issues and authorizes the issuance of a license amendment.

TECHNICAL ISSUES DISCUSSED

Spent Fuel Pool Water Level Monitors
Containment Pressurization (from spent fuel pool)
Motor-Operated Valves (irrelevant to spent fuel pool)
Emergency Planning Pamphlet (content)
Distribution of Emergency Planning Pamphlet
Cask Drop (adequacy of redundant support system).

SUPPLEMENTAL INITIAL DECISION
(On Four Remaining Issues)

The Initial Decision (On All Remaining Issues) issued in this proceeding on August 29, 1984 (LBP-84-32, 19 NRC 601) inadvertently failed to dispose of four issues dealt with in the 1982 hearing; proposed findings for those issues were filed in 1982. We dispose of those issues in this Supplemental Decision and also correct two typographical errors contained in the Order of the August 29, 1984 Initial Decision.

I. WATER LEVEL MONITORS

In our Memorandum and Order of February 19, 1982, we limited Christa-Maria Contention 8 and O'Neill Contention III.E-2 to several specific genuine issues of fact, one of which was the following:

> How reliable are the spent fuel pool water level monitors which applicant is planning to install? Are they qualified for high temperature and humidity?

This issue arose out of the Intervenors' contention that an accident at Big Rock Point similar to the one at Three Mile Island, Unit 2 (which prevented entry into the containment building) might make it impossible to maintain the spent fuel pool in a safe condition.

At the hearing held in this proceeding from June 7 through June 12, 1982, testimony on this issue was submitted by Licensee and the Staff. (Further Testimony of David P. Blanchard on Christa-Maria Contention 8 and O'Neill Contention III.E-2 (Blanchard), ff. Tr. 2024; Joint Testimony of Fred Clemenson and Richard L. Emch Concerning Christa-Maria Contention 8 and O'Neill Contention II.E-2 (sic) Genuine Issues of Fact 1 and 2 (Clemenson/Emch), ff. Tr. 2341.) The Intervenors offered no direct testimony on this issue, and they indicated that they did not take issue with the monitor itself. (Intervenors (sic) Proposed Findings of Fact [on] Christa-Maria Contention 8 and O'Neill Contention III-2 (sic) (Subparts 1, 2, and 3) (Intervenors) at 9.) Intervenors did, however, raise the question of lack of redundancy with respect to the water level monitor. (Intervenors at 9.)

Staff testified that it did not consider the reliability of the water level monitor to be a safety concern because the monitor would play no part in providing makeup water to the pool in the event of a LOCA. (Clemenson/Emch at 8-9.) The remote makeup system operates automatically when the core spray recirculation system operates. (*Id.* at 5; Blanchard at 21-22). Moreover, there are alternate methods by which Licensee can

detect a significant loss of water from the pool should the water level monitor fail. (Clemenson/Emch at 9.) Nevertheless, the water level monitor is qualified for a LOCA environment and is powered by reliable offsite and onsite power systems. (Blanchard at 22-24.)

Conclusion

In view of the foregoing testimony we conclude that the water level monitor would be of limited usefulness in the event of an accident in which ingress to the containment building is impossible. Therefore, it is not a safety concern and redundancy is unnecessary. Moreover, the evidence shows the water level monitor to be adequately reliable.

II. MOTOR-OPERATED VALVES MO-7064 AND MO-7068

Another genuine issue of fact that we recognized in Christa-Maria Contention 8 and O'Neill Contention III.E-2 was the following:

> Are motor-operated valves MO-7064 and 7068 necessary to control containment pressurization? Are they qualified for high temperature and high humidity?

Testimony on this issue was presented by the Licensee and by the NRC Staff. (Further Testimony of David P. Blanchard on Christa-Maria Contention 8 and O'Neill Contention III.E-2 (Blanchard), ff. Tr. 2024; Testimony of Paul Shemanski Regarding Christa-Maria 8 and O'Neill Contention II.E-2 (sic) Genuine Issue of Fact 3 (Shemanski), ff. Tr. 2332.) Intervenors presented no direct testimony on this issue but relied on cross-examination to make their case.

The motor-operated valves MO-7064 and MO-7068 control the containment spray which, among other things, controls containment temperature under accident conditions. (Blanchard at 24-25; Tr. 2015.) The containment spray and valves MO-7064 and MO-7068, however, are not necessary to control containment pressurization. The containment is designed to withstand a pressure of 27 psig, and no postulated LOCA can result in containment pressure that high. (*Id.* at 25.) Additional pressure could result from boiling of the spent fuel pool, but we found in our Initial Decision issued on August 29, 1984, that the makeup system would prevent the pool temperature from exceeding 150°F under accident conditions. (Initial Decision, LBP-84-32, 20 NRC at 625.) Thus the pool will never reach boiling temperature. Even if the makeup system were not used, it would take approximately 140 hours for the pool to

reach boiling temperature following loss of coolant. The pressure resulting from a LOCA would fall to near ambient long before the pool could boil, as a result of steam condensation and the cooling effect of the containment sprays; consequently pressure from pool boiling would not add to that resulting from the LOCA. (Blanchard at 25-26.) Finally, Blanchard also testified that both valves were qualified on an interim basis for high humidity and temperature. (*Id.* at 26, 29.)

Staff's witness testified that motor-operated valve MO-7064 is considered by the NRC to be qualified for high temperature and high humidity. Motor valve MO-7068, which is used for iodine washdown and can be used as a backup to MO-7064 if necessary, was to have been qualified by Licensee by June 30, 1982, pursuant to *Petition for Emergency and Remedial Action,* CLI-80-21, 11 NRC 707, 714-15 (1980). (Shemanski at 3-4.) But we take official notice of the fact that the Commission removed the 1982 date, and by a final rule dated September 5, 1984, to become effective upon publication in the *Federal Register,* it established the 1985 deadline set by 10 C.F.R. § 50.49.

The Intervenors argue that the containment sprays are necessary to condense steam and reduce containment pressure.[1] (Intervenors at 9-10.) They also argue that the NRC Staff has not fully qualified these valves for high temperature and high humidity. (Intervenors at 10.) Further, they argue that the valves have not been tested for radiation and thermal aging. (*Id.*) And they allege that MO-7068, which is actuated manually, would not be accessible if the containment were contaminated. (*Id.* at 12.)

Witness Blanchard pointed out that MO-7064 actuates early in an accident before the environment within containment becomes significantly degraded by an accident. (Blanchard at 27 and attachments 2-3 at 90, 97-98.) If it were necessary to use MO-7068 because of a failure of MO-7064, MO-7068 would also be actuated early in the accident. (*Id.* at 27.) Nor would it be necessary to enter the containment to actuate MO-7068; the valve can be actuated from the control room. (*Id.* at 25.)

Conclusions

The Intervenors' arguments are not supported by the record. The evidence shows that the spent fuel pool will not contribute to containment pressurization and that motor-operated valves MO-7064 and MO-7068

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[1] Intervenors cite Blanchard's testimony at page 25, either overlooking or ignoring the fact that his written testimony was corrected at transcript page 2015. The corrected record does not support the statement that the sprays are needed to reduce containment pressure following a LOCA.

are not necessary to control pressurization. Christa-Maria Contention 8 and O'Neill Contention III.E-2 are dismissed in their entirety.

III. EMERGENCY PREPAREDNESS NOTIFICATION

In its August 6, 1982 Initial Decision concerning the emergency preparedness pamphlet (subcontentions 9(2) and 9(3)), the Board ordered the Licensee to make fifteen modifications to the emergency preparedness pamphlet and also to provide additional evidence on the manner and method for notifying transients in the Big Rock Point plume exposure pathway emergency planning zone (EPZ) of the existence of the emergency plan. (LBP-82-60, 16 NRC 540 (1982).) This information was submitted under affidavit by the Licensee on September 2, 1983, and included: "Response of Consumers Power Company Showing Compliance with the Order of the Licensing Board Regarding the Content and Distribution of the Emergency Preparedness Pamphlet" (CPC Response) dated September 2, 1983; "Affidavit of Phillip B. Loomis" (Loomis Affidavit) sworn to on August 26, 1983; and "Affidavit of Robert W. Grupp" (Grupp Affidavit) sworn to on August 26, 1983; and "Affidavit of Joseph A. Schwartzfisher" (Schwartzfisher Affidavit) sworn to on December 7, 1982.

A. Modifications to the Emergency Planning Pamphlet

The fifteen modifications ordered or approved by the Board in its August 6, 1982 Decision were incorporated into a revised version of the pamphlet which was distributed by mail on October 18, 1982. (Loomis Affidavit at 1-2.) Subsequent to this distribution, Licensee was directed by NRC Region III to delete one of the instructions that the Board had ordered, *viz.*, "[i]f you are asked to evacuate, first put on a dust mask or breathe through a damp handkerchief to filter out any dust in the air." Counsel for the NRC Staff advised the Licensing Board and the parties that the NRC's technical staff viewed this language as technically unsound as a routine measure. Normally evacuation would be ordered as a precautionary measure some time before an actual release of radioactive material might occur. Wearing a dust mask or holding a handkerchief over the nose would, Staff believes, tend to delay evacuation and might interfere with driving and create a safety hazard. Respiratory protective measures should be utilized only upon the specific direction of offsite authorities at the time of an accident; such directions would be issued if radioiodines or particulate material is released, and normally sheltering, rather than evacuation, would be ordered in that situation. (Letter to

the Board from Richard J. Goddard, dated October 22, 1982.) We find Staff's argument persuasive and conclude that the quoted sentence was properly deleted from the pamphlet.

