

NUCLEAR REGULATORY COMMISSION ISSUANCES

OPINIONS AND DECISIONS OF THE NUCLEAR REGULATORY COMMISSION WITH SELECTED ORDERS

April 1, 1984 - June 30, 1984

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PREFACE

This is Book II of the nineteenth volume of issuances (937 - 1606) of the Nuclear Regulatory Commission and its Atomic Safety and Licensing Appeal Boards, Atomic Safety and Licensing Boards, and Administrative Law Judge. It covers the period from April 1, 1984 to June 30, 1984.

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

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

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

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

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

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



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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

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

In the Matter of

Docket Nos. 50-275
50-323

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

April 3, 1984

The Commission requests the views of the parties on a series of specific questions relating to the need to consider the complicating effects of earthquakes on emergency planning for the Diablo Canyon nuclear plant because of its location in an area of relatively high seismicity. Additionally, the Commission determines that consideration of the issue is unnecessary with respect to low-power operation because it pertains primarily to offsite emergency planning requirements which are not essential to low-power licensing decisions.

EMERGENCY PLANNING: EARTHQUAKES (IMPACT ON)

Current regulations do not require the consideration of the impacts on emergency planning of earthquakes which cause or occur during an accidental radiological release. *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-81-33, 14 NRC 1091, 1091-92 (1981).

ORDER

This order concerns the issue of the consideration of complicating effects of earthquakes on emergency planning in the Diablo Canyon licensing proceedings.

In the *San Onofre* proceeding, the Commission declared that

current regulations do not require consideration of the impacts on emergency planning of earthquakes which cause or occur during an accidental radiological release. Whether or not emergency planning requirements should be amended to include these considerations is a question to be addressed on a generic, as opposed to a case-by-case, basis.

Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-81-33, 14 NRC 1091, 1091-92 (1981). In the interim, the Commission precluded consideration of this issue in individual licensing adjudications. Thus, the boards have properly excluded this issue from this adjudication.

In response to the Commission's *San Onofre* decision, the NRC staff reported its view that generic consideration was neither necessary nor appropriate, but appears to believe that some specific consideration of the effects of seismic events on emergency planning may be warranted for plants located in areas of relatively high seismicity. See NRC staff memoranda, dated June 22, 1982 and January 13, 1984, attached hereto.

In view of this development, the Commission has decided to address whether to allow such consideration under the circumstances in this case. With respect to low-power operation, however, the Commission is satisfied that, pursuant to 10 C.F.R. § 50.47(d), this issue need not be reviewed further because it pertains primarily to offsite emergency planning requirements which are not essential to low-power license decisions.

To help the Commission with its consideration of this issue, the parties are requested to provide their views on the following issues no later than 30 days after the date of this Order.

Issues:

1. whether NRC emergency planning regulations can and should be read to require some review of the complicating effects of earthquakes on emergency planning for Diablo Canyon;
2. if the answer to question (1) is no, should such a review be performed for Diablo Canyon on the ground that it presents special circumstances under 10 C.F.R. § 2.758. If so, what are the special circumstances that would permit consideration of

the effects of earthquakes on emergency planning for Diablo Canyon?

3. if the answer to (1) or (2) is yes, then the following information should be provided:
 - (a) The specific aspects of emergency planning at Diablo Canyon on which the impacts of earthquakes should be considered.
 - (b) The specific deficiencies in the consideration already given to the impacts of earthquakes on emergency plans for Diablo Canyon. In this regard the NRC staff is directed to serve on the parties to the proceeding a copy of the Licensee's submittal regarding effects of earthquake on emergency planning. However, the Commission is not requesting the filing of contentions in response to this order. The matter of contentions will be handled by a Licensing Board if a proceeding is to be held.
 - (c) The appropriateness of limiting to the Safe Shutdown Earthquake the magnitude of the largest earthquake to be considered.
 - (d) The substantive criteria for reviewing the effects of earthquakes on emergency planning.
 - (e) The necessity for litigation of this matter, including the general scope of (i) proceedings, if any, that should be held, and (ii) issues that should be litigated.

The Commission notes that it is not now deciding whether any requirement for further hearings would require that interim operation of the plant be stayed. The stay determination, if and when it is presented, will be a matter for the equitable discretion of the Commission or Appeal Board. See, e.g., *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-77-8, 5 NRC 503 (1977). Parties need not address the stay question at this time.

Commissioner Gilinsky abstained from this decision.

It is so ORDERED.

For the Commission*

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 3d day of April 1984.

ATTACHMENT 1 TO CLI-84-4

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

June 22, 1982

MEMORANDUM FOR: Chairman Palladino
Commissioner Gilinsky
Commissioner Ahearne
Commissioner Roberts
Commissioner Asselstine

FROM: William J. Dircks
Executive Director for Operations

SUBJECT: EMERGENCY PLANNING AND
NATURAL HAZARDS

By memorandum dated March 1, 1982, the Secretary of the Commission requested the staff to consider several questions with regard to emergency planning.

1. Should the emergency planning activities of NRC licensees include consideration of the possible effects on emergency plans of a very large earthquake?

*Commissioner Asselstine was not present when this Order was affirmed, but had previously indicated his approval.

It is the judgment of the staff that for most sites earthquakes need not be explicitly considered for emergency planning purposes because of the very low likelihood that an earthquake severe enough to disturb onsite or offsite planned responses will occur concurrently with or cause a reactor accident. Planning for earthquakes which might have implications for response actions or initiate occurrences of the "Unusual Event" or "Alert" classes in areas where the seismic risk of earthquakes to offsite structures is relatively high may be appropriate (e.g., for California sites and other areas of relatively high seismic hazard in the Western U.S.).

2. If NRC requirements are to include this consideration, then what criteria should be applied in evaluating the adequacy of such plans in this respect?

In view of the staff response to question 1, current review criteria are considered adequate. Also the staff does not believe that rulemaking is necessary with regard to this issue based on the analysis conducted. The Hearing Boards have read the Commission ruling in the *San Onofre* case (CLI-81-33) to eliminate consideration of all earthquakes at California sites.* The interaction of earthquakes less than the SSE with emergency preparedness was considered in the staff SER for San Onofre and ultimately was not a matter in contention in the *San Onofre* proceeding.

Commissioner Ahearne requested several actions be taken by the staff and these requests were also transmitted in the March 1, 1982, memorandum from the Secretary of the Commission. These are addressed below.

1. The staff should, in conjunction with FEMA, develop an approach for checking the ability of emergency plans to cope with natural phenomena which would be expected to occur during the life of the plant. Examples are: earthquakes, blizzards, tornadoes, hurricanes, tsunamis, and floods that might be expected once every 40 years. FEMA and the staff should develop guidelines for examining plans for flexibility and should identify measures which can be used to assure flexibility.

As stated in the enclosure, a site emergency plan is expected to address all the site characteristics which may require an emergency response. Adverse conditions, which generally correspond to once in 20 to 40 year events, are considered in the evacuation time estimates called for in

*For example, *Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), Memorandum and Order, December 23, 1981 (unpublished), directed certification denied by Commission Order dated March 5, 1982.

staff guidance (Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, NUREG-0654/FEMA-REP-1) which was developed jointly by the staff and FEMA. The evacuation time estimates are used in the optimization of evacuation and shelter plans as well as being available to decisionmakers in emergency conditions. Continuing review of plans to assure flexibility is already provided by 10 C.F.R. Part 50, Appendix E and 10 C.F.R. § 50.54(t).

2. The staff should develop a list of the once in a lifetime natural disasters most likely for each plant either holding an operating license or in the OL process.

Because of the relatively high risk, current practice calls for California licensees and applicants to consider the effects of earthquakes in their emergency planning and for the Trojan plant to consider the consequences of a Mt. St. Helens eruption in its plan. Other plants do consider adverse conditions in developing evacuation time estimates as discussed above but a consolidated listing does not appear to warrant the effort.

3. Existing emergency plans should be examined to determine whether adequate flexibility is present.

The emergency plan reviews and the onsite implementation appraisals which the staff has been conducting include examinations of the overall flexibility of a licensee's emergency response capability and the adequacy of evacuation time estimates, which include the consideration of adverse conditions. Therefore, no further review is believed to be necessary by NRC.

William J. Dircks
Executive Director for Operations

Enclosure: Staff Analysis

cc: OPE
OGC
SECY

ENCLOSURE

BASIS FOR CONSIDERATION OF NATURAL HAZARDS IN EMERGENCY PLANNING

A fundamental premise in the approach to emergency planning utilized by the Federal Emergency Management Agency (FEMA) and the Commission is that the emergency planning basis must be capable of responding to a wide spectrum of accidents. This was the conclusion reached by the Task Force which authored NUREG-0396 (Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants). That Task Force report was subsequently endorsed by the Commission in its Policy Statement with respect to the Planning Basis for Emergency Responses to Nuclear Power Reactor Accidents (Policy Statement). 44 Fed. Reg. 61,123 (October 23, 1979). The concept is reiterated in NUREG-0654 (Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants). Consequently, as a single specific accident sequence for a light water reactor nuclear power plant could not be identified as a planning basis, both NUREG-0396 and NUREG-0654 emphasized that the most important element of any planning basis is the distance from the nuclear facility which defines the area over which planning for predetermined action should be carried out. Not only is this area, termed the Emergency Planning Zone or EPZ, crucial but the *characteristics* of the EPZ are significant.

The need for specification of areas for major exposure pathways is evident. The location of the population for whom protective measures may be needed, responsible authorities who would carry out protective actions and the means of communication to these authorities and to the population are all dependent on the *characteristics of the planning areas*. (Emphasis supplied). NUREG-0654, p. 8.

It is, therefore, inherent in the planning approach utilized by FEMA and the Commission, *i.e.*, the Emergency Planning Zone concept, that the characteristics of the Emergency Planning Zones themselves must be factored into emergency planning considerations. For example, if an EPZ is an area with singular adverse weather attributes, those attributes must be considered in emergency planning. This reasoning would extend to all attributes that might adversely affect an Emergency Planning Zone. Although neither 10 C.F.R. 50.47 nor Appendix E explicitly state that the emergency plans must account for adverse weather conditions or adverse site characteristics, such conditions are covered by

NUREG-0654, which the Commission has adopted to provide guidance in developing plans for coping with emergencies. NUREG-0654 calls for required evacuation time estimates to consider adverse conditions which might reasonably be expected to occur during the plant lifetime at a particular site and be severe enough to affect the time estimates for a particular event.

Two conditions — normal and adverse — are considered in the analyses. *Adverse conditions would depend on the characteristics of a specific site and could include flooding, snow, ice, fog or rain.* (Emphasis supplied). NUREG-0654, pp. 4-6.

Thus, adverse site characteristics of a particular Emergency Planning Zone must be taken into account to satisfactorily implement the Commission's emergency planning regulations.

Explicit planning for emergency preparedness provides a base capability which can be expanded or contracted to address an actual emergency. Backup communications and feedback of damage estimates regarding transportation routes to decisionmakers after an earthquake would be generally available with or without specific advance planning. The general planning base would allow decisionmakers to choose specific actions from among available alternatives for a spectrum of events.

There is no explicit guidance in 10 C.F.R. 50.47 or in Appendix E to Part 50 nor in NUREG-0654 as to the extent to which adverse earthquake conditions are to be taken into account in emergency planning at particular sites. The staff, however, believes the answer to this question is dependent upon the nature of the risk and the nature of the remedy to deal with the risk. Except in California and other areas of relatively high seismic hazard in the Western U.S., the staff's judgment is that the nature of the seismic risk is such that no explicit consideration of earthquake effects is needed in emergency planning. (This judgment is not based on a quantitative analysis but rather on qualitative observations of the relatively lower seismic risk to roads, bridges and communications facilities in the east versus the west.) The occurrence of earthquakes of a nature that could have implications for onsite or offsite response actions or initiate occurrences of the "Unusual Event" or "Alert" class is an adverse characteristic of the type discussed above. The NRC staff made requests to California facilities to consider earthquake effects in their emergency planning, and the NRC staff also requested FEMA to consider earthquake effects in its evaluation of offsite plans. On the other hand, the staff concluded that additional requirements such as the design of additional facilities, structures and systems to specifically withstand earthquakes was not necessary for the reasons discussed above. In

particular, no special seismic design of public notification systems, environmental monitoring capability or communications equipment is contemplated. Also, explicit consideration need not be given to a seismic event coincident with a significant accident at the plant from another cause because of the very low likelihood of such a coincidence.

With respect to offsite effects at California sites, the FEMA Radiological Emergency Preparedness staff believes there should be assurance of continued communication between the plant and outside agencies. In addition, the Emergency Operations Centers (EOCs) of each of the jurisdictions involved in the emergency planning effort for a specific nuclear facility should have suitably distant backup facilities to permit continued functioning of a jurisdiction's emergency response given the possible failure of its primary EOC.

In addition, for California sites the capability should exist to obtain damage estimates both to the plant and to transportation and communication facilities offsite to provide a data base to factor into the decision-making process. Finally, California licensees should have available a range of recommendations to offsite authorities, taking into account the degree of damage to the plant caused by the earthquake and to transportation and communication facilities offsite.

Given an earthquake of magnitude less than or equal to the SSE, while the earthquake could have impacts upon communications and transportation as a consequence of the earthquake, the plant would likely not pose an immediate radiological hazard. If, however, an earthquake substantially in excess of the SSE were to occur, then the potential exists for a radiological hazard complicated by the nonradiological impacts posed by a major earthquake. In the view of the NRC staff, such a contingency does not warrant specific emergency planning efforts because of the general planning base capabilities discussed above. We conclude that this general planning base is adequate because of the remote likelihood of an earthquake substantially in excess of the SSE. In addition, the characteristics of an accident which could theoretically be created by an earthquake substantially larger than the SSE would not be outside the spectrum of accident consequences considered in NUREG-0396 upon which the judgment on planning zone sizes and other planning elements was based. This unlikely sequence would not be unlike the case of a severe accident (not generated by an earthquake) occurring after a winter storm at a site in the northern U.S. Evacuation may not be a feasible option in such a circumstance. It also should be noted that to provide for a preplanned emergency response in all remote circumstances could

require a commitment of substantial societal resources, *e.g.*, to assure that houses and bridges would withstand very large earthquakes.