B. Distribution of the Emergency Preparedness Pamphlets to Residents

For the distribution of the pamphlet by mail in October 1982, a mailing list of all residences and businesses in the EPZ was prepared by Professional Business Services of Petoskey with the cooperation of the Utility Department of the City of Charlevoix, the Charlevoix Post Office, and the Petoskey Post Office. (Loomis Affidavit at 2.) The Postmaster of the City of Charlevoix, Mr. Joseph Schwartzfisher, advised Licensee that the October mailing would not be received by many summer residents and suggested that a mailing between mid-July and mid-August would reach virtually all mail customers residing in the EPZ. He also stated that he knew of no persons who were winter-only residents in the Charlevoix area. (Schwartzfisher Affidavit at 2.) Therefore, Licensee carried out a second mailing in mid-July 1983, and it commits to perform such a distribution on an annual basis. (Loomis Affidavit at 2.) We find that the mail distribution and Licensee's commitment to perform such a mail distribution annually are adequate for informing both year-round and summer residents. Further, we find that the absence of winter-only residents eliminates any need for a winter mail distribution.

C. Distribution of the Emergency Preparedness Pamphlets to Transients

Licensee has pursued several means of providing emergency preparedness information to transients. Quantities of the pamphlet were distributed to "transient-attracting" locations, including hotels, motels, restaurants, public buildings, marinas, transportation companies, and airports. (Grupp Affidavit at 3-4.) All but two of the locations cooperated by accepting the pamphlets and arranging for a place to display them. The two uncooperative locations were a service station, whose owner advised Licensee that company policy prohibited the display of noncompany material, and a motel whose owners feared that the knowledge that a nuclear plant was nearby would drive away business. (*Id.* at 5.) Additionally, two more locations declined to accept pamphlets during the second distribution: the U.S. Post Office, which stated that postal regulations prohibited the display of nongovernmental material; and a cafe, which refused for reasons similar to those given by the uncooperative motel. (*Id.*)

The pamphlets have also been distributed to locations beyond the 5-mile EPZ. The Emergency Services Director for Emmet County distributed quantities of the pamphlet to various locations outside the EPZ (a small portion of Emmet County lies within the EPZ), and Licensee provided copies for display at the Pellston and Traverse City airports, which are 30 and 60 miles from Big Rock Point, respectively. (*Id.* at 5-6.) Copies of the pamphlet were also distributed to selected locations in Boyne City, East Jordan, Ironton, Horton Bay, and Walloon Lake. (*Id.* at 6.) Licensee has committed to continue to distribute pamphlets to these locations and to encourage the continued cooperation of the persons to whom they are delivered. (*Id.*)

In addition, Licensee, in cooperation with the Charlevoix County Emergency Services Director, prepared a sticker for distribution to selected locations in the EPZ. The sticker instructs persons who hear a siren to tune their radios to one of the local radio stations designated to broadcast emergency information. (Loomis Affidavit at 3.) The stickers were mailed to all locations in the EPZ likely to attract transients, under cover of a letter from the Emergency Services Director asking the recipient to display the stickers where they would be noticed. (Grupp Affidavit at 30.)

Finally, information concerning the siren notification system has been included on the back of the boat dock permit which is acquired by all boaters who use the public docks in the City of Charlevoix. Similar information will be posted in a display case in Elzinga Park, which is located near the Big Rock Point Plant. (Loomis Affidavit at 4-5.)

We conclude that the Licensee has made a conscientious and effective effort to distribute information that will reach the transient population in the EPZ. Moreover, by distributing the pamphlet information at strategic locations outside the EPZ, Licensee has provided a means of reaching some transients before they reach the EPZ.

D. Conclusion

We find that Licensee has complied with the order of the Board in our August 6, 1982 Decision and with the regulatory principles concerning distribution of emergency planning information to the public. Accordingly, Christa-Maria Contention 9 is dismissed in its entirety.

IV. CASK DROP

Having found that the original wording of O'Neill Contention II.C did not raise any genuine issues of fact, the Board granted summary disposi-

tion of the contention as worded. (LBP-82-8, 15 NRC 299 (1982).) On the basis of information obtained by Intervenors in the course of discovery, however, the Board admitted under II.C the following reworded contention:

> Is the spent fuel pool safe from a rupture which might be caused by a drop of a spent fuel transfer cask or of the overhead crane?

The Board also determined, *inter alia,* that there was a genuine issue of material fact as to whether it was necessary for the safety of the enlarged spent fuel pool for 200 gallons per minute (gpm) of makeup water to be available to protect the pool from the consequences of a dropped spent fuel transfer cask or the fall of the crane. That part of the contention dealing with the overhead crane was separated from the cask drop issue and reserved for litigation at the 1983 hearing; it was decided in LBP-84-32 (August 29, 1984). The cask drop issue was litigated during the 1982 hearing and will be decided here.

Based on reasons discussed below, the Board has determined that the testimony supports a finding that there is reasonable assurance that the fuel transfer cask will not drop into the spent fuel pool. Therefore, we need not make a finding on the question of whether it is necessary for 200 gpm of makeup water to be available in the event of a pool rupture caused by a cask drop.

Licensee presented a panel of witnesses consisting of the following persons: Mr. John W. Johnson (Testimony of John W. Johnson (Johnson), ff. Tr. 2419); Mr. Charles R. Norman (Testimony of Charles Norman (Norman), ff. Tr. 2419); Mr. John J. Popa (Testimony of John Popa (Popa), ff. Tr. 2419); and Mr. Davis Mullholand, Jr. (Testimony of Davis Mullholand, Jr. (Mullholand), ff. Tr. 2419).

The NRC Staff also presented a panel of witnesses, consisting of the following: Mr. Fred Clemenson, Mr. Richard L. Emch, Jr., Mr. Ian Sargent, and Mr. Dennis J. Vito (Joint Testimony of Fred Clemenson, Ian Sargent, D.J. Vito, and Richard L. Emch, Jr., Concerning O'Neill Contention II.C (Clemenson, *et al.*), ff. Tr. 2434, at 1-3).

Licensee also offered testimony as rebuttal to a portion of the Staff's testimony, presented by Mr. Mullholand and Mr. Norman (Rebuttal Testimony of Charles R. Norman (Rebuttal), ff. Tr. 2469).

The Intervenors presented no direct testimony on this issue but relied on cross-examination to make their case.

The M.P.R. Analysis[2] of the redundant support system for the 24-ton spent fuel transfer cask showed that the maximum dynamic loading on the redundant support system, in the event of a failure of the main hoist or primary cask lifting sling, would be less than 150 tons. (Johnson at 10.) The Whiting Corporation evaluation imposed a total dynamic load on the two cask catch mechanisms of 150 tons, or 75 tons per cask catch mechanism. (Norman at 6.) Each cask catch mechanism is connected to the wedge housing plates by two cask catch pins. (*Id.*) The analysis showed that the bending stress on the pins imposed by 37½ tons would exceed the yield strength of the pins. (*Id.* at 7.) Therefore Mr. Norman recommended that Consumers Power replace the pins with pins having a greater diameter and manufactured from stronger material. Consumers Power committed to make that modification. (*Id.*) Mr. Mullholand testified that the modifications would be made prior to the next refueling outage. (Mullholand at 3-4.)

The trolley load girt is bolted to steel angle clips that are riveted to the trolley truck. (Norman at 10.) The analysis performed by Whiting Corporation for this connection showed that the stresses imposed by the postulated load were well within the allowable yield stresses for the rivets. (*Id.*) The maximum shear stress postulated for certain of the bolts, however, exceeded the shear yield strength of the bolts. (*Id.*) Consequently, Mr. Norman recommended that the bolts in question be replaced with bolts having a higher yield strength. Consumers Power committed to make this modification, also. (*Id.* at 11.) The modification would be made prior to the next refueling outage. (Mullholand at 3-4.)

With the exception of the cask catch pins and certain bolts used to connect the load girt to the trolley trucks, the Whiting Corporation analysis showed that the imposition of a dynamic load of 150 tons would not overstress either the cask catch mechanism or the gantry crane at Big Rock Point. (Norman at 13.) Mr. Norman testified that the adoption by Consumers Power of his recommendations with respect to the aforesaid pins and bolts would preclude deformation of either the cask catch mechanism or the gantry crane as a result of the postulated cask drop. (*Id.* at 14.)

Mr. Popa testified on the maintenance program and procedures that are used for the crane and the fuel transfer cask lifting components. (Popa at 3-4.) He also described the training and experience of the maintenance personnel involved in a cask-lifting operation; the procedure involves about ½ of the maintenance crew, many of whom are skilled

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[2] The M.P.R. Analysis was attached as Appendix II to Consumers Power Company's application for a License Amendment.

repairmen familiar with the rigging procedure. (*Id.* at 4, 6.) The 1980 M.P.R. Analysis recommended certain adjustments to and inspections of the cask and its rigging; the adjustments were made immediately, and the inspections have been incorporated into procedures for rigging and checking the cask. (*Id.* at 7.) Because of the training and experience of the personnel and the detailed procedures involved, Mr. Popa believes that there is reasonable assurance that the cask slings will be rigged properly and that the fuel transfer cask will not be dropped. (*Id.* at 8.) Even if a human error were made to cause the lifting sling to fail, however, the safety sling would prevent a cask drop; the safety sling protects against both mechanical failure and failure resulting from human error. (Sargent, Tr. 2443.)

The NRC Staff witnesses testified that Staff had evaluated the fuel transfer cask operation and design and procedures of the crane and had concluded that they complied with NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants." (Clemenson, *et al.*, at 20, 25.) Clemenson also testified that the safety sling, in addition to the lifting sling, was used at Big Rock Point, to preclude the cask from dropping in the event the lifting sling failed. (Clemenson, Tr. 2437.) Mr. Emch testified that the reactor head could be lifted by the crane, but it is not carried over the spent fuel pool and therefore is not a threat to the stored spent fuel. (Tr. 5459-60.) Licensee is restricted from using the fuel shipping cask. (Emch, Tr. 458.) A Staff review of the overall issue of control of heavy loads must be completed before anything heavier than the fuel transfer cask can be moved with the Big Rock Point crane. (Clemenson, *et al.*, at 1-25; Tr. 2440-42; Tr. 2435.)

In their "rebuttal" testimony, witnesses Mullholand and Norman testified that the welding on the crane was at least as good as the welding done today, that the gantry legs meet current design standards as specified in CMAA-(70) for the 75-ton rated load, and that the hoist gearing was adequate for the 75-ton load on the hook. Further, the crane was tested at 130% of its rated load, by lifting the primary steam drums which weigh roughly 100 tons. (Mullholand, Tr. 2472.) This lift met the initial requirement of ANSI B30.2-1976, Article 2-2.2.2. (*Id.*)

Intervenors, in their proposed findings, challenged certain assumptions which they allege were made for the M.P.R. Analysis. (Proposed Findings of Fact and Conclusions of Law on O'Neill Contention II.C: The Cask Drop Issue (Intervenors), September 24, 1982.) They argue that the analysis assumes equal loading on the two cables of the safety sling for a 2.98-inch drop, which would impose a total dynamic load of 148 tons. In an accident, they argue, it is likely that one cable would be

more loaded than the other. They believe that an uneven dynamic loading with a cask drop of more than 2.98 inches "would exceed the design load by at least 8 percent." (Intervenors at 3.) Further, Intervenors maintain that Licensee has failed to meet the requirements of NUREG-0612. (*Id.* at 4.)

The analysis carried out by Mr. Johnson dealt specifically with the possible causes of unequal loading on the sling cable: differences between the two safety slings in the friction between the wedges of the cask catch mechanisms and the safety slings, and differences in the clearance between the wedges of the cask catch mechanisms and the safety slings. (Johnson at 6.) Results of these analyses, which applied the two sources of unequal loading both separately and simultaneously, and which assumed a range of friction values and wedge clearances, indicated that the *maximum* load in the highest loaded cable would be 8% higher than the design load determined in the 1980 M.P.R. Analysis. (*Id.* at 7-8.) Further, Mr. Johnson's written testimony shows the relationship between maximum dynamic load and distance of cask free drop, for minimum and maximum friction effects and for no friction. (Johnson Fig. 6.) Even with a cask free drop of 6 inches, the maximum dynamic load would be less than 200 tons, well below the rated breaking strength (about 230 tons) of the safety sling assembly. (*Id.*)

Conclusion

We conclude that adequate precautions have been taken to prevent a drop of the spent fuel transfer cask when it is hoisted by the crane. Therefore the spent fuel pool is safe from the consequences of such an accident and O'Neill Contention II.C is dismissed.

Order

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 25th day of September 1984,

ORDERED:

1. Our Initial Decision (On All Remaining Issues), LBP-84-32, 20 NRC 601 at 699 (1984) is amended so that the phrase "spent fuel pool exceeds the heat generating capacity" (¶ 1, line 5) will read "spent fuel pool is insufficient for the heat generating capacity" and so that the phrase "the use of its gantry crane for loads" (20 NRC at 699-700) will read "the use of its gantry crane over the pool for loads."

2. Subject to the conditions set forth in LBP-84-32, as amended by ¶ 1 of this Order, the Director of Nuclear Reactor Regulation is author-

ized to grant to Consumers Power Company its application to amend its license to operate the Big Rock Point Nuclear Power Plant.

3. *See* LBP-84-32, 20 NRC at 700-01, for Ordering ¶¶ 8 to 11, each of which is applicable to this Order.

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

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Herbert Grossman, Chairman
Dr. James H. Carpenter
Dr. Peter A. Morris

In the Matter of

Docket No. 50-416-OLA
(ASLBP No. 84-497-04-OL)

MISSISSIPPI POWER & LIGHT COMPANY, *et al.*
(Grand Gulf Nuclear Station, Unit 1)

September 28, 1984

In this Memorandum and Order, the Licensing Board dismisses the proceeding upon confirmation of the withdrawal of the only Intervenor.

MEMORANDUM AND ORDER
(Terminating Proceeding)

On August 30, 1984, the Licensing Board issued a Show-Cause Order requiring the sole Intervenor, Jacksonians United for Livable Energy Policies (JULEP), to show cause why its contentions should not be dismissed for its failure to prosecute the intervention. JULEP had taken no discovery and had failed to file a status report by August 1, 1984, as ordered by the Board, or thereafter.

On September 20, 1984, the Board received a written confirmation from JULEP of its decision to withdraw from the proceeding, which it had previously expressed to NRC Staff counsel.

The withdrawal of the only intervenor removes both the need and the occasion for evidentiary hearings in this proceeding. There are no longer any matters which the parties wish to resolve in this proceeding and, consequently, there is no issue to be heard by the Board.

Dismissal of this proceeding would be consistent with the Commission's requirements which do not contemplate a hearing on an application for an amendment to an operating license in the absence of any matters in controversy or any request for hearing by interested persons (*see* 10 C.F.R. §§ 2.104, 2.105, 2.714, 50.58(b) and 50.91) and is consistent with the general powers of the presiding officer under 10 C.F.R. § 2.718.

Order

For all of the foregoing reasons and based upon the entire record in this proceeding, it is, this 28th day of September 1984,

ORDERED

That this proceeding, begun with the publication of a notice of opportunity for hearing on October 26, 1983, at 48 Fed. Reg. 49,608, is hereby terminated.

THE ATOMIC SAFETY AND
LICENSING BOARD

James H. Carpenter
ADMINISTRATIVE JUDGE

Peter A. Morris
ADMINISTRATIVE JUDGE

Herbert Grossman, Chairman
ADMINISTRATIVE JUDGE

September 28, 1984
Bethesda, Maryland

Directors' Decisions Under 10 CFR 2.206

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of **Docket No. 50-289**
(10 C.F.R. § 2.206)

GPU NUCLEAR CORPORATION
(Three Mile Island Nuclear Station, Unit 1)

September 25, 1984

The Director of the Office of Nuclear Reactor Regulation denies a request filed by Ellyn R. Weiss and Robert D. Pollard on behalf of the Union of Concerned Scientists requesting that the Commission initiate show-cause or further enforcement proceedings with respect to the Three Mile Island Nuclear Station Unit 1 Emergency Feedwater System.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

I. INTRODUCTION

In a petition dated January 20, 1984, the Union of Concerned Scientists (hereinafter referred to as UCS or Petitioner) identified five alleged deficiencies with the Three Mile Island Nuclear Station, Unit 1 (TMI-1) Emergency Feedwater (EFW) system which it sought to have resolved

prior to resumption of power operation at the facility.[1] In addition, the Petitioner contended that in the aggregate, the deficiencies it had identified with the EFW system compromised that system's reliability. In an "Interim Director's Decision Under 10 C.F.R. § 2.206," DD-84-12, 19 NRC 1128, issued on April 27, 1984, the Staff tentatively resolved four of the five issues raised by Petitioner, and deferred resolution of the fifth issue, concerning environmental qualification of the EFW system, as well as the aggregate deficiency issue, pending further review by the Staff. Concurrent with issuance of the Interim Decision, the Commission requested that the Staff provide three categories of information requested by UCS in a letter of February 13, 1984, to the Commissioners. In addition, the Petitioner filed a supplemental petition on May 9, 1984, based on the results of an NRC audit of the Licensee's environmental qualification records. UCS specifically requested that the Commission: (1) direct the Staff to independently verify the existence and technical sufficiency of the Licensee's environmental qualification documentation for all electrical components in the EFW system and all other systems required for proper operation of the EFW system; (2) direct the NRC Office of Investigations (OI) to investigate whether the Licensee made material false statements to the NRC in connection with the environmental qualification program; and (3) direct the NRC Office of Inspector and Auditor (OIA) to investigate whether the Staff provided false or misleading information to the Boards or Commission, or has been "derelict in its duty" with respect to the environmental qualification program at TMI-1. The supplemental petition was referred to the Staff for treatment as part of the pending petition. The Licensee amended its February 24, 1984 response to the January petition by submittals dated March 26, April 26, May 16, and May 31, 1984. The Licensee similarly responded to the supplemental petition pursuant to the Staff's request under 10 C.F.R. § 50.54(f) on June 11, 1984.

The Staff has now completed its review of all alleged EFW system deficiencies cited in the petition and the matters identified in the supplemental petition. Accordingly, this decision: (1) updates with respect to seismic qualification, and otherwise affirms the Interim Director's

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[1] UCS identified the following deficiencies with the EFW system in its January 20, 1984 petition:

1. failure of the EFW system to be environmentally qualified
2. failure of the EFW system to be seismically qualified
3. inability of the EFW system to withstand a single component failure
4. inaccuracy of the EFW flow instruments
5. inadequacy of the Main Steam Line Rupture Detection System

See Petition at 1; DD-84-12, 19 NRC at 1128.