ATTACHMENT 2 TO CLI-84-4

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

January 13, 1984

MEMORANDUM FOR: Chairman Palladino

FROM: William J. Dircks
Executive Director for Operations

SUBJECT: EMERGENCY PLANNING AND
NATURAL HAZARDS

On September 9, 1983, a meeting was held with you to discuss the Staff's views on the need for and extent of consideration of the potentially complicating effects of earthquakes in the context of emergency preparedness. Please recall that this issue emanates from the Commission's Memorandum and Order in the *San Onofre* proceeding, CLI-81-33 [14 NRC 1091], issued in December 1981, in which the Commission determined that "its current regulations do not require consideration of the impacts on emergency planning of earthquakes which cause or occur during an accidental radiological release."¹ The Commission further noted that it "will consider on a generic basis whether regulations

¹ In the *San Onofre* proceeding, the Licensing Board sought to raise, *sua sponte*, the issue of the effects of an earthquake exceeding the Safe Shutdown Earthquake on the applicants' and responding jurisdictions' abilities to carry out an evacuation in a timely manner and/or protect those in the EPZ pending evacuation. It had been the Staff's and FEMA's positions before the Licensing Board that in that proceeding, while consideration of the complicating effects of earthquakes *up to* the SSE was appropriate, consideration of the potential of earthquakes exceeding the SSE was not warranted. The Licensing Board rejected this view and instead affirmed its prior position calling for consideration of the potential effects of an earthquake exceeding the SSE. Thereafter, the Commission, as indicated above, reversed the Licensing Board's decision. Parenthetically, based on the Commission's *San Onofre* decision, the Licensing Board, in the *Diablo Canyon* proceeding rejected a contention regarding consideration of the effects of earthquakes on emergency preparedness. In an unpublished order issued on March 5, 1982, the Commission denied the Governor's request for interlocutory review of the Licensing Board's action. The Licensing Board's ruling was affirmed by the Appeal Board in ALAB-728, slip op. at 20-21 [17 NRC 792-93] (May 18, 1983) and review by the Commission was denied (CLI-83-32 [18 NRC 1309], December 9, 1983).

should be changed to address the potential impacts of a severe earthquake on emergency planning” and, a memorandum from the Secretary to the Executive Director for Operations, by memorandum of March 1, 1982, directed the Staff to undertake such consideration. By memorandum to the Commissioners dated June 22, 1982 (copy attached), the Executive Director responded to the questions posed in the Secretary’s March 1 memorandum.²

After our September 9, 1983 meeting with you on this subject, you requested further technical discussion to provide a rationale for either including or not including specific emergency planning requirements for seismic events. The following thoughts are presented to respond to your request:

1. Offsite Damage Associated with Extreme Seismic Events

Offsite damage generated by earthquakes can significantly affect nuclear emergency response. The earthquake hazard and potential for such damage varies across the United States. Severe damage, such as the failure of buildings, bridges, and other engineered structures can typically be associated with large damaging earthquakes and their related ground motion levels. For a large part of the U.S. east of the Rocky Mountains, where most nuclear power plants are located, such ground motion levels would be well beyond the Safe Shutdown Earthquake (SSE). For areas associated with higher earthquake hazard, such as the West Coast, these ground motion levels could be at or even less than the SSE. Such high hazard areas may also exist in the east (for example, the New Madrid, Missouri, area), however, no nuclear power plants are presently sited within these areas in the east.

2. The Potential Impact of Offsite Damage on Emergency Response

The impact on emergency response capability from earthquakes is clearly site region dependent and is generally proportional to the degree of off-

² To very briefly summarize the Staff’s position as expressed in its June 22nd response, the Staff concluded that the Commission’s regulations do not require amendment since (1) for most sites there is only a very low likelihood that an earthquake severe enough to disturb onsite or offsite planned responses will occur concurrently with or cause a reactor accident, and (2) while planning for earthquakes which might have emergency preparedness implications may be warranted in areas where the seismic risk to offsite structures is relatively high (e.g., California sites and other areas of the Western U.S.), current review criteria set forth in NUREG-0654 (which are derived from the Commission’s regulations in 10 C.F.R. § 50.47) are considered adequate.

site damage. That is, the higher the intensity of the earthquake, the more extensive and severe is the damage it causes. For seismic events that result in significant and widespread damage to surrounding areas, the response capability would be degraded through extensive disruption of transportation and communication networks, and from the failure of major structures. In this instance the range of protective actions and the capability of the offsite jurisdictions to initiate and implement them could be drastically reduced. The degree of this reduction would vary based on conditions in the region around the site. For example, even with substantial damage to all bridges, a site might have so few bridges in its vicinity that blockage of roads would not be significant.

3. Plant Damage Associated with Seismic Events

When considering the possibilities of plant damage from seismic events, it is important to understand the severity of seismic events, their range of probabilities, and the potential for reactor accidents caused by seismic events. Three classes of seismic events are considered in this discussion. The first class includes earthquakes of relatively low ground motion, up to the Operating Basis Earthquake (OBE). The OBE ground motion depends on plant location. These accelerations vary in the range of about 0.05g to 0.10g (higher in areas of high seismicity). During an OBE all plant systems would be expected to remain operating.

The second class of events includes earthquakes with ground motion higher than the OBE but equal to or less than the Safe Shutdown Earthquakes (SSE); the ground motion of the SSE is typically about twice that of the OBE. Probabilities of occurrence for the SSE have typically been estimated to be on the order of one in a thousand or one in ten thousand per year. NRC regulations require that plants be designed to achieve a safe shutdown after an SSE. Given an SSE, all seismically qualified equipment would be expected to function to bring the plant to safe shutdown. An earthquake up to and including an SSE would be cause for an alert emergency action level classification. However, only in the event of a coincident failure of a safety function (safety systems are designed for the SSE) or some undiscovered common cause failure mechanism (such as a major design error) would there be a chance of an accident which would require offsite emergency response. The probability of these two events (SSE and safety function failure) occurring simultaneously is very much lower than the probability of either one, perhaps on the order of one in a million per reactor year or less.

The final class of events includes all earthquakes with ground motion levels above the SSE. Fragility analysis is used to estimate the probability of failure as a function of ground motion associated with these earthquakes. The Zion, Indian Point, and Limerick Probabilistic Risk Assessments estimated that, in general, ground motion on the order of 0.5g to 0.75g acceleration would be required to damage a nuclear power plant to the extent that significant release of radioactivity could occur. Of course, some plants, such as those in high seismic regions, are designed to withstand earthquakes with ground motion this high; they would resist damage to still higher levels of ground motion. The probability estimates for such ground accelerations are significantly less than the probability estimates for the SSE for these plants (the Zion, IP, and Limerick SSEs are 0.17g, 0.15g, and 0.15g respectively). The absolute probabilities for earthquakes at and beyond the SSE are extremely difficult to estimate and thus have large associated uncertainties.

4. Current Emergency Preparedness Considerations

Seismic events are considered and evaluated to a limited extent as part of our current emergency planning reviews. The following planning standards, some of which explicitly address seismic events, are addressed by the licensee, state and/or local emergency plans as explained in the following sections from NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."

II.D.4 Emergency Classification System

"Each State and local organization should have procedures in place that provide for emergency actions to be taken which are consistent with the emergency actions recommended by the nuclear facility licensee, taking into account *local offsite conditions* that exist at the time of the emergency." (Emphasis added)

II.H.5.a Emergency Facilities and Equipment

"Each licensee shall identify and establish onsite monitoring systems that are to be used to initiate emergency measures in accordance with Appendix 1, as well as those to be used for conducting assessment.

This equipment shall include:

- a. geographical phenomena monitors, (e.g., meteorological, hydrologic, seismic);"

II.H.6.a Emergency Facilities and Equipment

"Each licensee shall make provisions to acquire data from or for *emergency access to offsite* monitoring and analysis equipment including: (Emphasis added)

- a. geographical phenomena monitors, (e.g., meteorological, hydrologic, seismic);”

II.J.10.k Protective Response

“The organization’s plans to implement protective measures for the plume exposure pathway shall include:

- k. Identification of and means for dealing with potential impediments (e.g., seasonal impassibility of roads) to use of evacuation routes, and contingency measures;”

For each of the emergency response classes given in Appendix 1 of NUREG-0654, severe natural phenomena (including seismic events) are included as part of the example initiating conditions. The seismic events specifically included in this appendix are the Operating Basis Earthquake, and the Safe Shutdown Earthquake as well as “any earthquake felt in-plant or detected on station seismic instrumentation.”

The preceding show that seismic events are considered in emergency planning but, as is evident, these review criteria are not very clear and clarification of them could lead to some improvements in emergency preparedness, perhaps by leading to more refined analysis of potential road blockage, etc. However, it is not clear that such improvements would substantially reduce the impairment of emergency response caused by seismic damage offsite.

The Federal Emergency Management Agency (FEMA) reviews offsite radiological emergency planning and preparedness to insure the adequacy of Federal, State, and local capabilities in such areas as emergency organization, alert and notification, communications, measures to protect the public, accident assessment, public education and information, and medical support. Detailed, specific assessment of potential earthquake consequences and response are not part of this process related to radiological emergencies. FEMA does, however, have an active program of earthquake preparedness which includes estimates of damage and casualties, planning for Federal response to a major earthquake, and assistance to State and local governments in their earthquake planning and preparedness activities. FEMA believes that these separate activities would complement each other in the event that a concurrent response to a major earthquake and a serious accident at a nuclear power plant was required.

5. Risk Perspectives

Recent PRAs (*e.g.*, Zion, Indian Point) have indicated that very large earthquakes (much greater than the SSE) can dominate the risk from a nuclear power plant. Such earthquakes can cause massive plant damage leading to immediate offsite radiological hazards. In addition, massive offsite damage was assumed in these analyses which substantially degraded the emergency response.

Based upon the PRA results, the staff finds that for most earthquakes (including some earthquakes more severe than the SSE) the power plant would not be expected to pose an immediate offsite radiological hazard. For earthquakes which would cause plant damage leading to immediate offsite radiological hazards but for which there would be relatively minor offsite damage, emergency response capabilities around nuclear power plants would not be seriously affected. For earthquakes which cause more severe offsite damage, such as, for example, disabling a siren alerting system, the earthquake itself acts as an alerting system. For those risk dominant earthquakes which cause very severe damage to both the plant and the offsite area, emergency response would have marginal benefit because of its impairment by offsite damage. The expenditure of additional resources to cope with seismically caused offsite damage is of doubtful value considering the modest benefit in overall risk reduction which could be obtained.

6. Summary

Based on the preceding discussion the following summary points can be made:

- a. In general, earthquakes up to and including the SSE are not expected to pose an immediate offsite radiological hazard.
- b. Earthquakes beyond the SSE may cause plant damage and radioactive release under conditions where offsite damage impairs emergency response.
- c. Further clarification or refinement of current requirements and guidance might reduce the impairment of emergency re-

sponse indicated in b. above, but the value of such reduction is uncertain.

William J. Dircks
Executive Director for Operations

Attachment: As stated

cc: Commissioner Gilinsky
Commissioner Roberts
Commissioner Asselstine
Commissioner Bernthal
OGC
OPE
OCA

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

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

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)**

April 13, 1984

The Commission reinstates the low-power license for Unit 1 of the Diablo Canyon facility that authorizes the licensee to conduct tests at up to 5% of rated power, following the successful completion of programs established to verify the design of the plant, and the NRC staff's determination that there are no outstanding safety considerations warranting a delay in low-power operation. Intervenor's request for a stay of license reinstatement is denied by the Commission.

**RULES OF PRACTICE: STAY OF AGENCY ACTION
(LICENSING)**

Speculation about a nuclear accident does not, as a matter of law, constitute the imminent, irreparable injury required for staying a licensing decision. *New York v. NRC*, 550 F.2d 745, 756-57 (2d Cir. 1977); *Virginia Sunshine Alliance v. Hendrie*, 477 F. Supp. 68, 70 (D.D.C. 1979).

MEMORANDUM AND ORDER

This decision completes the Nuclear Regulatory Commission's ("NRC" or "Commission") reinstatement of Pacific Gas and Electric Company's ("PG&E" or "licensee") Facility Operating License No. DPR-76 ("low-power license") to conduct low-power tests (at up to 5% of rated power) at the Diablo Canyon Nuclear Power Plant, Unit 1 ("Diablo Canyon"). The events leading up to the Commission's suspension of this license and subsequent steps to reinstate the license in part have been described in several prior orders of the Commission.¹ Accordingly, this Order focuses on events which have occurred since the Commission's last order and refers back to previous events only as necessary.

SAFETY REVIEW

A Commission condition for reinstatement of Diablo Canyon's low-power license was the successful completion of an Independent Design Verification Program (IDVP). CLI-81-30, 14 NRC 950 (1981).² The IDVP was conducted by organizations and individuals not associated with PG&E and was managed by Teledyne Engineering Services (TES). PG&E conducted a separate design verification effort called the internal technical program (ITP) which was performed by PG&E's Diablo Canyon Project ("DCP"), a joint organization of PG&E and Bechtel. Then, the NRC staff, with the help of its consultant, Brookhaven National Laboratory, conducted its own analysis.

¹ The low-power license was issued on September 22, 1981. See CLI-81-22, 14 NRC 598 (1981). It was suspended on November 19, 1981. See CLI-81-30, 14 NRC 950 (1981). Following substantial review and reanalysis of the design and construction of Diablo Canyon, and public meetings at which all interested parties participated, the Commission reinstated the low-power license in part to authorize PG&E to load fuel and conduct pre-criticality tests (operational modes 6 and 5). CLI-83-27, 18 NRC 1146 (1983). Subsequently, the U.S. Court of Appeals for the District of Columbia Circuit denied a motion to stay the Commission's authorization to PG&E. On January 16, 1984, the Commission denied Joint Intervenors' motion for a stay of fuel loading and pre-criticality testing at Diablo Canyon, finding that these activities did not present significant health and safety risks and would not prejudice subsequent Commission decisions or foreclose modifications, if necessary, of the plant. CLI-84-1, 19 NRC 1 (1984). On January 25, 1984, the Commission reinstated another part of PG&E's low-power license by authorizing pre-critical hot system testing (operational modes 4 and 3). CLI-84-2, 19 NRC 3 (1984). As a separate matter, the Commission declined to review the Atomic Safety and Licensing Appeal Board's decision in ALAB-728, 17 NRC 777 (1983) which affirmed a decision by the Atomic Safety and Licensing Board on all issues other than quality assurance related to PG&E's application for a license to load fuel and conduct low-power testing.

² The Commission's Order required an IDVP of seismic, service-related contract activities prior to 1978. In addition, the NRC staff required an IDVP of non-seismic, service-related contract activities, PG&E internal design activities and post-1978 seismic service-related contract activities. In addition to design verification, the IDVP also reviewed some construction activities.

The scope of the IDVP and ITP, and the relation between them, is explained in detail in ALAB-763, 19 NRC 571 (1984). Essentially all of Diablo Canyon's safety-related seismic design was reviewed: the ITP reanalyzed all of the seismic design for safety-related structures, systems and components, while the IDVP oversaw and verified selected portions of the work in accordance with the program approved by the Commission. The review of non-seismic safety-related design was not as comprehensive. The IDVP reviewed three safety-related systems and two areas of safety-related analysis applicable to many other systems. Items of concern identified by the IDVP as potentially generic were addressed by the ITP for all systems designed by PG&E. In turn, the ITP verification work was sampled by the IDVP and the results reported in an Interim Technical Report (ITR). The ITP independently reviewed other non-seismic systems. As a result of this interaction between the ITP and IDVP, the IDVP obtained a broad and comprehensive understanding of the non-seismic design of Diablo Canyon.

The IDVP was completed in October 1983; PG&E's ITP is still ongoing. The NRC staff's review of the IDVP Final Report is contained in Supplements 18, 19 and 20 to the Safety Evaluation Report (SER) for Diablo Canyon, Unit 1. Supplements 18 and 19, PG&E's ITP, and physical modifications to the plant were the basis of the staff's recommendation of the partial reinstatement of PG&E's low-power license to load fuel and perform pre-criticality testing at Diablo Canyon. CLI-83-27, 18 NRC 1146 (1983). At that time there were still several open items and follow-up items which the staff believed required resolution prior to reinstatement of the rest of the low-power license.

The staff has updated its progress on open items in Supplement 20 to the Safety Evaluation Report (SSER 20). The staff considered information in the seismic monthly reports from the IDVP and PG&E, the IDVP Final Report, the PG&E final reports, and the Interim Technical Reports.³ SSER 20 presents the staff's safety evaluation of open items and follow-up items that in the staff's view, must be satisfactorily resolved prior to the Commission's reinstatement of PG&E's authority to achieve criticality and perform low-power testing, *i.e.*, reinstatement of the low-power license for Diablo Canyon, Unit 1. SSER 20 reports that many of the open items and follow-up items previously identified in SSERs 18 and 19 have been resolved. On March 27, 1984, the NRC's Director of Licensing reported that in his view, all open and follow-up

³ The Interim Technical Reports (ITR) are called interim because they were issued before completion of the IDVP. The ITRs document the completion of technical issues.

items identified in SSER 20 had been resolved satisfactorily for reinstatement of the low-power license for Diablo Canyon, Unit 1. He also stated that: (1) he knew of no new information since the completion of SSER 20 which would affect the staff's conclusions or judgments in SSER 20; and (2) that any other issues not addressed in SSERs 18, 19, and 20 had been satisfactorily addressed for the purposes of low-power operation.