Decision; (2) provides the Staff's basis for denying the petition with respect to the environmental qualification and "aggregate" deficiency issues raised by UCS; (3) describes the Staff's disposition of the items of additional relief requested in the supplemental petition; and (4) provides the information requested by UCS in its letter of February 13, 1984.

II. INTERIM DIRECTOR'S DECISION

The Interim Director's Decision provided the Staff's review for three of the five issues identified by the Petitioner with respect to the TMI-1 EFW system: (1) the failure of the EFW system to be seismically qualified, (2) the inability of the EFW system to withstand a single component failure, and (3) the inadequacy of the Main Steam Line Rupture Detection System (MSLRDS).[2] For each of these alleged deficiencies the Staff concluded, for reasons set forth in the Interim Decision, that the requested action was not warranted at that time. Upon further consideration, the Staff's view with respect to these issues remains as stated in the Interim Decision. In this regard, no new information pertaining to the alleged single component failure and MSLRDS deficiencies has been identified since the time of issuance of the Interim Decision which would persuade me to reach conclusions different from those expressed in DD-84-12.

New information has, however, developed regarding the seismic capability of the EFW system. This new information, described below, generally pertains to assuring operator access to the intermediate building for required manual actions for the interim period of operation until system upgrades are complete, and provides additional support for the previous findings in this area.

Seismic Qualification of the Emergency Feedwater System

The Licensee plans to perform a number of modifications to, among other things, upgrade the seismic capability of the EFW system during

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[2] As explained in the Interim Decision, I declined to consider the Petitioner's request with respect to the accuracy of EFW flow instrumentation, as that issue had been fully explored in the TMI-1 restart proceeding. *See* DD-84-12, 19 NRC at 1130-31. Moreover, the precise issue raised by the Petitioner, EFW flow instrumentation accuracy, was the subject of responses filed before the Commission, as well as a Board Notification within the context of the restart proceeding. Subsequent to issuance of the Interim Director's Decision, the Commission issued its decision on TMI-1 restart proceeding design issues. *See Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-84-11, 20 NRC 1 (1984). That decision was silent with respect to the flow indicators, leaving undisturbed the Staff's determination, as expressed in Board Notification 84-088, that the existing TMI-1 EFW flow instruments were acceptable. *See also* DD-84-12, 19 NRC at 1130-31.

the first refueling outage following restart.[3] Upon completion of these modifications, the TMI-1 EFW system will be capable of totally remote operation following a safe shutdown earthquake (SSE), even if that SSE should lead to an intermediate building harsh environment due to a postulated failure of any nonseismically qualified high-energy line. To assure EFW system operability following an SSE in the interim, the Licensee, if necessary, would dispatch an operator to the intermediate building to perform local manual actions.[4] The petition alleges, among other things, that operator access to the intermediate building may not be possible following an SSE because of a harsh environment created by the postulated failure of nonseismically qualified intermediate building systems.

Petitioner specifically postulated the failure of nonseismically qualified vent stacks from safety relief valves (MSV-22A,B) and atmospheric dump valves (MSV-4A,B). Failure of these vent stacks while steam is flowing through them could result in an intermediate building harsh environment that would prevent operator access. The Staff addressed this matter in the Interim Director's Decision and concluded, based primarily on probabilistic arguments, that reasonable assurance existed that intermediate building local manual actions would not be precluded because of a harsh environment resulting from vent stack failure following an SSE for the interim period of operation until system upgrades are complete. *See* DD-84-12, 19 NRC at 1132 (referencing Safety Evaluation of the Office of Nuclear Reactor Regulation Supporting Interim Director's Decision Under 10 C.F.R. 2.206 (Seismic Capability of Emergency Feedwater)). However, in a meeting with the Staff on April 27, 1984, the day of issuance of the Interim Director's Decision, and in its third amended response to the petition, the Licensee committed to install seismically qualified restraints on those vent stacks prior to any restart, thus eliminating any possible concern regarding vent stack failure following a seismic event and the possible resultant intermediate building harsh environment.[5] The Licensee has since completed installation

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[3] *See* Letter from H.D. Hukill (GPU) to J.F. Stolz (NRC) (August 23, 1983); Letter from R.F. Wilson (GPU) to D.G. Eisenhut (NRC) (May 10, 1984); Summary of April 27, 1984 meeting with GPU Nuclear regarding the Three Mile Island, Unit 1 Emergency Feedwater System (May 2, 1984).

[4] *See* Safety Evaluation by the Office of Nuclear Reactor Regulation Supporting Director's Interim Decision Under 10 C.F.R. 2.206 (Seismic Capability of Emergency Feedwater), Three Mile Island Nuclear Station, Unit No. 1 (April 27, 1984).

[5] *See* Summary of April 27, 1984 meeting with GPU Nuclear regarding the Three Mile Island, Unit 1 Emergency Feedwater System, (May 2, 1984); Licensee's Amended Response to Union of Concerned Scientists' Petition for Show Cause Concerning TMI-1 Emergency Feedwater System (May 16, 1984).

Prior to this commitment, the Licensee had planned for the vent stack modification to be completed during the Cycle 6 refueling outage. In addition, the Licensee committed to upgrade the supports for the EFW pump recirculation lines to seismic class I prior to restart. This modification had previously been scheduled for completion during the Cycle 6 refueling outage. *See id.*

of these seismic restraints and the modification has been inspected and found acceptable by NRC regional inspectors. *See* Inspection Report 50-289/84-22.

Since the petition addressed only the potential failure of the nonseismically qualified vent stacks, the Interim Decision was directed only to this occurrence. However, there are other nonseismically qualified intermediate building systems whose failure following an SSE could result in a harsh environment. Since the issuance of the Interim Director's Decision, the Staff has continued its review in this regard to evaluate the potential interactions from *all* nonseismically qualified intermediate building systems whose failure following an SSE could create an intermediate building harsh environment.

Of particular concern to the Staff was the nonseismic class I main feedwater line that crosses the intermediate building. Failure of this line during a seismic event would create a harsh environment and prevent access to the intermediate building.[6] In its Amended Response to Union of Concerned Scientists' Petition for Show Cause Concerning TMI-1 Emergency Feedwater System (May 16, 1984), the Licensee references the TMI-1 Final Safety Analysis Report (Updated Version), which indicates that the maximum intermediate building main feedwater line primary and secondary stress (including deadweight, thermal, internal pressure and seismic stresses) is 46.5% of the stress level at which a high-energy pipe break should be postulated.[7] However, these calculations were based upon an operating basis earthquake (OBE), which is of lesser severity than an SSE. Consequently, the Licensee subsequently provided, by letter dated June 4, 1984, the results of additional stress calculations indicating that the maximum main feedwater line pipe stress, based on an SSE, is also well within the stress level at which a high-energy pipe break should be postulated. The Staff has reviewed the results of these calculations and is able to conclude that an adequate margin exists for the intermediate building main feedwater line, and accordingly, reasonable assurance exists that the line would withstand an SSE without rupture. In addition, further EFW system upgrades will be completed in the long term which will make operator access unnecessary.

In response to a Staff request, the Licensee also performed similar analyses of the other nonseismic class I intermediate building lines

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[6] Failure of this main feedwater line would also result in intermediate building flooding which would threaten EFW system operability since the EFW system is low in the building. Although arguably not cited by Petitioner as a basis for its request, the Staff has, nevertheless, pursued this matter. *See* § III, *infra*.

[7] *See also* Letter from H.D. Hukill (GPU) to J.F. Stolz (NRC) (April 13, 1984).

whose failure could result in harsh environments.[8] Staff review of the results of these stress analyses leads to the conclusion that the stresses are within acceptable limits so as to provide reasonable assurance that the nonseismic class I intermediate building lines would withstand an SSE without rupture. Based upon these calculations for intermediate building main feedwater and nonseismic class I lines, the Staff is able to conclude that there is reasonable assurance that a harsh environment in the intermediate building will not result following an SSE. Accordingly, intermediate building operator access for local manual EFW system operation following an SSE would not be precluded for the interim period of operation until system upgrades are complete.

Although not specifically cited as a deficiency by Petitioner, the Staff has also reviewed whether nonseismically mounted intermediate building components or equipment, such as ventilation ducts, could fail following an SSE so as to inhibit operator access to the EFW equipment or otherwise impair EFW system operation. This review included a Staff walkdown of the TMI-1 intermediate building on May 22, 1984, and a later walkdown by the Licensee.[9] The Licensee, in a July 16, 1984 letter, provides the disposition of the potential deficiencies identified during the walkdowns. That letter also provides some indication of the thoroughness of the walkdown. The two minor modifications identified as necessary by the Licensee during its walkdown (anchoring radiation monitor RMA-2, and replacing ladder mounting bolts) have been completed by Licensee and will be inspected by NRC regional inspectors. Based upon a review of the information provided in Licensee's submittal, and the knowledge gained by the Staff during its walkdown of the TMI-1 intermediate building, the Staff concludes that there is reasonable assurance that operator access to the intermediate building and the vicinity of the EFW system will not be impaired by the failure of nonseismically mounted components and equipment following the occurrence of an SSE for the interim period of operation until system upgrades are complete. Similarly, the Staff concludes that there is reasonable assurance that EFW system operation will not be impaired as a result of an SSE event. Accordingly, the Staff finds that, for the reasons set forth in the Interim Director's Decision and as supplemented herein, no further action need be taken prior to restart with respect to the seismic qualification of the EFW system.

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[8] *See* Letters from J.F. Stolz (NRC) to H.D. Hukill (GPU) (June 25, July 24, and August 8, 1984) and Letters from H.D. Hukill (GPU) to J.F. Stolz (NRC) (July 16, July 30, and September 7, 1984).

[9] *See* Letter from H.D. Hukill (GPU) to J.F. Stolz (NRC) (July 16, 1984).

III. ENVIRONMENTAL QUALIFICATION OF THE TMI-1 EFW SYSTEM

The petition alleges, among other things, that the TMI-1 EFW system is not environmentally qualified as required by NRC regulations. Petitioner's specific concern rests with the environmental qualification of electrical equipment as required by 10 C.F.R. § 50.49.[10] To support its request, Petitioner cites a December 10, 1982 Staff safety evaluation report addressing TMI-1 environmental qualification, a November 5, 1982 technical evaluation report prepared by Franklin Research Center (FRC TER) on the same subject, and two meetings between the Licensee and the Staff, which Petitioner attended, on October 5 and December 16, 1983.[11] The petition provides no information that was not previously known to the Staff.

There are three aspects that must be considered in making environmental qualification determinations: (1) defining harsh environments in which electrical equipment may be required to operate, (2) defining which electrical equipment may be required to operate in the harsh environment, and (3) demonstrating that the required equipment is qualified to operate in the harsh environment. Although the petition focuses on the third aspect of environmental qualification cited above,

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[10] The petition specifically cites General Design Criterion 4 from 10 C.F.R. Part 50, Appendix A, "Environmental and missile design bases" which applies to structures, systems and components important to safety. However, it is clear from the petition that UCS's concerns rest solely with the environmental qualification of electrical equipment.

In the restart proceeding, the Licensing and Appeal Boards held that the issue of environmental qualification of electrical equipment was removed from the restart proceeding by the Commission's generic rulemaking on the subject. By order dated January 27, 1984 (unpublished), the Commission took review of these decisions. Petitioner's position in response to the January 27 Order was that the Licensing and Appeal Boards erred in these decisions and that the issue of environmental qualification of electrical equipment should be addressed in the restart proceeding. *See* Union of Concerned Scientists' Brief on the Commission's Review of ALAB-729 (March 19, 1984), at 2-9. Staff's position was that the Licensing and Appeal Boards did not err and that the issue was, in fact, removed by the Commission's generic rulemaking. *See* NRC Staff's Brief Concerning the Commission's Review of Specific Design Issues in ALAB-729 (March 19, 1984), at 3-13.

By CLI-84-11, dated July 26, 1984, the Commission decided that the generic rulemaking had not entirely removed the issue of environmental qualification from the restart proceeding. The Commission decided that environmental qualification encompassing the environments, locations and equipment with a nexus to the TMI-2 accident is within the proceeding. The Commission therefore directed the Staff to certify that TMI-1 electrical equipment which is required to mitigate small-break loss-of-coolant accidents and loss-of-feedwater transients and which is located in containment and the auxiliary building is environmentally qualified for radiation. Since the TMI-1 EFW system electrical components subject to environmental qualification are located in the intermediate building, and not in containment or the auxiliary building, Petitioner's allegation does not duplicate restart proceeding issues.

[11] The safety evaluation and technical evaluation reports were issued under letter dated December 10, 1982. *See* Letter from J.F. Stolz (NRC) to H.D. Hukill (GPU). The October 5, 1983 meeting is documented by Licensee submittal dated February 10, 1984. *See* Letter from H.D. Hukill (GPU) to J.F. Stolz (NRC). The December 16, 1983 meeting is documented by Summary of Afternoon Meeting with GPU Nuclear Corporation on December 16, 1983 (December 22, 1983).

the Staff's review led it to address, in varying degrees, all three aspects of environmental qualification for the TMI-1 EFW system. For reasons as set forth below and presented in detail in the attached Safety Evaluation Report dated September 13, 1984, the Staff concludes that the TMI-1 EFW system is environmentally qualified as required by NRC regulations.

Definition of Harsh Environment

In its initial response to the petition,[12] the Licensee stated that:

> [T]he intermediate building environmental qualification program has utilized two specific main steam line breaks (24 inch and 12 inch), which produce the most severe environment for electrical equipment. Other breaks in the feedwater lines produce a much less severe environment and are not the basis for qualification.

This statement is correct with respect to intermediate building pressure, temperature and humidity. However, a main feedwater line break in the intermediate building would also create a flooding hazard that would not be provided by a main steam line break. In this regard, in GPU Nuclear Technical Data Report (TDR) No. 250, Rev. 1, "Review of Intermediate Building Flooding Following a Feedwater Line Break in the Intermediate Building of TMI-1," dated January 9, 1984, the Licensee concluded that adequate time may not be available for operator action to mitigate intermediate building flooding from a main feedwater line break before the flood level reaches the EFW pumps, which are the lowest EFW system electrical components not qualified for submergence. The Staff was provided a copy of TDR No. 250 during a March 20-21, 1984 environmental qualification audit[13] and, by letter dated March 29, 1984, raised this concern with Licensee and also requested additional, clarifying information. The Licensee responded by letter dated April 13, 1984, and subsequently provided "Licensee's Amended Response to Union of Concerned Scientists' Petition for Show Cause Concerning TMI-1 Emergency Feedwater System," dated April 26, 1984, in which the Licensee committed to perform intermediate building modifications that would increase the time available for operator action from approximately 5 minutes to 25 minutes.[14] These modifications have subsequently been

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[12] *See* Licensee's Response to Union of Concerned Scientists' Petition for Show Cause Concerning TMI-1 Emergency Feedwater System (February 24, 1984), attachment at 3.

[13] A complete discussion of the purpose of the file audits is provided below and in the attached Safety Evaluation (not published).

[14] These modifications had previously been planned for the Cycle 6 refueling outage. *See* Letter from H.D. Hukill (GPU) to J.F. Stolz (NRC) (August 23, 1983).

completed by the Licensee,[15] and will be inspected by NRC regional inspectors. The Staff considers the 25-minute time frame to be adequate time for an operator to diagnose the event and take the necessary mitigating actions. Neither the petition nor the Staff's review identified any other areas for concern with respect to the definition of intermediate building harsh environments.

Electrical Equipment Required to Operate in Harsh Environment

With respect to defining which EFW electrical equipment would be required to operate in a harsh environment, and therefore would be subject to the requirements of 10 C.F.R. § 50.49, the Staff requested that the Licensee provide such a list during a March 8, 1984 meeting.[16] The Licensee provided a working list for Staff use during the March 20-21 environmental qualification file audit and subsequently presented and discussed a list at an April 27, 1984 meeting with the Staff.[17] At the April meeting the Staff expressed certain reservations as to the methodology used by Licensee to develop the list and shortly thereafter requested Licensee to provide clarification.[18] The principal Staff concerns focused on (1) whether the Licensee had used a systematic approach in developing the list, and (2) whether the Licensee had properly documented its review, particularly with respect to the bases for excluding equipment from environmental qualification. This issue was further discussed with the Licensee during the May 7-8, 1984 environmental qualification file audit. During these discussions it became apparent that the Licensee's methodology for identifying equipment subject to environmental qualification may not have given adequate consideration to electrical equipment from nonsafety-related systems whose operation may be needed for, or whose spurious operation might jeopardize, operation of a safety-related system.[19] With respect to emergency feedwater, the methodology did not consider whether certain interfacing main steam or condensate system (nonsafety-related) components would be required to operate to assure EFW system operability for the events in

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[15] *See* Letter from H.D. Hukill (GPU) to J.F. Stolz (NRC) (August 1, 1984).

[16] *See* Summary of Meeting with GPU Nuclear Corporation on Environmental Qualification (March 19, 1984).

[17] *See* Summary of April 27, 1984 Meeting with GPU Nuclear Regarding the Three Mile Island, Unit 1 Emergency Feedwater System (May 2, 1984).

[18] *See* Letter from D.G. Eisenhut (NRC) to H.D. Hukill (GPU) (May 3, 1984).

[19] The Staff viewed these deficiencies as programmatic ones not limited to the EFW system. This information prompted the Staff's May 25, 1984 letter to the Licensee requesting information on the overall TMI-1 environmental qualification program.

question. The Licensee fully addressed this matter and provided additional information in its response to the Staff's May 3, 1984 letter.[20]

Upon review, the Staff concluded that the Licensee had identified those electrical components of the EFW system required to be environmentally qualified, with the exception of the Licensee's exemption of condensate system valves from environmental qualification (i.e., COV-14A,B and COV-111A,B). The Staff would require that these valves be environmentally qualified, because operation of these valves in a harsh environment may be necessary as backup to postulated single failures. The Staff subsequently advised the Licensee of its position, and the Licensee agreed to include the valves in its environmental qualification program.[21]

Therefore, based upon the review activities described above, the Staff concludes that Licensee's environmental qualification program encompasses that electrical equipment located in a harsh environment whose operation may be necessary to assure EFW system operability in a harsh environment. A complete list of components is provided in the attached safety evaluation (not published).[22]

Qualification of Electrical Equipment

The third and final aspect of the Staff's review, and the true focus of the petition's environmental qualification allegation, addresses the issue of whether the specific electrical equipment subject to environmental qualification has been adequately demonstrated to remain operable in the prescribed harsh environment, and whether adequate documentation of any such demonstration exists.[23] The petition draws heavily from the Franklin Research Center technical evaluation report (FRC TER) which contained a number of environmental qualification issues that were unresolved at the time of its issuance in November 1982. The Staff was continuing its review of the Licensee's resolution of the FRC TER deficiencies at the time of receipt of the petition.