The Commission also heard from Mr. Isa Yin, an NRC inspector at Diablo Canyon. Mr. Yin reported that he had found inadequate compliance with the quality assurance program for designing supports for small-bore and large-bore piping. He also stated that reinspection following modification of the pipe suspensions would be rendered more difficult by the environmental conditions in the plant after operation at low power. Accordingly, he requested that the Commission defer granting a low-power license until PG&E had remedied the deficiencies in pipe supporting systems and those changes had been reinspected by the NRC.

The Commission voted to defer reinstatement of the low-power license for Diablo Canyon until the disparity between Mr. Yin's views and those of the rest of the technical staff had been considered by the Advisory Committee on Reactor Safeguards ("ACRS") — a statutorily created advisory committee comprised of experts in various disciplines including nuclear engineering, nuclear physics, and radiation health physics.

The ACRS met in public session on April 6, 1984 and heard from Mr. Yin, other members of the NRC staff, and Mr. Charles Stokes, a previous employee at Diablo Canyon who had made allegations regarding the adequacy of the quality assurance program for the design of supports for small-bore pipes. Mr. Yin had found that some of Mr. Stokes' allegations were correct.

The NRC staff informed the ACRS that, on March 29, 1984 the NRC had convened a peer review panel of technical experts to review Mr. Yin's concerns. The panel met with Mr. Yin, and later with representatives of PG&E and some of the contractors involved in the IDVP. The peer review panel also visited Diablo Canyon to examine in detail some of the specific items identified as deficient by Mr. Yin. After the visit, the peer review panel met with Mr. Stokes, and somewhat later met again with Mr. Yin to discuss the panel's proposed findings. The panel concluded that Mr. Yin's concerns did not warrant delaying low-power operation of Diablo Canyon, but did require resolution prior to going to full power.

Mr. Yin also addressed the ACRS. He stated that "while several reverification and corrective action programs should be completed by PG&E

prior to NRC issuance of a full power operation license, there will be no apparent risk to the public health and safety to allow the reactor testing up to five percent power at the present." On questioning by members of the ACRS, Mr. Yin reiterated his position in spite of his acknowledgment of some residual differences with the rest of the NRC staff.

On April 9, 1984 the ACRS reported on its consideration of Mr. Yin's concerns. Based on the presentations by Mr. Yin and other members of the NRC staff and supporting documentary material, the ACRS found:

We agree that it is acceptable to permit low power operation at this time. We believe that such operation will not compromise corrective actions that may be required.

In view of the statements by the ACRS and Mr. Yin, the Commission concludes that the concerns previously expressed by Mr. Yin have been resolved satisfactorily and do not warrant deferring the reinstatement of the low-power operating license for Diablo Canyon.

QUALITY ASSURANCE

The Joint Intervenor and the Governor of California raised issues related to design quality assurance and to construction quality assurance at Diablo Canyon. Their motion to reopen the record on the design quality assurance (DQA) program at Diablo Canyon was granted, and resulted in an adjudicatory proceeding before the Atomic Safety and Licensing Appeal Board at which the adequacy of the IDVP was a central issue. On March 20, 1984, the Appeal Board issued a 63-page decision in which it found:

[T]he scope and the execution of the applicant's verification programs have been sufficient to establish that Diablo Canyon Unit 1 design adequately meets its licensing criteria. The applicant's verification efforts provide adequate confidence that the Unit 1 safety-related structures, systems and components are designed to perform satisfactorily in service and that any significant design deficiencies in that facility resulting from defects in the applicant's design quality assurance program have been remedied. Accordingly, we conclude that there is reasonable assurance that the facility can be operated without endangering the health and safety of the public.

ALAB-763, 19 NRC at 618-19.

Additional motions filed by the Joint Intervenor and Governor of California to reopen the record on DQA are still pending before the Appeal Board.

The Joint Intervenor and the Governor of California also sought reopening of the record on construction quality assurance (CQA). That

motion was denied by the Appeal Board in ALAB-756, 18 NRC 1340 (1983). Petitions for review of that decision are now pending before the Commission, and petitions to reopen the record are also pending before the Appeal Board.

In view of the pendency of the petitions for review of ALAB-756 (on construction QA), and of the fact that the time for filing petitions for review of ALAB-763 (on design QA) has not elapsed, we express no opinion as to the correctness of the two Appeal Board decisions. Nevertheless, we consider it worthy of note that there is nothing in the Appeal Board's decisions on construction quality assurance or design quality assurance to suggest that PG&E's low-power license should not be reinstated.

ALLEGATIONS

Since 1982, the NRC staff has received numerous allegations and concerns about the design, construction, and operation of the Diablo Canyon Nuclear Power Plant (Diablo Canyon) and the management of these activities by Pacific Gas and Electric Company (PG&E).⁴ As the IDVP neared completion and the target date for a Commission decision on reinstatement of the license approached, the flow of allegations became a deluge and the NRC staff, with Commission concurrence, established a special Diablo Canyon Allegation Management Program ("DCAMP") to pursue the allegations and concerns to resolution.

The DCAMP is described in Supplement 21 to the Safety Evaluation Report for Diablo Canyon (SSER 21). The procedures for handling allegations under DCAMP included confirmation of the allegation by contacting the alleger whenever possible, site inspections of construction or documentation, independent measurements and evaluations where appropriate, technical reviews, interviews with site personnel, public meetings on significant technical issues, discussions between the alleger and staff on staff's findings and reports to the Commission. So far, allegation management has involved more than forty members of the NRC

⁴ In early 1982, the staff received allegations regarding the design and operation of the component cooling water system (CCWS) for Diablo Canyon, Unit 1. The staff's evaluation of the allegations is described in Supplement No. 16 to the Safety Evaluation Report (SSER 16). On the basis of that evaluation, the staff concluded that the CCWS satisfied most design requirements, that the only deviation was acceptable on the basis of PG&E's satisfactory demonstration of design capability in this area, and that the allegations regarding the CCWS had no generic implications. In ALAB-763, the Appeal Board instructed the Director, Nuclear Reactor Regulation, to ensure that PG&E's proposed technical specification on CCWS is incorporated into the plant technical specifications before permitting operation. The order of reinstatement of PG&E's low-power license is contingent on the Director's completion of that action.

technical staff and contractor personnel and required 18,000 person-hours. The staff's review of an allegation was not limited to the allegation itself, but included all necessary related issues.

On January 4, 1984, the staff reported to the Commission on the investigation into 103 allegations using the procedure described above. SECY-84-3, SSER 21. However, additional allegations continued to be received and the DCAMP has attempted to keep up with them. Staff provided an updated written review of the allegations on February 6, 1984 (SECY-84-61) and reported on them to the Commission in public meetings held on January 23, February 10, and March 19, 1984. By mid-March, the total number of allegations was approximately 400. On March 20, 1984, staff issued SSER 22, which addressed 219 of the allegations, including the ones addressed previously. Staff reported that it had examined 188 allegations in detail and determined that 31 other allegations did not warrant detailed review because they raised issues similar to those already considered or were not related to significant safety issues.

In mid-March, the Commission gave public notice that it hoped to be able to make a decision on reinstatement of the license for criticality and low-power operation on March 26, 1984. In the weeks before March 26, scores of new allegations were filed. One group, the Government Accountability Project, filed allegations that were received by the Commission only hours before the scheduled meeting. Approximately 500 allegations have now been filed. Needless to say, this flood of last-minute alleged new information, years after the adjudicatory proceedings began, has strained the Commission's resources.

As noted above, the first 200 of the recent allegations have been reviewed in detail under DCAMP. No license, not even a low-power license, can be issued without adequate protection to the public health and safety. However, special considerations apply to low-power operation. Most importantly, the possible consequences of an accident during low-power operation are limited to a very small fraction of those possible at full power. Low-power operation would generate between one-hundredth and one-tenth of the radioactive fission products which would be generated by full-power operation. Thus, any consequences of accidents would be significantly less than those determined by the safety evaluation for Diablo Canyon. Accident consequences would be further reduced by the lower quantity and rate of production of decay heat produced at low power as compared to that produced at full power. However, the energy required to damage a reactor, the capacity of the heat removal systems, and safety features are not reduced by low-power operation. Therefore, accidents involving failures of these systems at

low-power operation would evolve over longer periods than at full-power operation and could be contained by equipment operating at only a few percent of capacity.

With the above in mind, all of the allegations have been reviewed under one basic safety criterion: is there significant new information which suggests that some safety-related structure, system or component necessary for safe low-power operation will not perform its safety function, or that there are such weaknesses in licensee's management or quality assurance that plant safety is called into serious question. For the first 200 allegations, the results of the review are documented in SSER 21 and the transcripts of the public Commission meetings in January, February, and March. For the approximately 300 more-recent allegations, the Commission was faced with a choice of decision delay, while the review could be carefully documented, or reliance on a preliminary review and staff expert judgment without the more detailed documentation. The Commission has deliberately chosen the latter course. There is every reason to believe that more allegations will be filed, and delay to provide written documentation will lead to paralysis in Commission decisionmaking.

All of the allegations received on or before April 13, 1984, have been reviewed under the criterion specified above and those necessary to be resolved prior to license reinstatement have been resolved. As a result, none of these allegations warrant a delay in the reinstatement of the low-power license. Work under DCAMP will continue, both to document the reviews completed to date and to address those matters that need to be resolved prior to licensing at higher power levels.

OPERATOR EXPERIENCE

The Commission has also considered the circumstance that the regular operating staff for Diablo Canyon has a limited amount of experience with operating similar facilities. The Commission was briefed on the issue by PG&E as part of its comments at the public meeting of February 10, 1984. PG&E has forty-three holders of senior operator licenses and sixteen holders of reactor operator licenses at Diablo Canyon. A typical licensee has successfully completed: (1) a 30-month program on power plant fundamentals, equipment, systems, radiation protection and administrative controls including time on-shift at the facility; and (2) an approximately year-long licensing program. Several license holders have participated in pre-operational testing programs, hot functional testing programs, on-going testing, maintenance, surveillance and modification programs. Licensed operators have also each had from 200 hours to 300

hours of hands-on simulator training. However, because the operators have not had actual plant operational experience, additional experienced personnel will be on hand to assist with start-up operations. This extensive training of PG&E's operators and PG&E's commitment to provide additional trained personnel during start-up have led the Commission to find that PG&E has an adequate operating staff for Diablo Canyon.⁵

SEISMIC LICENSE CONDITION

The Commission has also considered recent developments regarding the characterization of the Hosgri Fault. At the public meeting of March 26, 1984, the staff reported that it had received a preprint of an article by certain petroleum geologists who have used previously unavailable information developed during petroleum exploration to determine that Hosgri Fault is a thrust fault and not a strike/slip fault as previously believed. In view of this development, the staff proposed that PG&E should conduct further seismic and geologic studies of the Hosgri Fault. Mr. James F. Devine, a geologist with the United States Geological Survey also discussed the new findings with the Commission. In Mr. Devine's view, this new information was not startling but more in the nature of a refinement in the understanding of the overall faulting pattern in the region around Diablo Canyon. Mr. Devine supported the NRC staff's proposals for further study. He also stated that, in his view, the new report did not warrant any change in the magnitude of the Safe Shutdown Earthquake for Diablo Canyon.

The Commission has determined that this new information does not affect its low-power decision. There is no indication that the new information undercuts the seismic design basis for Diablo Canyon. However, the Commission has asked the ACRS to review the new information

⁵ The Commission notes that a literal reading of 10 C.F.R. § 55.25(b), which was adopted in 1963, would have required candidates for operator license examinations, at facilities that have yet to go critical, to have had "extensive actual operational experience" before taking the operator license examination. Since 1967, the NRC has taken the position, in publicly available documents, that completion of NRC-approved training that utilizes simulators can, together with other nuclear reactor activities, constitute adequate experience. Operators at Diablo Canyon and four other plants were licensed on this basis. Because this long-standing interpretation of the rule does not match the literal language of the rule, although it satisfies the rule's purpose and does not diminish safety, the Commission will shortly initiate a rulemaking proceeding to conform the language of the rule to this long-standing practice. In the interim, the Commission sees no reason to revoke or suspend existing operator licenses, including those held by the operators at Diablo Canyon. The sophistication of current simulator training provides a suitable basis for operator licensing, and similar training in lieu of operational experience constitutes no diminution of safety. Under these circumstances, the Commission finds no reason to grant Joint Intervenor's April 10, 1984 motion for a stay based on the operator license issue.

prior to any full-power decision and to comment on a draft license condition which would require PG&E to reassess by 1988 the seismic design basis for Diablo Canyon.

ADDITIONAL MATTERS

The staff has denied Joint Intervenors' petition for enforcement action under 10 C.F.R. § 2.206. DD-84-8, 19 NRC 924 (1984). Joint Intervenors contended that PG&E's failure to provide to the Commission a 1977 audit performed by Nuclear Services Corporation on the quality assurance program by Pullman Power Products, a PG&E contractor, required continued suspension of the low-power license. The Director, Inspection and Enforcement found that PG&E made a material false statement by failing in 1978 to provide the audit to the Licensing Board considering quality assurance. However, the Director also found that under the circumstances, the material false statement was a violation of the lowest severity level and, as such, warranted only a Notice of Violation. That Director's decision is still pending before the Commission for its determination of whether to review it. 10 C.F.R. § 2.206(c)(1). Under these circumstances, the Commission expresses no opinion on the correctness of the Director's decision. However, the Commission finds noteworthy that nothing in the decision suggests that PG&E's low-power license should not be reinstated.

On April 12, 1984, the Government Accountability Project (GAP) petitioned the Commission pursuant to 10 C.F.R. § 2.206 to direct the Office of Inspector and Auditor (OIA) to initiate an investigation into alleged false statements by PG&E and the NRC staff regarding the resolution of allegations of deficiencies in design and construction quality assurance at Diablo Canyon. GAP also requested an opportunity to address the Commission on April 13, 1984 on the alleged false statements and suggested that the Commission defer any decision on reinstating PG&E's low-power license for Diablo Canyon until this matter is resolved. In addition, GAP requested the Commission to direct the Office of Investigations (OI) to release transcripts of interviews with allegers to the Board considering design and construction quality assurance.

GAP's request was supported by affidavits from Mr. Steven Lockert and Mr. Charles Stokes. Both have provided allegations to the Commission on several previous occasions; most recently, Mr. Stokes addressed the Advisory Committee on Reactor Safeguards (ACRS). Mr. Lockert's affidavit refers to some welds, made in 1974 and corrected in 1977 for which, in some instances, documentation was not provided until 1982.

Deficiencies in welds and the quality assurance program for documenting repairs to welds have been the subject of many other allegations investigated by the staff. Similarly, Mr. Stokes' affidavit contains allegations of the type already extensively considered by the staff. Mr. Stokes' affidavit also draws legal conclusions based on his opinions of various actions taken at Diablo Canyon.

For the most part, GAP's allegations of false statements by the NRC staff and PG&E are based on its own interpretation of the implications of various allegations regarding conditions at Diablo Canyon. Others of GAP's allegations are based on GAP's differences of opinion with various statements by members of the NRC staff. To the extent that GAP relies on statements by Mr. Yin, GAP's conclusions are not supported by Mr. Yin's statements to the ACRS and a Member of Congress. As for staff's implementation of its policy of reinterviewing alleged, the Commission notes that staff's policy was announced before GAP imposed additional procedural burdens on access to alleged. Finally, regarding statements addressing compliance with 10 C.F.R. Part 50, Appendix B, that issue is pending before the Commission in the context of its review of ALAB-756 and ALAB-763. Because those reviews are still pending, the Commission expresses no opinion on this issue. However, the Commission notes that the Appeal Board found that PG&E had complied with Appendix B.