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[20] *See* Letter from R.F. Wilson (GPU) to D.G. Eisenhut (NRC) (May 10, 1984).

[21] *See* Letter from J.F. Stolz (NRC) to H.D. Hukill (GPU) (June 25, 1984), and Letter from H.D. Hukill (GPU) to J.F. Stolz (NRC) (August 6, 1984).

[22] The Staff's activities did not, however, include a rigorous review of whether Licensee had adequately identified equipment at the subcomponent level (e.g., the identification of splices, terminal blocks and motors within a valve operator). The petition makes no allegations in this regard and the Staff identified no basis for pursuing this matter during its review.

[23] In the most fundamental sense, a component is considered environmentally qualified if (1) it has been successfully tested for a harsh environment (e.g., pressure, temperature, radiation, chemical spray) that is more severe than what it would see in the plant and (2) a similarity is established between the tested component and the component installed in the plant.

To address this allegation the Staff performed an initial audit of the TMI-1 EFW system environmental qualification files on March 20-21, 1984. Audit results were provided to the Licensee by letter dated April 25, 1984.[24] As described in the April 25 letter, the Staff concluded that the files did not adequately demonstrate environmental qualification of EFW system electrical components and that the deficiencies were both general in nature and component-specific. The Licensee endeavored to address the deficiencies and the Staff subsequently performed a second audit on May 7-8, 1984, with similar results. Additional audits were performed on May 24, June 25, and August 6, 1984. Comments were provided to the Licensee at the conclusion of each audit session.[25] Based upon the findings from the August 6, 1984 audit, the Staff is able to conclude that the TMI-1 environmental qualification files adequately demonstrate the environmental qualification of EFW system electrical equipment.

The specific details of the audits and file deficiencies are described in the attached safety evaluation. However, two components warranting special mention are the converters for the EFW flow control valves. The Licensee had initially proposed a justification for continued operation for these components since no qualification testing data were available.[26] The justifications were based upon probabilistic arguments and the availability of feed-and-bleed cooling as a backup for core cooling.[27] At the March 8, 1984 meeting, the Staff advised the Licensee that it could not accept the proposed justification without substantial additional review. The Licensee subsequently committed to replace the converters with environmentally qualified components,[28] and regional inspectors have verified that this modification is complete. Other required equipment replacements, as described in the safety evaluation, have been verified by regional inspectors. *See* Inspection Report 50-289/84-22.

In view of the foregoing discussion, the Staff concludes for reasons set forth above, that the appropriate harsh environments are defined, that the electrical equipment essential for EFW operation is properly identified, and that adequate documentation exists to demonstrate the

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[24] *See* Letter from J.F. Stolz (NRC) to H.D. Hukill (GPU) (April 25, 1984).

[25] Audit notes were provided to the Petitioner in a letter from J.F. Stolz (NRC) to E.R. Weiss (UCS) (August 7, 1984).

[26] *See* Licensee's Response to Union of Concerned Scientists' Petition for Show Cause Concerning TMI-1 Emergency Feedwater System (February 24, 1984).

[27] The feed-and-bleed core cooling mode does not rely upon the steam generators for decay heat removal. The Staff believes that there is a high probability that feed and bleed is a viable means of core cooling, but it has not been reviewed from the standpoint of a design basis event.

[28] *See* Licensee's Amended Response to Union of Concerned Scientists' Petition for Show Cause concerning TMI-1 Emergency Feedwater System (March 26, 1984).

qualification of all essential equipment. Adequate actions have been taken to assure that the TMI-1 EFW system is environmentally qualified in accordance with NRC regulations. No further action need be taken before restart.

Notwithstanding this conclusion, however, the Staff's initial audit findings regarding the unacceptability of the Licensee's environmental qualification files for EFW components, and the deficiencies identified in Licensee's methodology for identifying components required to be qualified, raised questions as to the adequacy of Licensee's overall environmental qualification program. Therefore, the Staff, by letter dated May 25, 1984, requested that the Licensee reaffirm the adequacy of its overall environmental qualification program in several specific areas.[29] The Licensee's response is pending.[30] However, with respect to the environmental qualification of electrical equipment within the scope of the TMI-1 restart proceeding (equipment required to mitigate small-break loss-of-coolant accidents and loss-of-feedwater transients) the Commission has directed the Staff to certify such equipment with respect to radiation. *See* CLI-84-11, *supra*. Thus, in addition to the environmental qualification required by the Commission under the restart proceeding, the Staff is continuing its 10 C.F.R. § 50.49 environmental qualification review for TMI-1, which will include further auditing, on an expedited basis.[31] Should the Staff develop information from these audits indicating further action with respect to the TMI-1 environmental qualification program is necessary, appropriate action would be taken at that time.

IV. THE SUPPLEMENTAL PETITION

By supplemental petition dated May 9, 1984 (supplemental petition), the Petitioner requested further relief in connection with the EFW system. UCS based its request upon information contained in the Staff's April 25, 1984 letter to the Licensee expressing concerns regarding the environmental qualification of the TMI-1 EFW system as a result of the findings of the first TMI-1 environmental qualification file audit. *See* § III, *supra*. Petitioner compares this information with previous information and statements in correspondence and points out apparent inconsistencies and contradictory statements that it attributes to both the Licen-

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[29] *See* Letter from D.G. Eisenhut (NRC) to H.D. Hukill (GPU) (May 25, 1984).

[30] The Staff expects to receive a response from the Licensee in October 1984.

[31] Environmental Qualification file audits are routinely performed for nuclear power plants in the licensing phase. The Staff plans to conduct similar audits for all operating reactors.

see and the NRC Staff.[32] Based upon these apparent inconsistencies, Petitioner requests three additional specific items of relief:

1. As a precondition to restart, the staff should be directed to independently verify that documentation exists *and* that it is technically sufficient to demonstrate environmental qualification of each and every electrical component in the emergency feedwater system and in every other system required for proper operation of the emergency feedwater system.

2. The Office of Investigations should be directed to immediately investigate whether GPU has made material false statements to NRC in connection with the environmental qualification program. Because this issue bears directly on GPU's competence and integrity, the investigation should be completed before a vote on restart.

3. The Office of Inspector and Auditor should be directed to investigate and determine whether the NRC Staff has provided false or misleading information to the Boards or to the Commission, or has been derelict in its duty in connection with the issue of environmental qualification in TMI-1.

See Supplemental Petition at 10-11.

With respect to the first request, the Staff, by virtue of the review activities described herein and in the attached safety evaluation, has performed the independent verification requested by Petitioner and concluded that the documentation is technically sufficient to demonstrate the environmental qualification of each electrical component in the EFW system and in every other system required for proper operation of the EFW system. Accordingly, the first request has been substantially satisfied by the review activities undertaken by the Staff.

In considering Petitioner's second request, the technical Staff reviewed the documentation related to the Licensee's environmental qualification program and identified certain statements made by Licensee in connection with the TMI-1 environmental qualification program which the Staff believed to be invalid. These statements were forwarded to the Office of Investigation (OI). After reviewing the statements identified by the technical Staff, OI initiated an evaluation to determine whether the matter warrants a full investigation. Accordingly, the Staff has satisfied Petitioner's request to the extent that OI is examining the TMI-1 environmental qualification issue. Should OI decide to conduct a

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[32] By filing dated July 31, 1984, Petitioner responds to an earlier Licensee response regarding the supplemental petition. In this filing Petitioner notes apparent inconsistencies between Licensee's response to the supplemental petition and other correspondence and information. Petitioner appears to have provided this filing to reinforce its earlier allegations since it explicitly requests no additional relief. However, the filing does imply that the Staff should expand its audit activities beyond the EFW system. The Staff intends to conduct this review as explained in § III, *supra*.

full investigation of the matter, the Staff would take appropriate action based upon the results of that investigation.

Upon its receipt, the supplemental petition was referred to the Office of Inspector and Auditor to determine whether the Staff acted improperly with respect to the issue of equipment qualification at TMI-1. This action essentially satisfies the Petitioner's request.[33]

V. AGGREGATE DEFICIENCIES

Background

Each of the five basic deficiencies alleged in the petition have either been addressed herein or in the Interim Director's Decision. However, in its January 20 petition, UCS further contends that "one or more of the identified deficiencies, when viewed individually, would not necessarily pose an 'intolerable risk'," but that "[i]n the aggregate . . . [the deficiencies] thoroughly compromise the reliability of" the EFW system. Petitioner provides further clarification of its aggregate deficiencies concern in its letter of May 1, 1984 directed to the Director, Office of Nuclear Reactor Regulation. The Petitioner described its concern as depending "largely upon the findings regarding the specific EFW deficiencies; to the extent that the specific deficiencies we note in the petition are borne out, the point about the 'aggregate effect' is strengthened and vice versa. Therefore, the major issue is certainly whether the specific deficiencies we cite exist and/or have been corrected."

To properly focus the Petitioner's concern about aggregate deficiencies, a brief review of Staff's findings regarding each of the five alleged basic deficiencies is necessary. First, as discussed in this Decision, the Staff concludes herein that the TMI-1 EFW system is environmentally qualified. Second, the Staff concluded in the Interim Director's Decision that there are no MSLRDS deficiencies. Third, as the Staff concluded in Board Notification BN 84-088, dated April 24, 1984, the EFW flow instrumentation is sufficiently accurate for its intended purpose. Fourth, as stated in the Interim Director's Decision, the TMI-1 EFW system may be susceptible to single failures which could, for certain accidents, prevent it from performing its intended safety function. Fifth, the Staff concluded in the Interim Director's Decision as modified herein, that the TMI-1 EFW system would be capable of performing its intended

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[33] It should be noted that a request for an investigation by OIA of internal NRC personnel matters does not fall squarely within the class of requests contemplated by 10 C.F.R. § 2.206. Section 2.206 permits interested members of the public to request initiation of enforcement proceedings with respect to any license.

safety function following an SSE, but that conclusion relies, in part, upon operator access to the intermediate building for local manual actions. Accordingly, the valid deficiencies to be considered in a review for aggregate deficiencies are (1) potential EFW system single-failure vulnerabilities, and (2) EFW system seismic limitations to the extent that intermediate building access for local manual action may be necessary.

There is also a time element to the aggregate deficiencies issue. That is, Licensee is committed to upgrading the EFW system after one cycle of operation. *See* § VI, *infra*. This upgrade will correct both the potential single-failure vulnerabilities and the seismic limitations. The possibility of aggregate deficiencies poses, therefore, a concern only for one cycle of operation. The issue then becomes one of whether, in light of potential single-failure vulnerabilities and seismic limitations, the TMI-1 EFW system would be capable of performing its intended safety function for the one cycle of operation until such time as system upgrades are complete.

The Staff believes that the specific review of each individual deficiency as presented herein and in the Interim Director's Decision, which was performed in accordance with normal review practice, has shown that an aggregate deficiency does not exist in the EFW system. The following description is provided, nevertheless, to explain the basis for the Staff's conclusion and to conveniently summarize the capabilities and limitations of the TMI-1 EFW system expected at the time of restart.

The Staff has reviewed, using current licensing criteria, those event or accident scenarios necessary to determine the integrated effect of all valid EFW system deficiencies within the scope of the petition. For example, Staff reviews of the EFW system for seismic and environmental qualification acceptability concurrently considered postulated single failures for each of these reviews. These reviews also included, where appropriate, the potential interaction from other intermediate building systems such as postulated failures that could cause a harsh environment or a seismic failure that would adversely affect the EFW system function. In that Staff reviews have included limiting accident scenarios and the potential effects of failures and interactions, the Staff reviews provide a basis for assessing the overall capability of the EFW system in an aggregate sense. The conclusion of these reviews is that the TMI-1 EFW system, as configured at the time of restart, will be capable of performing

its intended safety function for the one cycle of operation, i.e., until the system upgrades are complete.[34]

The event scenarios of interest are seismic events, and intermediate building high-energy line breaks which expose EFW system single-failure vulnerabilities and also create harsh environments. Although the Staff has concluded herein that the TMI-1 EFW system is environmentally qualified, that issue was nevertheless considered in these scenario reviews so as to provide a means of verifying that all components required for EFW system operation (i.e., EFW system components as well as components from other systems) that could be subjected to an intermediate building harsh environment were identified and included in the environmental qualification program. Moreover, each event was analyzed individually as prescribed by Staff licensing criteria. Associated consequences, such as a harsh environment resulting from a high-energy line break, were assumed with the initiating event. A concurrent random single failure was also assumed.

With respect to intermediate building high-energy line breaks, the Staff considered whether operability of the EFW system could be affected by common-mode component failures due to harsh environments. With respect to seismic events, the principal concern of the Staff was whether the failure of nonseismically qualified intermediate building component(s) could create intermediate building environments during seismic events which would preclude operator access to perform required local manual actions.

EFW System Response During High-Energy Line Breaks

All four main steam lines and one of the two main feedwater lines transit the intermediate building. The intermediate building also houses all active EFW system components that could be subjected to a harsh environment. As indicated in the Interim Director's Decision, a non-mechanistic rupture of either the intermediate building main steam line or main feedwater line would create an event in which the EFW system must operate and a harsh environment for the EFW. Therefore, the possibility of potential common-mode failures due to a harsh environment must be considered. As noted in § III, *supra*, all electrical components situated in the intermediate building whose operability is essential

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[34] The Staff acknowledges that the differences between the EFW system at the time of restart versus after the cycle 6 refueling do present a difference in system reliability which might, if compounded in many small ways, give rise to an aggregate concern of the kind suggested in the petition. However, the aggregate deficiencies in this instance include only two of the many circumstances in which the EFW system could be called upon to function, and the Staff considers these instances of compounded effect to be acceptable. *See* § VI, *infra*.

for proper operation of the EFW system are environmentally qualified. In particular, the Staff notes that the electric motor-driven EFW pumps, the EFW pump suction and the discharge cross-connect valves, the EFW flow control valves and the EFW flow indicators are qualified for an intermediate building harsh environment. All intermediate building condensate or main steam system electrical components required to operate to assure EFW initiation and operation following a nonmechanistic intermediate building main steam or feedwater line break are environmentally qualified. The Staff further notes that the failure of any unqualified main steam, condensate and/or EFW system electrical components due to an intermediate building harsh environment from a main steam line or feedwater line break will not jeopardize EFW system operation.

If a postulated concurrent single random failure of the flow control valve in the EFW feedwater header to the opposite steam generator were to occur in this situation, the EFW system could be rendered ineffective.[35] The Staff considers this to be an acceptable situation for one cycle of operation as a result of the interim modifications described in the Interim Director's Decision. *See* DD-84-12, 19 NRC at 1133-34. *See also* § VI, *infra*. Therefore, the Staff concludes that the aggregate deficiencies of the TMI-1 EFW system will not jeopardize system operability due to harsh environments following an intermediate building main steam or feedwater line rupture.

EFW System Response During Seismic Events

The Staff previously concluded in the Interim Director's Decision that reasonable assurance exists that the TMI-1 EFW system would be able to perform its intended safety function following the occurrence of a safe shutdown earthquake (SSE) and concurrent single active failure. *See* DD-84-12, 19 NRC at 1131-32. In reaching that conclusion, the Staff concluded that there is also reasonable assurance that required local manual actions would not be precluded by an intermediate building harsh environment resulting from a postulated failure of nonseismic portions of other systems, namely, the vent stack relief valves (MSV-22A,B) and the atmospheric dump valves (MSV-4A,B) for the interim period of Cycle 5 operation. However, as described in § II, *supra*, the Licensee has installed seismically qualified restraints on those vent stacks, thus eliminating any concern regarding vent stack failure.

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[35] Occurrence of the postulated event would not, however, necessarily mean that the affected steam generator must be isolated. In this regard, the TMI-1 abnormal transient operator guidance (ATOG) program contains provisions for feeding an affected steam generator under certain circumstances.

Based upon the Licensee's action and the additional seismic interaction review set forth in § II, *supra*, the Staff is able to conclude that there is reasonable assurance that no intermediate building high-energy lines will fail during an SSE, and that operator access to perform required local manual actions to assure EFW system operability for the interim period of operation until system upgrades are complete is therefore assured.

In that Staff reviews have included the applicable accident scenarios coupled with both potential effects of failures and interactions, the Staff reviews provide an adequate basis for assessing the capability of the EFW system in an aggregate sense. Based upon these reviews, the Staff finds there is reasonable assurance that the TMI-1 EFW system will perform its intended safety function for the postulated events within the scope of the petition, with one exception. The exception involves the postulated situation of a main steam line or main feedwater line break accident requiring isolation of the affected steam generator compounded by the worst-case single random failure. This exception has been previously addressed in the Interim Director's Decision and found acceptable for one cycle of operation. *See also* § VI, *infra*. Therefore, the Staff's previous conclusion regarding the acceptability of the TMI-1 EFW system for the interim period of operation until such time as system upgrades are complete remains unchanged, and the Staff contemplates no further action prior to restart.

VI. PETITIONER'S LETTER OF FEBRUARY 13, 1984

By letter to the Commission dated February 13, 1984, the Petitioner, among other things, recommended that the Commission direct the Staff to answer three specific questions regarding the TMI-1 EFW system. The Commission subsequently requested that the Staff respond to these questions when it considered the Petitioner's request for relief.[36]

The first question posed by UCS asked the Staff to:

> Identify each specific aspect of the TMI-1 EFW system which does not comply or is not *known* to comply with the regulations applicable to systems imporant [sic] to safety (including safety-grade, safety-related, and engineered safety feature systems).