Under these circumstances, the Commission finds that nothing in GAP's recent submittal requires the Commission to delay consideration of reinstatement of PG&E's low-power license. However, the Commission has asked its Office of Investigations to consider GAP's request for the protected release of transcripts of interviews to the Board and has requested its Office of Inspector and Auditor to review the petition and to take whatever actions it deems necessary.

MOTION FOR STAY

Joint Intervenors have requested the Commission to stay the effectiveness of any reinstatement of PG&E's authority to operate Diablo Canyon Unit 1 at low power until the completion of all pending administrative matters and the conclusion of any judicial review of the Commission's decisions underlying such reinstatement of authority. In the alternative, Joint Intervenors have requested the Commission to stay for several days any reinstatement of PG&E's low-power license to permit them to apply to the United States Court of Appeals for the District of Columbia Circuit for an emergency stay pending appeal. Joint In-

tervenors base their request on three factors: (1) the issues raised in their stay request of October 31, 1983; (2) pending allegations of design and construction deficiencies at Diablo Canyon and motions based on those allegations; and (3) an affidavit by Dr. Michio Kaku. The Commission believes there is no warrant to stay the effectiveness of the reinstatement of PG&E's low-power license until all administrative and legal appeals are exhausted. However, the Commission will delay the effectiveness of this decision until noon, April 19, 1984 (Eastern Time) to give Joint Intervenors an opportunity to read the decision and determine whether to pursue judicial review.

Nothing has happened since October 31, 1983, which would cause the Commission to change its mind about Joint Intervenor's previous motion for a stay. As for recent developments based on allegations, the progress on resolving these allegations indicates that they do not support a motion for stay. Finally, the generic nature of Dr. Kaku's affidavit reveals a lack of specific knowledge of the Diablo Canyon plant and, in particular, the activities to be undertaken during start-up and low-power testing. The affidavit does not describe any specific aspect of low-power operation of Diablo Canyon which would create an undue risk to public health and safety or to the plant personnel. Rather, the affidavit is based on general and well-known considerations, some of which are irrelevant to Diablo Canyon, and hypothetical accident scenarios without any indication of their likelihood of occurrence during low-power operation at Diablo Canyon. It is well-established that speculation about a nuclear accident does not, as a matter of law, constitute the imminent, irreparable injury required for staying a licensing decision. *New York v. NRC*, 550 F.2d 745, 756-57 (2d Cir. 1977); *Virginia Sunshine Alliance v. Hendrie*, 477 F. Supp. 68, 70 (D.D.C. 1979). Under these circumstances, the Commission sees nothing in Dr. Kaku's affidavit which contradicts the extensive technical reviews of Diablo Canyon. For these reasons, the Commission denies Joint Intervenors' request for a stay.

CONCLUSION

The Commission has determined that the concerns which led it to suspend PG&E's low-power license have been resolved to the point where that license can now be reinstated in its entirety.⁶

⁶ Still pending before the Commission is PG&E's request for an extension of the expiration date of the original low-power license. As the Commission has previously stated, PG&E's extension request is sub-

(Continued)

Commissioner Gilinsky dissents from this order. The separate views of Chairman Palladino and Commissioners Gilinsky and Bernthal are attached.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 13th day of April 1984.

CHAIRMAN PALLADINO'S SEPARATE VIEWS

I believe that it is important to put in context Commissioner Gilinsky's statements about reactor operator experience.

The Commission did not "disregard a vital safeguard"; it has simply applied the same standards to Diablo Canyon that have been applied to other commercial power plants over the last 17 years. I see no reason to impose different standards on this plant than on the others which have preceded it.

Each applicant for a reactor license is required to develop and implement an NRC-approved training program for its reactor operator candidates. It has been NRC practice to accept satisfactory completion of an NRC-approved training program as fulfilling the prerequisite for an operator candidate to take an NRC reactor operator examination.

As pointed out by the staff in SECY-84-152:

There are three phases of an NRC approved cold license training program. Phase I includes basic fundamentals and operation of a research reactor during which the trainee performs at least 10 reactor startups. The time normally required to cover

sumed within the proceeding on PG&E's application for a full-power operating license. The staff safety evaluations, testimony and views of the parties, and adjudicatory proceedings that have been held in this proceeding are all applicable, to the extent relevant, to PG&E's extension request. The Commission finds that the previous adjudicatory hearings that have been held satisfy the hearing requests that have been filed with regard to PG&E's extension request and that, because PG&E's extension request does not raise any health, safety or environmental issues that have not been resolved previously, that extension request should be granted.

Phase I is 12 weeks. Phase II includes participatory observation of the day-to-day operation of a nuclear power plant. This observation includes normal operation, surveillance testing and radiation procedures. Also included in this phase is the operation of a nuclear power plant simulator similar in design to the facility for which the trainee will be seeking a license. The duration of Phase II training varies from four to six months. Phase III is the plant specific design lecture series which covers the features of trainee's facility and normally takes six weeks to complete.

Reactor simulators have become sophisticated devices which provide the opportunity to expose a reactor operator candidate to a variety of plant operating conditions which is not generally possible on an actual plant.

It is also important to note that actual operating experience has a number of components in which reactor operators are involved. These include such activities as learning about systems during construction — a particularly good time to learn about the plant.

I also want to comment on Commissioner Gilinsky's statement that "[a]dvisors with questionable qualifications may be positively dangerous." I categorically reject the implication that advisors at Diablo Canyon, or at any plant for that matter, are "positively dangerous." Each advisor has previously had an operator license at another commercial nuclear power plant and has undergone training and examination on specifics of the plant at which they are to advise. The debate that took place relative to Diablo Canyon was not about questionable qualifications. Rather, it was about whether the NRC itself administers the examinations for these advisors or whether the NRC audits the examinations administered by the utility. The Commission has decided on the latter course of action, but neither course of action results in advisors who are positively dangerous.

**ADDITIONAL SEPARATE VIEW OF COMMISSIONER
GILINSKY ON REINSTATEMENT OF LOW-POWER
OPERATING LICENSE AT DIABLO CANYON
(4/13/84)**

Attached are the separate views which I distributed two weeks ago when the Commission last discussed the reinstatement of the Diablo Canyon low-power license. At that time I withheld approval because of the lack of actual operating experience on the plant's operating crews and the absence of adequate compensating measures. The situation has

not changed since then. None of the licensed operators at the plant has actual operating experience at a comparable commercial reactor.

The Commission has decided to require that the operators be backed up by experienced advisors. The critical difference between myself and the other Commissioners is over how to certify the advisors' knowledge of the plant. Advisors with questionable qualifications may be positively dangerous. I want the NRC to administer the examinations they will be given. The Commission is satisfied with company-administered examinations. The view has been expressed that it makes no difference who does the examining. I regard this as naive.

Since the Commission's last meeting on this subject a legal bar to low-power operations at Diablo Canyon has surfaced. I have discovered that the NRC's regulations require operators whose license examination is conducted on a simulator, rather than on an operating plant, to have had "extensive actual operating experience at a comparable reactor." None of the Diablo Canyon operators meet this standard. Their licenses are therefore invalid until such time as they either meet this test or the Commission decides to exempt them from this requirement on the basis of the factors enumerated in the regulations.

After receiving a memorandum from the General Counsel stating that the course followed in this case is inconsistent with the plain meaning of the regulations, the Commission decided this morning to ignore its regulations and simply assert that the licenses are valid. The effect is to disregard a vital safeguard which ensures that some degree of experience is available on a plant's staff. Had the regulations been followed, Diablo Canyon would not now find itself without any experienced operators. The operators are the most important safety feature in the plant since they have the discretion to undo all the other safety features in the plant. It is hard to think of a more important safety issue than the competence and experience of the operators.

**SEPARATE VIEW OF COMMISSIONER GILINSKY
REINSTATEMENT OF LOW-POWER OPERATING LICENSE
AT DIABLO CANYON
(3/27/84)**

I am withholding my approval of the reinstatement of the Diablo Canyon low-power license because I am not satisfied with the readiness of the plant for operation. I am especially concerned by the absence of commercial experience on the operating crews and the failure to compensate adequately for this.

There are two other aspects of this case — seismic design and construction quality assurance — which, while not disabling from the point of view of low-power operation, do not cast the NRC's own review in a particularly favorable light.

Operating Staff Experience

I regard the operator experience question as the most important one in this case. Seismic issues have received a great deal of attention, as they should, but it is well to remember that seismic protection is designed against unlikely contingencies. We rely on the operators for ensuring safety 24 hours a day, every day.

Diablo Canyon does not have a single operator who has had actual operating experience on a commercial nuclear power plant of comparable size. Four operators previously operated the Company's Humboldt Bay plant, a very small boiling water reactor — one-twentieth the size of each Diablo Canyon unit — which has been shut down for 8 years, hardly relevant experience. Much has been made of the fact of simulator training. This is valuable, but it does not compensate for the complete lack of relevant commercial experience. It is worth noting also that Diablo Canyon does not have a site-specific simulator.

This problem should have been resolved a long time ago. At this point, there seems to be no alternative to supplementing the shift crews with experienced advisors for the initial period of operation. The difficulty with the way this has been done is that there is no assurance that they have the site-specific training and knowledge needed for safe operation. I would approve plant operation at low power if the advisor on each shift previously held a senior operator license on a large commercial plant, and if he has passed the site-specific portion of the senior operator license examination for Diablo Canyon. The Commission has instead chosen to allow the Company itself to decide whether the advisors are qualified and to require such advisors only above 5% power.

Seismic Design Standard

I continue to be concerned by the issue of seismic design standards. The root of the difficulty is that although PG&E and the NRC staff accepted a standard based on a Richter scale magnitude 7.5 earthquake for the purposes of the licensing hearing, after the Hosgri Fault was discovered, they did not accept that standard in practice. Apparently in order to avoid having to make significant modifications to the design, PG&E and the NRC staff decided on a number of changes in the way

the post-Hosgri standard was applied. These had the effect of shaving safety margins to the maximum extent. In at least one respect, which involved a substantial reduction in safety margin, they resorted to a highly dubious technique. This reduction, referred to as the tau effect, was accepted by two Licensing Boards which thought that they, and the expert witnesses, understood the technical basis. As it turns out, there is hardly any technical basis for the reductions.

I asked the Commission to take review of this question long ago. There was plenty of time to do a review before the plant was ready for operation but at each point the concern that plant operations might be held up persuaded the Commission to ignore the problem. What I find particularly disturbing is that it was clear to me that the Commission declined to take review not because it understood the seismic design and thought it to be acceptable, but because it looked like a can of worms, and the Commission feared the consequences of reopening the issue.

The ACRS recently told the Commission that "we do not believe that scientific or engineering analyses exist today that could be used to calculate the specific quantitative reductions in free-field seismic spectra [the tau effect] that he [Dr. Newmark] recommended for the Diablo Canyon Nuclear Power Plant." Had the Committee stated this view years ago when it originally reviewed the seismic design standard, I doubt that the Boards would have accepted the standard.

The most favorable statement that the ACRS could ultimately make about the seismic standard was that the Committee continued to feel that overall "the use of the staff approach leads to an acceptable level of safety in this instance." This does not address the tau reductions or whether the safety regulations have been satisfied. What I take the Committee to mean is that the earthquake chosen to determine the seismic standard is too large and that the plant's design is adequate for a smaller earthquake. No doubt the Committee also took into consideration the fact that Diablo Canyon is a relatively isolated site. The ACRS did remind the Commission that it had earlier recommended that a thorough review of the entire seismic design be undertaken, to be completed about 1988.

At yesterday's meeting, the Commission learned that a paper which is to be delivered at the Scripps Institute in April raises new questions about the interpretation of the nature of the faults near Diablo Canyon. This new information reinforces the need for a thorough review of the entire seismic design, as proposed by the ACRS. The Commission has now agreed in principle to such a study. I wish this had been done earlier but I am prepared to accept this approach as a way of dealing with the seismic issue.

Construction Quality Assurance

The NRC has received hundreds of allegations concerning the Diablo Canyon plant. Because one of the allegations was sent to me directly, I felt that I should look into how they were resolved. I chose the audit of the Pullman Power Products, the prime piping contractor from 1971 to 1977, done by the Nuclear Services Corporation (now Quadrex). An important conclusion of that audit report was that the Pullman quality assurance system had been inadequate — among other things, that “there is no confidence that welding done prior to early 1974 was performed in accordance with welding specification requirements.” Most of the piping had been installed by 1974. The NRC staff initially dismissed this concern on the basis of its discussions with PG&E and a review of the staff’s own audit records for the period between 1971 and 1977.

The NRC staff subsequently decided to look into the allegation more closely, apparently because of the Regional Administrator’s feeling that more needed to be done. In December 1983, the staff issued a supplementary Safety Evaluation Report stating that it had found “no evidence to conclude that there was a programmatic breakdown in Pullman Power Products QA program . . .” and that “[t]he details of the staff review are documents in Inspection Report 50/275/83-37.”

When I asked to see the inspection report three months later, the inspector initially refused to supply it to me. As it turns out, only notes existed at the time that the staff wrote the SSER. So far as I can tell, the inspection report only began to be written at about the time I asked to see it. An explanation and correction of the reference to the inspection report was subsequently submitted by the staff to the Commission.

It now appears that the NRC staff called the leader of the NSC audit only in February and, when that person said that he could not remember much about the audit, did not pursue this further. More could readily have been done, and should have been done earlier.

I would have more confidence in this review if the NRC had first contacted the people who worked on NSC’s audit, had then completed the inspection report, subsequently written the SSER, and had only then informed the Board and the Commission of its conclusions.

VIEWS OF COMMISSIONER BERNTHAL ON REINSTATEMENT OF LOW-POWER OPERATING LICENSE AT DIABLO CANYON

Having gone through 2½ years and literally hundreds of allegations, thousands of hours of inspections, reinspections, analysis, and investigation, we can often lose sight of the 98% that is done, since it is frequently the job of the Commission and especially the NRC staff to focus on the 2% that remains undone.

I would therefore like to state for the record the effort that has gone into the long, painstaking, and sometimes just plain painful period of reevaluation and modification of the Diablo Canyon power plant. During this period the licensee, through its primary contractor, has spent some 2,000,000 hours of professional effort to address the problems raised in the fall of 1981 and thereafter; other firms have carried out independent evaluations to the tune of 250,000 hours; the staff of the NRC has devoted 70,000 hours to the technical issues, and another 18,000 hours to evaluating allegations. Diablo Canyon is almost certainly the most inspected plant ever built.

All this is not to imply, of course, that legitimate questions cannot or should not still be asked. I would like to focus on one or two such broad, and I believe legitimate, considerations that remain with respect to the Diablo Canyon power plant beginning operations. But first let me note what is *not* reasonable or legitimate to expect in any such massive endeavor. What is not reasonable to expect is perfection. It is not reasonable to expect all things to be perfect at any multibillion dollar construction project, a project involving thousands of workers and millions of independent steps leading to completion, over a period of some 15 years. And, as might have been expected, Diablo Canyon was not perfect. What was not expected, was that it wasn't even just good enough, 2½ years ago, when this second construction, as it were, began.

In my judgment, two important and legitimate issues deserve special mention here today. One question, and perhaps the most fundamentally important because it is unique to Diablo Canyon, is that of the seismic design adequacy of the Diablo Canyon facility. It should be understood that the science of geology, and especially the study and forecasting of seismic events is an inexact science, as is the engineering of structures to withstand seismic events of a given magnitude. But the best experts available in the field today have offered reasonable and sufficient assurance that the design basis and construction of this plant is adequate to withstand the maximum probable earthquake in the geologic region of the Diablo Canyon plant. I have supported, and the ACRS has

recommended, a continuing review and evaluation of the state of the seismic art and science as it develops and relates to Diablo Canyon over the next several years.