At the time of licensing of TMI-1, EFW systems were not considered safety-related systems. Consequently, relatively few regulations and

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[36] *See* Memorandum from S.J. Chilk (NRC) to W.J. Dircks (NRC) (April 4, 1984).

standards applied.[37] Moreover, the applicability of regulations, absent any backfitting requirements, is established at the time of plant licensing. Within this framework, the TMI-1 EFW system complied with all regulations and standards applicable to that system, and this continues to be the case today. However, EFW systems are now considered safety-related such that EFW systems for new plants must meet safety-related system criteria in accordance with the Staff's Standard Review Plan (NUREG-0800).[38] In this regard, the Staff has reviewed the TMI-1 EFW system, as it will be configured at the time of restart. This review identified that the TMI-1 EFW system does not meet the regulations applicable to plants currently being licensed in one respect.[39] That is, the TMI-1 EFW system, as configured at the time of restart, will not meet the single-failure criterion for certain events.[40]

Specifically, the TMI-1 EFW system at the time of restart will have a single flow control valve in each of the feedwater headers to the two steam generators.[41] Therefore, for those events which may, under certain circumstances, require isolation of one steam generator, such as a main steam line break, steam generator tube rupture or a feedwater line break, failure of the flow control valve to open in the EFW header to the intact steam generator could result in an inability to deliver emergency feedwater flow for decay heat removal through the intact steam generator. Further, a single failure in the Integrated Control System (ICS), which currently controls the EFW flow control valves, could also result in an inability to deliver EFW flow by preventing the flow control valves from opening. Evaluation of these deficiencies is discussed in the response to Question 2, *infra*.

The second question raised by UCS asks that:

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[37] *See also* Safety Evaluation by the Office of Nuclear Reactor Regulation Supporting Interim Director's Decision Under 10 C.F.R. 2.206 (Seismic Capability of Emergency Feedwater), Three Mile Island Nuclear Station, Unit No. 1 (April 27, 1984.)

[38] *See* NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," July 1981, § 10.4.9. Standard Review Plans provide guidance for the Office of Nuclear Reactor Regulation Staff responsible for the review of applications to construct and operate nuclear power plants. A system in conformance with the Standard Review Plan is generally considered to also be in conformance with the applicable regulations.

[39] The Staff had previously performed and submitted into testimony such a review during the TMI-1 Restart Proceeding. *See* NRC Staff Supplemental Testimony of J. Wermiel and J. Curry Regarding Emergency Feedwater System Reliability (Board Question 6). TMI-1 Restart Proceeding Transcript (TR) at 16,718. The Staff notes that the TMI-1 FFW system currently complies with 10 C.F.R. § 50.49 (Environmental Qualification of Electrical Equipment) by virtue of the fact that Licensee has completed replacement of certain components and performed intermediate building flooding modifications as described in § III, *supra*.

[40] *See* 10 C.F.R. Part 50, Appendix A, Criterion 44.

[41] This discussion was previously provided in the Interim Director's Decision, but it is repeated here nevertheless for completeness. *See* Interim Director's Decision Under 10 C.F.R. § 2.206, DD-84-12, 19 NRC at 1133-34.

> [F]or each deficiency or potential deficiency identified in response to item 1 above, explain whether and why the Staff believes that TMI-1 can be operated without undue risk to public health and safety before correction of the deficiency or potential deficiency.

The Staff has been aware of the system deficiencies identified in response to UCS Question 1 for some time, and the issue has been fully explored during the restart proceeding. The Staff considers the TMI-1 EFW system to be acceptable, provided that certain short-term modifications are completed prior to restart.[42] Among these modifications is a change in failure mode for the flow control valves. These valves will fail so as to permit full EFW flow on either loss of instrument air or loss of control power.[43] Further, a separate remote manual control station independent of the ICS has been provided in the control room. This modification will permit the operator to remotely open the EFW flow control valves should they fail closed due to an ICS malfunction. The flow control valves could also be manually opened locally by means of a handwheel.[44]

In the long term, the Licensee will install redundant EFW flow control and block valves and provide safety-grade automatic steam generator level control by no later than the first refueling outage following restart (Cycle 6 refueling).[45] Completion of these modifications prior to startup following Cycle 6 refueling is a specific Board-imposed condition from the restart proceeding.[46] The Licensee is also performing a number of additional long-term EFW system modifications beyond those described

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[42] *See* NUREG-0680, "TMI-1 Restart," June 1980 and Supplement 3 to NUREG-0680 (April 1981).

[43] The restart proceeding record shows that the flow control valves fail to the mid position on loss of control signal. However, by filing dated March 26, 1984, counsel for Licensee indicated that the existing flow control valve converters would be replaced with environmentally and seismically qualified converters by June 1984, and that with these new converters the flow control valves would fail to the open position on loss of control power.

[44] In accordance with a decision of the Atomic Safety and Licensing Board, the TMI-1 operating license will be conditioned to require that an auxiliary operator be dispatched to the EFW flow control valve area, upon any EFW auto-start condition, until the EFW system is made fully safety-grade. *See Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-729, 17 NRC 814, 833 (1983). Admittedly, access would most probably be precluded following an intermediate building high-energy line break.

[45] *See* Summary of April 27, 1984 Meeting with GPU Nuclear Regarding the Three Mile Island, Unit 1 Emergency Feedwater System, Docket 50-289 (May 2, 1984), and Letter from R.F. Wilson (GPU) to D.G. Eisenhut (NRC) (May 10, 1984).

[46] *See Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), LBP-81-59, 14 NRC 1211, 1363, 1373, ¶¶ 1036, 1037, 1059 (1981); NUREG-0680, at C8-36 and Supplement 3, at 36-38; *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), LBP-82-27, 15 NRC 747 (1982) and Staff's Response to Licensing Board's Directive to Report Details of its Enforcement Plan in the Form of a Supplemental Initial Decision (February 1, 1982).

above.[47] These additional modifications are generally intended to improve EFW system reliability pursuant to NUREG-0737, Items II.E.1.1 "Auxiliary Feedwater System Evaluation" and II.E.1.2 "Auxiliary Feedwater System Automatic Initiation and Flow Indicator" and to alleviate the need to rely upon compensatory operator action to assure system operability following a seismic event.

The Petitioner's third question focuses on the need for modifications after one cycle of operation. UCS asks that:

> [F]or each deficiency or potential deficiency which the Staff believes need not be corrected before the first refueling outage after restart, explain why that deficiency ever needs to be corrected. In other words, if the Staff believes that the plant can be operated without undue risk to public health and safety until the first refueling, why would modifications be needed to assure public health and safety after the first refueling?

The Staff concludes that the short-term modifications cited above provide reasonable assurance that the TMI-1 EFW system will be adequately reliable to protect the public health and safety. The Staff further concludes that the long-term modifications (Cycle 6 modifications) will provide an additional improvement in safety. This approach of short- and long-term modifications is consistent with general Staff practice regarding safety improvements insofar as the short-term modifications provide an acceptable means for addressing a safety concern for the interim period of time until the preferred, long-term solution can be designed and implemented.[48] Specifically, with respect to the single-failure vulnerabilities of the flow control valves, the Staff considers the short-term modification to be acceptable essentially because the valves have been modified so that they fail open, permitting full flow, on either a loss of control signal or air. Upon completion of the long-term modification, however, the availability of redundant flow control valves to each steam generator will permit continued flow of emergency feedwater even with an assumed single failure. Similarly, the short-term control system modifications provide an acceptable means of mitigating the consequences of an ICS failure, while the long-term modification will result in a control system that will not be disabled by a single failure.

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[47] *See* Summary of April 27, 1984 Meeting with GPU Nuclear Regarding the Three Mile Island, Unit 1 Emergency Feedwater System, Docket 50-289 (May 2, 1984), and letter from R.F. Wilson (GPU) to D.G. Eisenhut (NRC) (May 10, 1984).

[48] The thrust of Petitioner's Question 3, and the Staff's response thereto, generally parallel the respective parties' positions on this matter in the TMI-1 restart proceeding. The Staff's position in that proceeding was upheld by the Licensing Board and Appeal Board. *See* NRC Staff Testimony of Denwood F. Ross, Jr. Relative to the Sufficiency of the Proposed Additional Requirements (Board Question 2), Tr. 15,555; LBP-81-54, *supra*, 14 NRC at 1364, ¶ 1138 (1981). *See generally* ALAB-729, *supra*.

VII. CONCLUSION

The Staff has determined that it is unnecessary to institute show-cause or further enforcement proceedings with respect to the TMI-1 EFW system. The Petitioner's request to initiate such proceedings is denied. As described in this Decision and the Interim Director's Decision, DD-84-12, *supra,* the Staff has determined that the TMI-1 EFW system is environmentally qualified, that there is reasonable assurance with respect to single-component failures that the system will be adequately reliable to perform its intended safety function, and that the main steam line rupture detection system (MSLRDS) is adequate. As the Staff has maintained in the restart proceeding, it views the existing EFW flow instruments to be acceptable. The Staff has also determined that, with the interim compensatory measures instituted by the Licensee, there is reasonable assurance that the EFW system would remain operable following a safe shutdown earthquake (SSE). Upon considering in the aggregate those EFW system deficiencies identified by the petition, the Staff has determined that the TMI-1 EFW system, as configured at the time of restart, will be capable of performing its intended safety function for the one cycle of operation until the system upgrades are complete.

Accordingly, the Staff contemplates no further action with respect to the EFW system prior to restart. Moreover, the Staff has substantially satisfied the requests made by Petitioner in its supplemental petition by conducting detailed audits of the TMI-1 environmental qualification file, and identifying and referring to the Office of Investigation statements in the Licensee's submittals the Staff views to be invalid. The Staff by this Decision, has also provided to Petitioner the information requested in Petitioner's letter of February 13, 1984.

A copy of this Decision will be provided to the Secretary for the Commission's review in accordance with 10 C.F.R. § 2.206(c).

Harold R. Denton, Director
Office of Nuclear Reactor
Regulation

Dated at Bethesda, Maryland,
this 25th day of September 1984.

[The attachment has been omitted from this publication but may be found in the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555.]