In particular, I would note that the recent scientific paper, discussed in some detail at the last meeting of the Commission, apparently indicates that, although the Hosgri Fault may be somewhat closer than previously thought to the Diablo Canyon site, the probability is that a large, 7.5 Richter-magnitude quake would, under this latest hypothesis, be less frequent than previously thought. I therefore find no reason, based on this latest of what I am sure will be many more papers on California geology and seismology, to change my position on the seismic adequacy of the Diablo Canyon plant. I have reached that conclusion on the basis of my personal inspection of the plant, the recommendation of the ACRS, and the consensus of expert opinion.

Another important issue is that Commissioner Gilinsky raises in respect to operator qualifications. No one questions the legitimacy of that issue, and indeed, the Commission is currently considering the question of how best to achieve not just adequacy, but excellence at all levels in nuclear power plant operating staff qualifications. But the question here is not how PG&E and other utilities will achieve uniform excellence in the months and years ahead, but whether PG&E in its Diablo Canyon operations today has achieved a standard that is, beyond a reasonable doubt, adequate to protect the public health and safety. I believe it has achieved that standard. What they have achieved is good, if not perfect. I would add that, consistent with the strong expressed desires of Commissioner Gilinsky, I believe the Commission does owe this licensee, as it does all our licensees, a clear statement, and soon, of those further steps to be taken along the road to excellence in the operator corps as this licensee prepares for full-power operation.

It must be emphasized in this context that the Commission meeting this morning was not intended to address, nor is there any specific or implied need to address for low-power operations at Diablo Canyon, the question of the Commission's long-standing regulation, 10 C.F.R. § 55.25, and the definition and practical application of that regulation in satisfying the literal requirement for "extensive actual operating experience at a comparable reactor."

The fact is, the Commission has either implicitly or explicitly concurred in the evolving application of § 55.25 since its promulgation more than 20 years ago. The fact is, § 55.25 was promulgated at a time when reactor simulators were not generally available. The fact is, in a 1967 memorandum, the General Counsel's office explicitly concurred in the criteria which the staff were then applying in determining whether

§ 55.25 was satisfied or not. The fact is, the Commission participated in the development of the ANSI standard which provided that simulator training was an acceptable means of acquiring necessary experience. The regulatory guides which endorsed that ANSI standard as a method of complying with the requirements of § 55.25 were published in their final form only after solicitation and consideration of public comments. Further, the Commission was explicitly informed by the staff of the planned issuance of NUREG-0094 in June 1976.

It is both understandable and eminently reasonable that the prerequisites for operator licensing should change as the state of the art in operator training techniques changes. Indeed, there are good reasons to rely heavily on simulator training as a prerequisite for operator licensing, not the least of which reasons is that in many respects the use of a simulator is superior to experience gained actually sitting at the controls of a power plant. Given the background of operator licensing criteria applied by this agency for the past 20 years and the implicit, if not explicit, concurrence of the Commission in the application of those criteria, the suggestion that any near-term operating license applicant should have a license denied or delayed because the Commission has suddenly changed its mind about what constitutes adequate operator qualification would be irresponsible, and would violate fundamental principles of fairness. The Commission has known exactly what it has been doing for 20 years, what it is doing today, and what it intends to do with regard to operator training. The operators at Diablo Canyon meet Commission standards today, and will be required to meet what may well be upgraded standards yet to be adopted by the Commission in future regulations or regulatory guidance.

Finally, I would address the concerns raised by Mr. Yin at the last meeting of the Commission, and seemingly resolved during the intervening two weeks. I do not interpret Mr. Yin's carefully considered position to reflect total agreement with his colleagues on all technical issues. I would be surprised, and frankly a little concerned, if there were ever total agreement within our staff on such issues. But I do understand that there is now essential agreement on an action plan and timetable for resolution of the remaining questions, and more importantly, agreement that those remaining questions and differences should not preclude criticality and 5% operation. I would caution that we are never entirely out of the woods in such matters, but I believe we have made significant progress, sufficient to act affirmatively to reinstate the suspended license of Diablo Canyon.

There has been a worthwhile and necessary process underway during the two weeks spent resolving Mr. Yin's questions, with the help of the

expert third-party oversight of the ACRS. I doubt, incidentally, that Mr. Yin considers himself, as some have characterized him, a "whistleblower." Rather, he is a professional member of the NRC's own technical staff who has openly expressed several times over the last four months, his professional disagreement with other staff on a number of technical issues. That is as it should be. But although the issues had been on the table for months, and had been discussed extensively, they apparently had not been discussed sufficiently prior to the Commission's March 27 meeting. So if I may proffer one plea, to put it kindly, to our staff and especially to the senior staff, it would be that in future, when such professional disagreements exist among staff, if the Commission is expected to resolve them in a meeting, then the Commission must have the benefit of an active debate. Such a debate cannot occur when intra-staff communications have been poor, and when there is not even agreement on what the disagreements are.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

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

In the Matter of

Docket No. 50-444

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

March 29, 1984

The Commission denies a request of the Connecticut Division of Consumer Counsel to intervene in the construction permit extension proceeding for Unit 2 of the Seabrook facility on the ground that the proffered contentions of the petitioner fall outside the scope of the proceeding.

RULES OF PRACTICE: STANDING TO INTERVENE

An intervention petitioner in an NRC licensing proceeding must have an interest that will be affected and proffer specific contentions within the scope of the proceeding. 10 C.F.R. § 2.714; *BPI v. AEC*, 502 F.2d 424 (D.C. Cir. 1974); *see generally, Bellotti v. NRC*, 725 F.2d 1380 (D.C. Cir. 1983).

**RULES OF PRACTICE: INTERVENTION PETITION
(INTEREST)**

The zone of interests which must be affected to give a petitioner standing to intervene in an NRC licensing proceeding does not include

general economic considerations. *See, e.g., Detroit Edison Co. (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-470, 7 NRC 473 (1978).*

RULES OF PRACTICE: INTERVENTION PETITION (PLEADING REQUIREMENTS)

The contention of a proposed intervenor in an NRC licensing proceeding must relate directly to the subject of the proceeding and not to immaterial or generic problems.

CONSTRUCTION PERMIT EXTENSION PROCEEDINGS: SCOPE

Under Section 185 of the Atomic Energy Act and 10 C.F.R. § 50.55, the scope of a construction permit extension proceeding is limited to direct challenges to the permit holder's asserted reasons that show "good cause" justification for the delay. *Washington Public Power Supply System (WPPSS Nuclear Project Nos. 1 & 2), CLI-82-29, 16 NRC 1221, 1229 (1982).* To be admissible in such a proceeding, a contention must either challenge the permit holder's reason for delay or show that other reasons, not constituting good cause, are the principal basis for the delay. *Id.* at 1230.

CONSTRUCTION PERMIT EXTENSION PROCEEDINGS: SCOPE (CONTENTIONS)

The two-pronged test for determining whether a contention is within the scope of a construction permit extension proceeding is: The construction delays at issue have to be traceable to the permit holder and they must be dilatory. If both prongs are met, the delay is without good cause. *Washington Public Power Supply System (WPPSS Nuclear Project No. 2), ALAB-722, 17 NRC 546, 551 (1983).*

ORDER

On October 26, 1983, the Connecticut Division of Consumer Counsel (DCC) filed with the Commission a document entitled "Request of Connecticut Division of Consumer Counsel to Deny Renewal of Construction Permit for Seabrook 2" (Petition). Because the petition states that DCC "respectfully intervenes in" (the Seabrook construction

permit renewal proceeding) (Petition at 1) and states "grounds for denial of renewal of construction permit" which are framed in the manner of contentions (Petition at 3-6), we construe the petition as a request to intervene with respect to the Seabrook 2 construction permit extension application filed pursuant to 10 C.F.R. § 50.55(b).

Staff and applicants replied to the petition on November 30, 1983 and December 9, 1983, respectively, interpreting it as a request for intervention and urging that it be denied. The Seacoast Anti-Pollution League (SAPL), an intervenor in the Seabrook operating license proceeding, filed a motion dated January 4, 1984, joining DCC's petition.¹ On January 17, 1984, applicants filed a response to SAPL's motion urging that it be denied.

Construction permits for Seabrook Units 1 and 2 were issued on July 7, 1976, and were set to expire on June 30, 1983 (Unit 1) and October 31, 1984 (Unit 2). On May 26, 1983, applicants Public Service Company of New Hampshire filed a request for extension of completion dates for Units 1 and 2 to June 30, 1986 and October 31, 1988 respectively. Applicants asserted that under 10 C.F.R. § 50.55(b), "good cause" existed for the extensions for the following reasons:

- (1) A three-year procedural delay after issuance of the original construction permit;
- (2) changes in the scope of the project necessitated by regulatory requirements promulgated after the TMI accident;
- (3) construction delays; and
- (4) construction slowdowns necessitated by state regulatory actions.

Letter from W.P. Johnson to H. Denton, May 26, 1983, at 1-2. The extension requests are currently pending before the NRC staff, and by law the existing permits remain in effect. 5 U.S.C. § 558, 10 C.F.R. § 2.109.

DCC's petition alleges thirteen grounds in support of its petition to intervene to urge denial of the permit extension for Unit 2. These grounds are based on an investigation conducted by the Connecticut Department of Public Utility Control (DPUC), which attacked the costs of and need for the Seabrook project, the projected completion date, and the plant's projected efficiency. According to DCC, the DPUC concluded that Connecticut electric utilities should either withdraw from participation in the

¹ On March 6, 1984, DCC filed before the Atomic Safety and Licensing Board a notice of withdrawal from the construction permit and operating license proceedings for Seabrook Unit No. 2, effectively withdrawing its petition. Because SAPL's joinder of the petition was not withdrawn, however, the Commission is considering the petition on the merits. In doing so, the Commission expresses no opinion as to the procedural validity of SAPL's motion for joinder.

construction of Seabrook 2 or work towards its cancellation. The DCC also alleged that the continued building of Seabrook 2 would jeopardize the completion of Seabrook 1 and would adversely affect customer utility rates. Petition at 3-6.

It is well settled that a petitioner will be heard if there is a showing of the requisite interest that will be affected and of specific contentions within the scope of the intended proceeding. 10 C.F.R. § 2.714; *BPI v. AEC*, 502 F.2d 424 (D.C. Cir. 1974); *see generally, Bellotti v. NRC*, 725 F.2d 1380 (D.C. Cir. 1983). The zone of interests affected does not include general economic considerations. *See, e.g., Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-470, 7 NRC 473 (1978). Those kinds of issues are best directed to the state regulatory bodies in charge of rate setting and similar matters. In addition, the contentions must relate directly to the subject matter of the proposed proceeding and not to immaterial or generic problems. Putting aside whether DCC can show the requisite interest, a matter not free from doubt, we find that DCC's proffered contentions fall outside the scope of the proceeding on the extension of the Seabrook 2 construction permit.

The Commission addressed the proper standard for raising contentions in a construction permit extension proceeding in *Washington Public Power Supply System* (WPPSS Nuclear Project Nos. 1 & 2), CLI-82-29, 16 NRC 1221 (1982), holding that, under Section 185 of the Atomic Energy Act and 10 C.F.R. § 50.55, the scope of a construction permit extension proceeding is limited to direct challenges to the permit holder's asserted reasons that show "good cause" justification for the delay. 16 NRC at 1229. To be admissible, a contention must either challenge applicants' reason for delay or show that other reasons, not constituting good cause, are the principal basis for the delay. *Id.* at 1230.

The *WPPSS* decision has been refined by the Atomic Safety and Licensing Appeal Board into a two-pronged test for determining whether a contention is within the scope of a construction permit extension proceeding: "First, the construction delays at issue have to be traceable to the applicant. Second, the delays must be 'dilatatory.' If both prongs are met, the delay is without 'good cause.'" *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), ALAB-722, 17 NRC 546, 551 (1983). In other words, the proponent of the contention must articulate some basis to show that the applicant is responsible for the delay and has acted intentionally and without a valid business purpose. *Id.* at 553.

Under this standard, DCC's contentions present no adequate basis for relief. DCC's allegations do not attack the sufficiency of applicants' asserted reasons for the delay. Rather, they raise questions about the need

for power, cost of completion and financial consequences to both the utility and to the ratepayers. These questions are far beyond the scope of a construction permit extension proceeding, which is confined to the factual basis asserted for the delay.²

In denying its request to intervene in this proceeding, we do not now rule that DCC is without any remedy for its concerns before NRC. If DCC has concerns specifically related to the proposal to permit Seabrook to operate, those concerns should be addressed, under 10 C.F.R. § 2.714, to the presiding Atomic Safety and Licensing Board. *Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2)*, CLI-81-6, 13 NRC 443 (1981). Moreover, we pointed out in *WPPSS* that 10 C.F.R. § 2.206 thereafter allows any person to seek the institution of a show-cause proceeding under 10 C.F.R. § 2.202. The staff must consider and respond to such requests for regulatory action where the request specifies the action requested and sets forth the facts that constitute the basis for the request. At this point, the Commission expresses no opinion on the issue of whether or not the concerns of DCC, if pursued, are legally cognizable and provide a basis for relief either in the Seabrook OL proceeding or under 10 C.F.R. § 2.206.

Connecticut Division of Consumer Counsel's petition to intervene in the construction permit renewal proceeding for Seabrook Unit 2 is denied. Seacoast Anti-Pollution League's motion for joinder is moot.

It is so ORDERED.³

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 29th day of March 1984.

² The only contentions that give pause under this standard are DCC's allegations that construction of Seabrook 2 has been "scaled down dramatically" and that "the only money being spent on Seabrook 2 is not for the purpose of completing construction, but rather for the purpose of not losing Seabrook 2's construction permit" (Petition at 405). Under the Appeal Board test, delay for financial reasons constitutes delay for a valid business purpose, and is therefore not considered "dilatatory." *WPPSS, supra*, 17 NRC at 552 n.6.

³ Commissioner Gilinsky was not present when this order was affirmed, but had previously indicated his approval.

THE UNIVERSITY OF CHICAGO

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Gary J. Edles, Chairman
Dr. John H. Buck

In the Matter of

Docket No. 50-289-SP
(Emergency Planning)

METROPOLITAN EDISON COMPANY,
et al.

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

April 2, 1984

The Appeal Board declines, for lack of jurisdiction, to reconsider ALAB-697, its decision in this special restart proceeding affirming the Licensing Board's finding that certain emergency plans for the nuclear reactor are adequate.

APPEAL BOARD: JURISDICTION

Under settled principles of finality of adjudicatory action, once an appeal board has finally determined a discrete issue in a proceeding, its jurisdiction is terminated with respect to that issue, absent a remand order. *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 BOARD: JURISDICTION

When the Commission declines to review an appeal board decision, a final agency determination has been made resulting in the termination of appeal board jurisdiction. *Seabrook, supra*, 8 NRC at 695.

APPEAL BOARD: JURISDICTION

Appeal Board jurisdiction over previously determined issues is not necessarily preserved by the pendency before it of other issues in a proceeding. *North Anna, supra*, 9 NRC at 708-09; *Seabrook, supra*, 8 NRC at 695-96.

MEMORANDUM AND ORDER

On October 22, 1982, we affirmed a Licensing Board decision dealing with those aspects of emergency planning for Three Mile Island Nuclear Station, Unit 1, that were challenged by intervenors Norman and Marjorie Aamodt in this special proceeding to determine whether Unit 1 may resume operation.¹ We approved the Licensing Board's determination that the emergency plans under attack were adequate, subject to the condition that before restart the Commonwealth of Pennsylvania's agricultural information brochure, containing emergency information, must be distributed to all farmers located within a 10-mile radius of the plant.² We also made specific recommendations for improvement of that brochure.³ The Commission indicated in February 1983 that it would not review our decision.⁴

A revised brochure was subsequently prepared and distributed on June 29, 1983. Dissatisfied with the new publication, the Aamodts ask us to reconsider our determination that emergency planning for farmers is adequate.⁵ The licensee opposes the Aamodts' motion on the grounds that we no longer retain jurisdiction and the motion presents no new

¹ ALAB-697, 16 NRC 1265 (1982). The Aamodts questioned the Licensing Board's findings in four areas: information transmittal, public education, emergency plans for farmers and the ingestion exposure pathway. *Id.* at 1269.

² *Id.* at 1289.

³ *Id.* at 1279-80.

⁴ See Memorandum from S.J. Chilk, Secretary to the Commission, to the Appeal Board and Parties (February 3, 1983).

⁵ Aamodt Motion for Reconsideration of ALAB-697 in View of New Information Concerning Emergency Planning for Farmers (March 7, 1984).

arguments.⁶ Because we agree that jurisdiction over the matter has been lost, we must decline the invitation to reconsider ALAB-697.

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). As mentioned, we determined the Aamodts' emergency planning issues in October 1982. Indeed, we issued a companion decision on the same day resolving all other emergency planning issues.⁷ 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.⁸

To be sure, issues related to management capability in this proceeding 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.⁹ We are constrained by lack of jurisdiction, therefore, to dismiss intervenors' request for reconsideration.

The motion to reconsider ALAB-697 is *dismissed*.
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

⁶ Licensee's Opposition to Aamodt Motion for Reconsideration of ALAB-697 (March 23, 1984) at 1-3. Our practice set forth in *Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), ALAB-166, 6 AEC 1148, 1150 n.7 (1973), and reiterated in *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-544, 9 NRC 630, 631 (1979), is that parties need not respond to a motion for reconsideration unless we request them to do so. No such request was made here and the NRC staff notified us of its intention not to respond. Letter from J.R. Gray to the Appeal Board (March 22, 1984).

⁷ See ALAB-698, 16 NRC 1290 (1982).

⁸ See ALAB-513, *supra*, 8 NRC at 695.

⁹ *North Anna, supra*, 9 NRC at 708-09; *Seabrook, supra*, 8 NRC at 695-96 (footnote omitted).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

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

In the Matter of

Docket No. 50-508-OL

**WASHINGTON PUBLIC POWER
SUPPLY SYSTEM, et al.**
(WPPSS Nuclear Project No. 3)

April 10, 1984

The Appeal Board affirms the Licensing Board determination made on remand that an untimely petitioner for intervention in this operating license proceeding has made an adequate showing under 10 C.F.R. 2.714(a)(1) that it "may reasonably be expected to assist in developing a sound record," in support of the Licensing Board's previous grant of late intervention.

RULES OF PRACTICE: UNTIMELY INTERVENTION

A late petitioner can establish that its participation may reasonably be expected to assist in developing a sound record by (1) identifying specifically at least one witness it intends to present; and (2) providing sufficient detail respecting that witness' proposed testimony to permit the Board to reach a reasoned conclusion on the likely worth of that testimony on one or more of its contentions. *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3), ALAB-747, 18 NRC 1167, 1181 (1983).

APPEARANCES

Nicholas S. Reynolds and Sanford L. Hartman, Washington, D.C., for the applicant, Washington Public Power Supply System.

Nina Bell, Portland, Oregon, for the petitioner, Coalition for Safe Power.

Donald F. Hassell for the Nuclear Regulatory Commission staff.

DECISION

After the prescribed period for doing so had expired, the Coalition for Safe Power (Coalition) filed a petition for leave to intervene in this operating license proceeding involving the WPPSS Nuclear Project No. 3. Last November, on the appeal of the Washington Public Power Supply System (applicant),¹ we vacated the Licensing Board's grant of intervention and remanded the matter to that Board for "the purpose of requiring the Coalition to make a further showing with regard to the extent to which its participation in the proceeding 'may reasonably be expected to assist in developing a sound record.'² The Board complied with that directive, determined that the Coalition's further showing was adequate, and accordingly reinstated its prior admission of the Coalition to the proceeding.³ The applicant appeals once again.⁴ Persuaded that it has not come even close to providing the requisite "clear demonstration of an unmistakable abuse of discretion on the Licensing Board's part,"⁵ we affirm.

A late petitioner can establish that its participation may reasonably be expected to assist in developing a sound record by "(1) identify[ing] specifically at least one witness it intends to present; and (2) provid[ing] sufficient detail respecting that witness' proposed testimony to permit the Board to reach a reasoned conclusion on the likely worth of that testimony on one or more of [its] contentions."⁶ On the remand here, the

¹ The System's co-applicants did not join in the appeal.

² ALAB-747, 18 NRC 1167, 1170-71 (1983). This is the third of the five factors set forth in 10 C.F.R. 2.714(a)(1) that govern the acceptance of a belated intervention petition.

³ March 2, 1984 memorandum and order (unpublished).

⁴ Both the Coalition and the NRC staff oppose the appeal.

⁵ ALAB-747, *supra*, 18 NRC at 1181.

⁶ *Ibid.*

Coalition informed the Licensing Board that it intended to present Jack Smith, PhD, in support of its admitted Contention 16, which asserts that the applicant has underestimated the effects of WPPSS-3 operation on the aquatic biota in the Chehalis River. We are told by the applicant, however, that the Coalition did not supply sufficient detail with respect to Dr. Smith's qualifications and the substance of his testimony. Thus, the applicant would have it, the Licensing Board was not in a position to make a reasoned judgment with regard to the Coalition's potential contribution on Contention 16.

Insofar as Dr. Smith's qualifications are concerned, the Coalition represented him to be "an aquatic toxicologist with graduate degrees from Harvard University [and] broad experience with analysis of discharges into waterways, the control of chemical pollutants and [their] ecological impacts."⁷ If these representations are founded in fact, there can be little doubt that Dr. Smith is qualified to give expert testimony on Contention 16. And had the applicant wished to verify their accuracy, it could have called upon the Coalition to provide further information pertaining to Dr. Smith's educational and vocational background. The record does not disclose that any such request was ever made. That being so, the applicant is foreclosed from now asserting that the Coalition's representations were not adequately developed and that the Licensing Board therefore was not entitled to rely upon them.

The Coalition additionally furnished the Licensing Board with a summary of Dr. Smith's analysis of the portions of the applicant's Environmental Report concerned with aquatic impacts.⁸ The summary is thereafter referred to by the Coalition as Dr. Smith's "testimony."⁹ On the strength of that material, the Licensing Board could reasonably

⁷ Intervenor's Further Supplement to Petition for Leave to Intervene (January 10, 1984) at 2.

⁸ *Id.* at 3.

⁹ *Ibid.*

conclude, as it did, that the Coalition has the ability to assist in developing a sound record on Contention 16.¹⁰

*Affirmed.*¹¹

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

¹⁰ March 2, 1984 memorandum and order at 9-10.

¹¹ The Licensing Board still has before it the question of the extent to which the Coalition will be allowed to litigate issues apart from Contention 16. See Applicant's Motion for Reconsideration and/or Referral or Certification (March 20, 1984) at 3-14. Needless to say, we now intimate no opinion respecting that question.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Thomas S. Moore
Howard A. Wilber

In the Matter of

Docket Nos. 50-413
50-414

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

April 17, 1984

The Appeal Board dismisses a referral by the Licensing Board of a ruling rejecting portions of an untimely contention advanced by intervenors in this operating license proceeding. The Appeal Board finds that the Licensing Board ruling can await appeal from that Board's final decision without causing truly exceptional delay or expense, and that Appeal Board involvement in the proceeding at this time is not compelled by any public interest.

PLANT DESIGN: GENERAL CRITERIA

All nuclear power facilities are required to have an onsite electric power system to permit the functioning of structures, systems, and components important to safety in the event that the facility's offsite electric power system is inoperative. 10 C.F.R. Part 50, Appendix A, General Design Criterion 17.

RULES OF PRACTICE: INTERLOCUTORY APPEAL

Interlocutory review of licensing board action on specific contentions, whether in admitting or rejecting them, is generally disfavored. *See Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 465 (1982), *rev'd in part on other grounds*, CLI-83-19, 17 NRC 1041 (1983).

RULES OF PRACTICE: INTERLOCUTORY APPEAL

An intervenor aggrieved by threshold licensing board action on one of its contentions customarily must await the board's initial decision before seeking appeal board review. On appeal from an initial decision under 10 C.F.R. 2.762(a), an intervenor can assert that a licensing board ruling on the admissibility of a contention was erroneous. *See, e.g., Texas Utilities Generating Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), ALAB-599, 12 NRC 1, 2 n.1 (1980), and cases cited.

RULES OF PRACTICE: INTERLOCUTORY APPEAL

In the absence of a potential of truly exceptional delay or expense, the risk that a licensing board's interlocutory ruling may eventually be found to have been erroneous, and that because of the error further proceedings may have to be held, is one which must be assumed by that board and the parties to the proceeding. *Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-116, 6 AEC 258, 259 (1973).

APPEARANCES

Robert Guild, Columbia, South Carolina, for the intervenor, Palmetto Alliance.

Jesse L. Riley, Charlotte, North Carolina, for the intervenor, Carolina Environmental Study Group.

J. Michael McGarry, III, and **Anne W. Cottingham**, Washington, D.C., and **Albert V. Carr, Jr.**, Charlotte, North Carolina, for the applicants, Duke Power Company, *et al.*

George E. Johnson for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

This proceeding is pending before the Licensing Board on an application for operating licenses for the two units of the Catawba Nuclear Station. Before us is that Board's referral under 10 C.F.R. 2.730(f) of a ruling rejecting two segments of a three-part untimely contention advanced by intervenors Palmetto Alliance and the Carolina Environmental Study Group.¹ The referral is supported by the intervenors and opposed by the applicants and the NRC staff. For the reasons set forth below, we conclude that interlocutory appellate review of the ruling is not warranted.

A. All nuclear power facilities are required to have an onsite electric power system to permit the "functioning of structures, systems, and components important to safety" in the event that the facility's offsite electric power system is inoperative.² At Catawba, diesel generators manufactured by Transamerica Delaval Incorporated (TDI) are a key element of the onsite system.

Subsequent to the commencement of the evidentiary hearing in this proceeding, the NRC staff called attention to a number of problems associated with TDI diesel generators at other nuclear power plants.³ This disclosure prompted the intervenors to seek orally the admission of a new contention addressed to the reliability of the Catawba generators.⁴ As rephrased by the Licensing Board, the contention asserted that:

The Applicants [Duke Power Company, *et al.*] have not demonstrated a reasonable assurance that the TDI emergency diesel generators at the Catawba Nuclear Station can perform their safety function in service because of:

- (1) inadequate design of the crankshafts;
- (2) deficiencies in quality assurance at TDI;
- (3) operating performance history of TDI generators at other nuclear facilities.⁵

¹ February 23, 1984 Licensing Board Memorandum and Order (unpublished) (hereafter February 23 order).

² 10 C.F.R. Part 50, Appendix A, General Design Criterion 17.

³ See Board Notifications 83-160 and 83-160A dated October 21 and November 17, 1983, respectively.

⁴ Tr. 9620-25.

⁵ February 23 order at 4; Tr. 12,437-42.

In determining whether to allow the contention, the Licensing Board applied the five factors set forth in 10 C.F.R. 2.714(a).⁶ It concluded that that portion of the contention pertaining to the adequacy of the crankshaft's design should be conditionally admitted.⁷ The remainder (concerned with quality assurance at the TDI factory and operating experience with TDI diesel generators at other nuclear facilities) was rejected. As the Licensing Board saw it, those portions of the contention could not as a practical matter be "litigated and adjudicated in the next few months" and thus the delay factor came into play.⁸ Further, the Board thought the quality assurance and operating experience issues to be more complex than the accepted crankshaft issue and apparently entertained doubt as to the ability of the intervenors to contribute to the development of a sound record on them.⁹ Finally, the Board had this to say:

In addition, we were also strongly influenced by the fact that the TDI quality assurance and operational performance issues are generic in the sense that [they] may potentially affect some fifteen different facilities. Contentions having apparent generic application have already been admitted in the pending *Shoreham, Perry* and *Comanche Peak* operating license cases, and it appears likely that such contentions will be put forward in other cases as well. (See *Long Island Lighting Company* (Shoreham Station), Docket No. 50-322-OL, Tr. 21,611-22,617; *Cleveland Electric Illuminating Company* (Perry Plant), Memorandum and Order of December 23, 1983; *Texas Utilities Generating Company* (Comanche Peak Station), Memorandum of January 31, 1984. It seems to us, therefore, that consideration should be given to some procedural mechanism whereby these generic issues could be litigated in a single proceeding, by a lead-case approach, a special proceeding with multi-party participation, or possibly by some other vehicle. Such a mechanism would promote concentration of resources and an expeditious and thorough ventilation of these issues. But it makes no sense to us that these generic issues be litigated simultaneously and piecemeal in several individual licensing proceedings like this one.¹⁰

⁶ Those factors are:

- (i) Good cause, if any, for failure to file on time.
- (ii) The availability of other means whereby the petitioner's interest will be protected.
- (iii) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.
- (iv) The extent to which the petitioner's interest will be represented by existing parties.
- (v) The extent to which the petitioner's participation will broaden the issues or delay the proceeding.

In an earlier decision in this proceeding, the Commission held that all five factors must be considered in passing upon whether to admit a late contention. CLI-83-19, 17 NRC 1041 (1983).

⁷ The Board imposed the condition that the intervenors submit by April 2, 1984 the names of the expert witnesses who will testify for them on the crankshaft design matter, a statement of their qualifications and a summary of their proposed testimony (Tr. 12,548). See *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725, 1730 (1982).

⁸ The fifth Section 2.714(a) factor, see note 6, *supra*.

⁹ The third Section 2.714(a) factor, see note 6, *supra*.

¹⁰ February 23 order at 7.

As the basis for referring the rejection to us, the Licensing Board expressed the opinion that

early appellate guidance "is necessary to prevent detriment to the public interest or unusual delay or expense." 10 C.F.R. § 2.730(f). See [*Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977)]. There might well be unusual delay and expense for the Applicants in this case should our exclusion rulings turn out to be wrong. But the compelling case for referral is the potential impact of the generic diesel generator issues on a number of pending cases. In the absence of some early appellate consideration and coordination of those issues, the resulting delays, expenses and detriments to the public interest could be considerable.¹¹

B. At a prior stage of this proceeding, we took note of "our general policy disfavoring interlocutory review of licensing board action on specific contentions."¹² Although the allusion was in the context of the Licensing Board's conditional *admission* of certain contentions, the policy applies equally to licensing board *rejection* of contentions in circumstances where, as here, the rejection does not operate to deny party status to their proponent. As we have often observed, an intervenor aggrieved by threshold Licensing Board action on one of its contentions customarily must await the rendition of the Board's initial decision before seeking our intercession. If dissatisfied with the initial decision, on an appeal from it under 10 C.F.R. 2.762(a) the intervenor can assert, *inter alia*, that the Board's ruling on the admissibility of the contention was erroneous.¹³ To be sure, should the assertion carry the day, the almost inevitable result would be a remand to the Licensing Board for further proceedings on the improperly excluded contention(s). Over a decade ago, however, we stressed (in the course of dismissing a Licensing Board referral of an interlocutory ruling) that

in the absence (as here) of a potential of truly exceptional delay or expense, the risk that a licensing board's interlocutory ruling may eventually be found to have been erroneous, and that because of the error further proceedings may have to be held, is one which must be assumed by that board and the parties to the proceeding.¹⁴

With due respect for the contrary view of the Board below, we cannot agree that a potential of *truly exceptional* delay or expense would attend

¹¹ *Id.* at 8-9.

¹² ALAB-687, 16 NRC 460, 465 (1982), *rev'd in part on other grounds*, CLI-83-19, *supra* note 6.

¹³ See, e.g., *Texas Utilities Generating Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), ALAB-599, 12 NRC 1, 2 n.1 (1980), and cases cited.

¹⁴ *Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-116, 6 AEC 258, 259 (1973).

upon our leaving its referred ruling for review (if necessary) at the conclusion of the case. Indeed, on that score we see no important distinction between this case and the innumerable others in which, for one reason or another, some (albeit not all) of an intervenor's contentions are not accepted for litigation.

That being so, what remains for consideration is whether, as the Licensing Board also concluded, a compelling public interest dictates our involvement in the TDI diesel generator matter at this time. On this score as well, we are unable to concur with the Board.

As seen, at the root of the referral is the Board's belief that the TDI quality assurance and operational performance issues are generic in character and, as such, if possible should be litigated in a single proceeding. What the Board seemingly has in mind is something akin to the lead case procedure we adopted several years ago in dealing with the issue — potentially arising in *every* reactor licensing proceeding — of 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.¹⁵ How practical that approach turned out to be in the radon proceeding is open to legitimate question.¹⁶ Be that as it may, however, we have been given no reason to think that any measure of success it might have achieved in facilitating the resolution of the radon issue would be repeated here.

Among other things, unlike the radon issue, the issues concerning the reliability of the TDI diesel generators do not appear to be wholly generic. We can take official notice that at least four different models of TDI diesel generators have been supplied to nuclear power facilities; in this regard, Catawba has DSRV 16 generators, while those at Shoreham (one of the other reactors referred to by the Licensing Board) are of Model DSR 48.¹⁷ Moreover, insofar as we are aware, the limited operating history of the various generators has not been precisely the same.

In these circumstances, it is far from clear that any substantial advantage would be gained by removing some of the TDI diesel generator issues from assorted individual licensing proceedings and consolidating them in one existing (or special) lead proceeding. Accordingly, we see

¹⁵ See *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-480, 7 NRC 796 (1978).

¹⁶ For the tortuous subsequent history of the adjudication of the radon issue on a lead case basis, see ALAB-640, 13 NRC 487 (1981), and ALAB-701, 16 NRC 1517 (1982). And the final curtain has not as yet fallen. See CLI-83-14, 17 NRC 745 (1983), deferring the decision as to possible Commission review of ALAB-701.

¹⁷ See February 15, 1984 letter from R.E. Boyer, Manager, Quality Assurance, Transamerica Delaval, to the Director of the NRC Office of Inspection and Enforcement. That letter was supplied to the parties to the present proceeding as part of Board Notification 84-044 (February 29, 1984).

no public interest to be served in employing the Licensing Board's partial rejection of the intervenors' diesel generator contention as a springboard for our pursuit of the Board's proposal in that regard.¹⁸

The referral contained in the Licensing Board's February 23, 1984 order is *dismissed*.

It is so ORDERED.

FOR THE APPEAL BOARD

Barbara A. Tompkins
Secretary to the
Appeal Board

¹⁸ Although they do not crucially bear upon our determination respecting the referral, we note in passing three developments since the issuance of the Licensing Board's February 23 order. First, on February 27, the Board entered an order in which it posed on its own motion an additional issue related to the TDI diesel generators. Specifically, the Board referred to a February 17, 1984 letter from the Duke Power Company that identified four specific problems encountered with the Catawba generators and asked whether, notwithstanding those problems, there is reasonable assurance that the generators can perform their function and provide reliable service. Second, on March 23, the intervenors filed a motion to amend and supplement the conditionally admitted crankshaft design contention or, alternatively, to admit a new contention. Third, on April 13, the Licensing Board dismissed the conditionally admitted crankshaft design contention on the ground that the intervenors had not met the imposed condition. See note 7, *supra*.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

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

In the Matter of

Docket No. 50-322-OL

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

April 23, 1984

The Appeal Board certifies to the Commission questions concerning the terms "important to safety" and "safety-related" as used in the Commission's quality assurance regulations, and another question concerning the need for additional environmental evaluation under the National Environmental Policy Act prior to the issuance of a license for low-power operation of the Shoreham plant.

PLANT DESIGN: GENERAL CRITERIA

The General Design Criteria (GDC) establish minimum standards for those structures, systems and components considered important to safety, *i.e.*, those that "provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public." 10 C.F.R. Part 50, Appendix A, Introduction.

QUALITY ASSURANCE/QUALITY CONTROL: REGULATORY REQUIREMENTS (APPLICABILITY)

Appendix B to 10 C.F.R. Part 50 delineates the quality assurance requirements for the design, construction and operation of various structures, systems and components of a nuclear power reactor. These quality assurance requirements apply to all activities affecting the safety-related functions of these structures, systems and components. 10 C.F.R. Part 50, Appendix B, Introduction.

RULES OF PRACTICE: INTERVENTION PETITIONS (LATE-FILED CONTENTIONS)

Licensing boards have discretion to admit late-filed contentions and appeal boards are not readily disposed to overturn such board determinations. See *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3), ALAB-747, 18 NRC 1167, 1171 (1983).

MEMORANDUM AND CERTIFICATION TO THE COMMISSION

I. INTRODUCTION

1. A recurring issue in reactor operating license proceedings is whether the facility has been properly constructed. In most instances, the focus has been upon the development and execution of a quality assurance program designed to ensure proper construction and minimize the possibility that construction deficiencies of potential safety significance will go undetected and therefore unrectified.¹

We have before us appeals in connection with the Licensing Board's partial initial decision in this operating license proceeding.² Among the matters resolved by the Board was the adequacy of the applicant's compliance with the quality assurance requirements of 10 C.F.R. Part 50. Specifically, intervenors Suffolk County, New York, and the Shoreham Opponents Coalition challenge the methodology used by the applicant Long Island Lighting Company (LILCO) in the classification and

¹ See generally *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343 (1983), *reconsideration denied*, ALAB-750, 18 NRC 1205 (1983), *as modified*, ALAB-750A, 18 NRC 1218 (1983).

² See LBP-83-57, 18 NRC 445 (1983).

qualification of plant structures, systems and components for the purpose of the quality assurance program, and the assessment of potential interactions among plant systems. Contention 7B, which the Board crafted from related contentions proffered by the intervenors, reads:

LILCO and the Staff have not applied an adequate methodology to Shoreham to analyze the reliability of systems, taking into account systems interactions and the classification and qualification of systems important to safety, to determine which sequences of accidents should be considered within the design basis of the plant, and if so, whether the design basis of the plant in fact adequately protects against every such sequence. In particular, proper systematic methodology such as the fault-tree and event-tree logic approach of the IREP program or a systematic failure modes and effect analysis has not been applied to Shoreham. Absent such a methodological approach to defining the importance to safety of each piece of equipment, it is not possible to identify the items to which General Design Criteria 1, 2, 3, 4, 10, 13, 21, 22, 23, 24, 29, 35, 37 apply, and thus it is not possible to demonstrate compliance with these criteria.³

In short, the intervenors claimed that there must exist some quality assurance program for *all* structures, systems and components that are "important to safety" within the meaning of General Design Criterion (GDC) 1,⁴ *i.e.*, those that play any role in assuring that the plant can be operated without undue risk to the health and safety of the public. In their view, LILCO has impermissibly restricted its quality assurance program to those items that are "safety-related" within the meaning of Appendix B to Part 50 and Appendix A to Part 100.

The applicant argued, to the contrary, that the term "safety-related" within the meaning of the quality assurance requirements of Appendix B to Part 50 is synonymous with the term "important to safety" contained in the Commission's General Design Criteria. It contended that it has in place a quality assurance program in total compliance with Part 50 for all safety-related items but also asserted that all nonsafety-related items have received quality assurance commensurate with their significance to the plant's safe and reliable operation.

The NRC staff maintained, as a threshold matter, that the contentions put forth by the intervenors did not meet the requirements of 10 C.F.R. § 2.714(a) for late filings or the specificity requirement of 10 C.F.R. § 2.714(b). Nevertheless, the staff supported the intervenors' substantive position that the term "important to safety" is broader in scope than the term "safety-related."

³ See LBP-82-19, 15 NRC 601, 611 (1982). See generally *id.* at 605-12.

⁴ 10 C.F.R. Part 50, Appendix A.

Based on the evidence of record, the Licensing Board resolved in the applicant's favor all quality assurance issues that were litigated. It agreed that LILCO had applied quality assurance to every structure, system and component at Shoreham commensurate with each item's contribution to plant safety and reliability. In arriving at this determination, however, it concluded, in accordance with the views of the intervenors and the staff, that "the class of structures, systems, and components that is important to safety is larger than, and includes, the class of structures, systems, and components that is safety-related."⁵ To ensure adherence to this definitional distinction, the Board imposed an operating license condition requiring LILCO to acknowledge and adopt a classification scheme under which the term "important to safety" is given a broader meaning than the term "safety-related."

On appeal, the parties maintain the positions taken below.⁶ In this connection, the staff contends that the license condition is needed to ensure continued adherence by LILCO to the definitional distinction found by the Board.⁷ Because of the importance and novelty of the question presented, we granted a request by the Utility Safety Classification Group, which is made up of 39 electric utility companies that own over half of the planned or operating commercial nuclear units in the country, to participate in the appeal as *amicus curiae*. The Group argues that the definitions advocated by the NRC staff, and adopted by the Board, are inconsistent with the historical interpretation of the term "important to safety" and are impermissibly broad and vague. It argues further that such a significant change affecting the entire industry should, in any event, be effected only through notice and comment rulemaking procedures.⁸

2. As a separate matter, Suffolk County asserted below, and reiterates on appeal, that the Commission must make a separate and independent assessment under the National Environmental Policy Act (NEPA) of the environmental effects of licensing the Shoreham plant for low power operation. Although full power operation is the subject of an environmental impact statement, the County claims that it is unlikely that offsite emergency preparedness plans will turn out to be satisfactory in view of the opposition of county and state officials, and thus there is no basis to believe that full power operation will ever occur. As a

⁵ LBP-83-57, *supra*, 18 NRC at 546.

⁶ See generally Suffolk County Brief in Support of Appeal of Licensing Board Partial Initial Decision (December 23, 1983) at 5, 7-11; App. Tr. 33-34; LILCO's Brief on Appeal (December 23, 1983) at 1-6; LILCO's Reply Brief (March 2, 1984) at 4; NRC Staff's Brief in Opposition (March 9, 1984) at 4-5.

⁷ NRC Staff's Brief at 61-68.

⁸ Utility Safety Classification Group's Brief *Amicus Curiae* (December 23, 1983) at 1-4.

consequence, a further environmental assessment of the costs and benefits of low power operation is required. The Licensing Board rejected that claim. As we explain in more detail below, it found that such rejection was mandated by the Commission's disposition of an earlier Suffolk County request to defer consideration of low power licensing in view of the uncertainties associated with offsite emergency planning.

II. BACKGROUND

All nuclear power plants contain structures, systems and components that prevent or mitigate the consequences of postulated accidents and thus are necessary to ensure the safety of the plant. The General Design Criteria (GDC) establish minimum standards for those structures, systems and components considered important to safety, *i.e.*, those that "provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public."⁹

GDC 1 states, in part:

Structures, systems, and components important to safety shall be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. . . . A quality assurance program shall be established and implemented in order to provide adequate assurance that these structures, systems, and components will satisfactorily perform their safety functions. [Emphasis added.]

GDC 2 requires that "structures, systems, and components important to safety" be designed to withstand the effects of natural phenomena such as earthquakes without loss of capability to perform their safety functions. In this connection, Appendix A to Part 100 of the Commission's regulations defines a "Safe Shutdown Earthquake" (the most severe seismic event analyzed for a nuclear power plant) and requires that certain items be designed to remain functional for that event. The items are those necessary to assure (1) the integrity of the reactor coolant pressure boundary; (2) the capability to shut down the reactor and maintain it in a safe shutdown condition; or (3) the capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to the guideline exposures of 10 C.F.R. Part 100.¹⁰

Appendix B to 10 C.F.R. Part 50 of the Commission's regulations delineates the quality assurance requirements for the design, construc-

⁹ 10 C.F.R. Part 50, Appendix A, Introduction.

¹⁰ 10 C.F.R. Part 100, Appendix A, III(c).

tion and operation of various structures, systems and components. These quality assurance requirements apply to *all activities affecting the safety-related functions* of those structures, systems and components.¹¹ Those structures, systems, components or functions deemed "safety-related" are not defined in Part 50, but a definition is incorporated in Appendix A to Part 100, which implements GDC 2. That provision reads, in part:

*The nuclear power plant shall be designed so that, if the Safe Shutdown Earthquake occurs, certain structures, systems, and components will remain functional. These structures, systems, and components are those necessary to assure (i) the integrity of the reactor coolant pressure boundary, (ii) the capability to shut down the reactor and maintain it in a safe condition, or (iii) the capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to the guideline exposures of this part. In addition to seismic loads, including aftershocks, applicable concurrent functional and accident-induced loads shall be taken into account in the design of these safety-related structures, systems, and components.*¹²

In short, safety-related items are those necessary to satisfy the tripartite test of Appendix A to Part 100.

III. CONCLUSION

We have decided to certify the question of the proper interpretation of the regulations to the Commission for disposition. As set out in more detail below, we find the existing regulations too varied and the historic industry and agency practice too diverse simply to set forth what we perceive to be the proper interpretation of the regulations. Furthermore, we are convinced that any disposition of this issue will have ramifications far beyond the current adjudication. As a consequence, we believe that it should be addressed in a more generic context. This can be accomplished by certifying the matter to the Commission, which may choose to employ its rulemaking powers if it deems them appropriate.¹³

¹¹ 10 C.F.R. Part 50, Appendix B, Introduction (emphasis added).

¹² 10 C.F.R. Part 100, Appendix A, VI(a)(1) (emphasis added).

¹³ As earlier noted, the staff claims that the contention should never have been litigated. In addition to the two arguments it raised below, it now claims that the Board's reformulation into a single broad and vague contention was inconsistent with procedures for the exercise of the Board's *sua sponte* authority under 10 C.F.R. § 2.760a. Our preliminary examination suggests that the Board's action was proper. In the first place, licensing boards have discretion to admit late-filed contentions and we are not readily disposed to overturn board determinations in that respect. See *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3), ALAB-747, 18 NRC 1167, 1171 (1983). Moreover, despite any initial
(Continued)

We have also decided to refer to the Commission for disposition the question of the effect of its earlier decision on Suffolk County's claim that NEPA requires a separate evaluation of low power licensing. We discuss the quality assurance and environmental issues separately, and turn, first, to the issue of the construction of the Commission's quality assurance regulations.

IV. DISCUSSION

1. In our view, the Commission's regulations are too inconsistent to provide a ready answer to the definitional dispute. Although mere inconsistency does not ordinarily prevent an adjudicatory tribunal from interpreting regulations, such interpretation in the instant case would necessitate a wholesale rejection of one or more portions of the regulations in favor of others. We are reluctant to pursue such course.

Particularly when read in light of their administrative development, the regulations do not point definitively in one direction or the other. There is support in the regulations for the notion that "important to safety" is equivalent to "safety-related," as LILCO and the amicus argue. As originally proposed, the General Design Criteria did not employ the term "important to safety" at all; instead, GDC 1 described systems and components "essential" to the prevention or mitigation of accidents, while GDC 37 used the expression "engineered safety features." Such engineered safety features, as set forth in GDC 37, were those intended to assure further the safety provided by the core design, the reactor coolant pressure boundary, and their protection systems.¹⁴ Thus, the term "engineered safety features" as originally employed is similar to the current terminology defining safety-related items as used in 10 C.F.R. Part 100. In the final rule, adopted more than three years later, the terms "essential" and "engineered safety features" were eliminated with only the following brief discussion:

lack of specificity, it seems clear that the issue was amply particularized during the course of the litigation. We also note that 26 days of hearing were devoted to an issue of obvious and continuing importance, the Licensing Board and the parties have addressed it fully at the hearing stage and on appeal, and no party is prejudiced by its consideration at this time. Particularly in light of our determination that the substantive issue is best addressed by the Commission, we are not prepared either to dismiss the contention on procedural grounds or to remand the matter to the Licensing Board for a post hoc evaluation of its timeliness or specificity.

¹⁴ See 32 Fed. Reg. 10,213, 10,215, 10,216-17 (1967).

The term "engineered safety features" has been eliminated from the revised criteria and the requirements for "engineered safety features" incorporated in the criteria for individual systems.¹⁵

The term "important to safety" was introduced without explanation. Such lack of any specific explication for the change in language between the proposed and final rule lends credence to the LILCO claim that no substantive difference was intended between "engineered safety features" and items "important to safety."

Similarly, 10 C.F.R. Part 21, dealing with the ongoing requirement for reporting defects that could pose safety hazards, suggests an identity between items that are "safety-related" and those that are "important to safety." It defines a "basic component" by reference to the three elements used in Part 100 to describe safety-related components.¹⁶ Yet the same regulation includes among basic components "design, inspection, testing, or consulting services important to safety that are associated with the component hardware. . . ."¹⁷

It is unquestioned, however, that, as the staff and intervenors point out, a recent Commission rulemaking effort resulted in a regulation that plainly distinguishes between the two terms. 10 C.F.R. § 50.49(b), dealing with environmental qualification of electric equipment, reads in part:

Electric equipment *important to safety* covered by this section is:

(1) *Safety-related electric equipment*: This equipment is that relied upon to remain functional during and following design basis events to ensure (i) the integrity of the reactor coolant pressure boundary, (ii) the capability to shut down the reactor and maintain it in a safe shutdown condition, and (iii) the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the 10 C.F.R. Part 100 guidelines. . . .

(2) *Nonsafety-related electric equipment* whose failure under postulated environmental conditions could prevent satisfactory accomplishment of safety functions specified in subparagraphs (i) through (iii) of paragraph (b)(1) of this section by the safety-related equipment.

(3) *Certain post accident monitoring equipment* [emphasis added, footnotes omitted].

While we have not undertaken an exhaustive examination of all Commission regulations, we are satisfied that they do not provide a consistent answer to the definitional dilemma.

¹⁵ 36 Fed. Reg. 3255, 3256-57 (1971).

¹⁶ 10 C.F.R. § 21.3(a)(1).

¹⁷ 10 C.F.R. § 21.3(a)(3).

Interpretation and practice over the years appear only to have increased the uncertainty concerning the meaning of these regulatory terms. As recently as July 1983, when proposing new rules governing the protection of employees who provide information, the Commission incorporated the definition of "basic component" found in Part 21, with the following observation:

Since these definitions have been used in Part 21 for several years, the meaning of these terms and the scope of the posting requirement should be well understood.¹⁸

Yet the staff acknowledges that the language of Part 21 is "ambiguous" and that the "use of the terms has been confused over the years."¹⁹

When 10 C.F.R. § 50.72 was issued in 1980, it employed the term "important to safety."²⁰ The term was later dropped from § 50.72 and not included in the companion changes to 10 C.F.R. § 50.73 made effective the same day.²¹ The staff explained this alteration as follows:

I noticed that Section 50.73(a)(2)(v) uses the Part 100 definition of safety related systems. What about systems and components that may be classified as "important to safety." Are they included in the scope of the . . . rule?

Answer: 50.72 and 50.73 use neither the phrase "safety-related" nor "important to safety" because of the varying interpretation associated with these terms. The definition of the systems included in the scope of these rules is provided in the rules.²²

The staff's regulatory guides, which describe methods acceptable to the staff for implementing specific portions of the regulations, likewise appear inconsistent. In reviewing the definitions of "important to safety" and "safety-grade" in our *Three Mile Island Restart* decision last year, we cited Regulatory Guide 1.29 to reinforce our conclusion that equipment "important to safety" may include both safety-grade (*i.e.*, safety-related)²³ and non-safety-grade equipment.²⁴ LILCO and the Utility Group now point out that Regulatory Guide 1.105, in contrast, explic-

¹⁸ 48 Fed. Reg. 31,050, 31,051 (1983).

¹⁹ NRC Staff's Brief at 26 n.28.

²⁰ 45 Fed. Reg. 13,434, 13,435 (1980).

²¹ 48 Fed. Reg. 39,039, 39,046 (1983), *as corrected*, 48 Fed. Reg. 40,892 (1983).

²² NUREG-1022, Supp. 1, "License Event Report System" (February 1984), at 10.

²³ See note 30, *infra*.

²⁴ *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-729, 17 NRC 814, 875-76 (1983).

itly defines systems important to safety by reference to the three definitional characteristics of safety-related items set out in Part 100.²⁵

This lack of clarity is made manifest by efforts in 1981 and again this year to prescribe a uniform interpretation for use by all personnel of the Office of Nuclear Reactor Regulation (NRR). On November 20, 1981, Director Harold Denton issued a memorandum entitled "Standard Definitions for Commonly-Used Safety Classification Terms." By its terms, the memorandum purports simply to establish "consistency in the language used by all cognizant groups within NRR" and not "dictate new technical requirements . . . , modify existing technical requirements, or . . . broaden the existing scope of NRR licensing review." It seems clear, however, that at a minimum no such memorandum would have been necessary if the terms had historically been employed without ambiguity or inconsistency. Even more important, the memorandum was intended for use solely within NRR and, as the Licensing Board observed, there is no evidence that it was ever distributed outside NRR, let alone adopted by other staff components.²⁶

In January of this year, Darrell G. Eisenhut, the Director of the Division of Licensing in the Office of Nuclear Reactor Regulation, sent a letter to all holders of operating licenses and construction permits, and applicants for operating licenses, discussing the use of the terms "important to safety" and "safety-related." The letter observed, in part:

While previous staff licensing reviews were not specifically directed towards determining whether, in fact, permittees or licensees have developed quality assurance programs which adequately address all structures, systems and components important to safety, this was not because of any concern over the lack of regulatory requirements for this class of equipment. Rather, our practice was based upon the staff view that normal industry practice is generally acceptable for most equipment not covered by Appendix B within this class.²⁷

The Licensing Board found that the record in this case reflects no doubt that there have been differences in the use and application of the terms by the staff and licensees.²⁸ We agree with that Board's observation.

We appreciate that, in reaching its substantive conclusion, the Licensing Board relied in substantial part on our determinations in *Three Mile*

²⁵ Regulatory Guide 1.105, Rev. 1, "Instrument Setpoints" (November 1976).

²⁶ LBP-83-57, *supra*, 18 NRC at 558.

²⁷ Board Notification 84-011, "NRC Use of the Terms 'Important to Safety' and 'Safety Related'" (January 18, 1984), Enclosure 1.

²⁸ LBP-83-57, *supra*, 18 NRC at 558.

Island Restart.²⁹ And we cannot gainsay that those determinations lend support to the Board's conclusion. But our *Three Mile Island Restart* decision was narrowly focused on the reactor there under examination and applied explicitly to only design requirements as contrasted with quality assurance requirements. Moreover, we intended in terms to distinguish between the regulatory term "important to safety" and the non-regulatory term "safety-grade" only in the context of an assertion that all items that may cause, aggravate, or mitigate an accident must be required to meet safety-grade design criteria. We did not have presented to us, and thus did not consider, all implications of the relationship between items "important to safety" and those that are "safety-related."³⁰

Recently, in the *Diablo Canyon* case, we concluded that the terms "important to safety" and "safety-related" had been used synonymously by the applicant and the NRC staff within the context of that operating license application.³¹ We reached that conclusion in an oral ruling at a prehearing conference and thereby precluded the litigation of an issue raised by the intervenors. On the basis of conceded, serious flaws in the applicant's design quality assurance program, we granted the intervenors' motions to reopen the record on the issue of the adequacy of design quality assurance program for Diablo Canyon. The real issue in the reopened proceeding, however, quickly became the sufficiency of the applicant's design verification program, which was to substitute for the failed quality assurance program. The intervenors claimed that the applicant had no design quality assurance program for systems "important to safety" within the meaning of Appendix A, GDC 1. Thus, they sought, in effect, to litigate whether the applicant's design

²⁹ See *id.* at 558-60, citing *Three Mile Island Restart*, ALAB-729, *supra*, 17 NRC at 873-77 (1983).

³⁰ All parties to this proceeding agree that "safety-grade" is equivalent to "safety-related," and the Licensing Board observed that it concurs in our view in *Three Mile Island Restart* that there is no difference between the two terms. 18 NRC at 559 n.28. In *Three Mile Island Restart*, we did not assume that the two terms are synonymous. The Licensing Board in that case had observed that the licensee agreed that, insofar as maintenance was concerned, "safety-related is not equivalent to and should not be confused with safety-grade, or other terms used in the industry." LBP-81-32, 14 NRC 381, 484 (1981). The definition of "safety-related," including any regulatory history of the term, however, was not explicitly considered on appeal in that case. See ALAB-729, *supra*, 17 NRC at 874 n.280. But see *id.* at 876 n.286, offering our comments on a Commission observation that there are only two categories of equipment — safety-grade and nonsafety-grade. The Commission had observed:

"[I]n reviewing reactor plant designs . . . the NRC does not review all structures, systems, and components but rather reviews, in varying levels of detail, only those considered 'safety grade' by the applicant . . . This method of classification is based on the notion that things credited in the analysis of a design basis event or specified in the regulations are important to safety and thus are 'safety grade' while all else is 'non-safety grade.' Non-safety grade items do not receive continuing regulatory supervision or surveillance to see that they are properly maintained or that their design is not changed in some way that might interact negatively with other systems."

45 Fed. Reg. 65,474, 65,475 (1980).

³¹ *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-763, 19 NRC 571, 620-21 (1984) (Moore, concurring).

verification program was adequate because it failed to verify that systems “important to safety” (as opposed to safety-related systems within the meaning of Appendix B) met licensing criteria. In precluding the litigation of that issue, we ruled that, with respect to the *Diablo Canyon* proceeding, the regulatory terms “important to safety” and “safety-related” had been read synonymously and to the extent the regulations now were to be interpreted to impart a different meaning to the terms, such interpretation would not be applied retroactively.³²

Our review of the *Three Mile Island Restart* and *Diablo Canyon* decisions demonstrates that there is a lack of uniformity in the manner in which the two terms have been, and perhaps are being, interpreted.

As suggested above, we believe that resolution of this issue is ill-suited to the narrow adjudicatory context imposed by the appeals before us. First of all, any resolution we might make could not bind elements of the staff that are not represented in this adjudication. The evidence in this case shows, for example, that Region I inspectors have never inspected at a plant that employed the classification “important to safety” to apply to items that are not “safety-related.”³³ The Office of Nuclear Regulatory Research, which has taken over the responsibilities of the former Office of Standards Development, has not, as far as we are aware, renounced the definition contained in Regulatory Guide 1.105. Administrative fairness requires that, to the extent feasible, the Commission’s regulations be given a consistent meaning and application by all elements of the agency’s staff. Only the Commission can provide general policy guidance binding on all staff components.

Further, the effect of any decision on licensees and other applicants was not addressed in the *Three Mile Island Restart* case and has not been addressed fully on the record before us. The staff has indicated that it would impose the license condition requiring adherence to its proposed definitions if we were to dismiss the contention as impermissibly admitted. But it is not at all clear to us whether the Shoreham situation is perceived by the staff as unique or merely the forerunner of pervasive

³² Apart from that ruling we rejected, as untimely, a somewhat similar claim made by the intervenors in support of another motion to reopen the record. See ALAB-756, 18 NRC 1340, 1352 n.31 (1983). In this second motion, the intervenors sought to reopen the record on the issue of the adequacy of the applicant’s construction quality assurance program because intervenors claimed generally that the applicant had failed to implement a construction quality program for systems “important to safety” within the meaning of Appendix A, GDC I. But the fact that the applicant had had no distinct quality assurance program had been evident since 1974. The same untimeliness ground was not applicable, of course, to our other ruling in the unique reopened proceeding because there the real issue was the adequacy of the applicant’s design verification program.

³³ See Tr. 17,284 (Higgins) and 17,285 (Narrow).

regulatory action. Such matter is appropriate for Commission disposition.³⁴

2. 10 C.F.R. § 50.47(d) of the Commission's regulations provides:

Notwithstanding the requirements of paragraphs (a) and (b) of this section, no NRC or FEMA review, findings, or determinations concerning the state of offsite emergency preparedness or the adequacy of and capability to implement State and local offsite emergency plans are required prior to issuance of an operating license authorizing only fuel loading and/or low power operations (up to 5% of the rated power).

10 C.F.R. § 50.47(d) then sets out the emergency planning finding that must be made as a prerequisite to issuance of a license for fuel loading and/or low power operations. It provides that:

the state of onsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

In April 1983, the Licensing Board certified to the Commission the issue of low power licensing, along with a recommendation that 10 C.F.R. § 50.47(d) not be applied to allow a low power license for Shoreham in advance of a reasonable assurance finding that the emergency planning requirements for a full power license can and will be met in the future.³⁵ The Commission rejected this recommendation. In doing so, it observed:

Section 50.47(d) gives unqualified authorization to issue a low-power license in the absence of NRC or FEMA approval of an offsite emergency plan so long as other prerequisites, including an adequate state of onsite emergency preparedness, are met. The language of the regulation requires no predictive finding of "reasonable assurance" with regard to offsite emergency planning prior to low-power operation and none was intended by implication or otherwise. In issuing section 50.47(d), the Commission did not implicitly make any generic findings about the likelihood that emergency preparedness could be developed. . . . Moreover, it seems apparent that the Licensing Board's preliminary doubt about whether there is reasonable assurance that a sufficient offsite emergency plan can and will be developed is no different from preliminary doubt about whether a safety issue can be adequately resolved which has significance for full-power operation but not for low-power activities. Interjection of such doubts into the low-power proceeding could

³⁴ Various issues unrelated to Contention 7B, or only partially related, are also pending before us. We think it is preferable to await the Commission's disposition of the Contention 7B matters before disposing of these other issues.

³⁵ LBP-83-21, 17 NRC at 593, 599-604.

create a limited full-power hearing, before authorization of the low-power license. Such a procedure would have little to commend it.

The emergency planning issues in this case are difficult. However, they do not appear to us to be categorically unresolvable. We believe the better procedure is to reserve full-power issues, like offsite emergency planning, for the full-power authorization decision. Accordingly, if applicant Long Island Lighting Company (LILCO) can meet all the other requirements of the Atomic Energy Act and NRC regulations pertinent to the grant of a low-power license, it is entitled to that license despite the existing uncertainties about offsite emergency planning. It should be added, however, that such authorization would in no way assure LILCO that it will be granted a full-power license and that in implementing any authorization it may be given to operate at low power, LILCO management would do so entirely at its own risk.³⁶

During the course of the proceeding, Suffolk County argued that the NRC must make an independent assessment of the environmental costs and benefits of licensing Shoreham for low power operation because it is unlikely that adequate offsite emergency preparedness will exist and consequently no basis to believe that full power operation will ever occur. Thus, according to the County, in contrast to the usual situation where low power operation is an anticipated intermediate step on the road to full power license and embraced within the final environmental impact statement, low power operation without generation of any electricity by the Shoreham plant under a full power license is a foreseeable alternative within the meaning of NEPA. In sum, a new cost-benefit balance must be undertaken, without the prospect of electricity generation as the principal benefit.

The Licensing Board rejected Suffolk County's argument. In essence, it deemed itself bound by our decision in *Diablo Canyon*³⁷ and, more importantly, the Commission's disposition of the recommendation earlier referred to it by the Board.³⁸ The Board candidly recognized, however, that

[a]s our recommendation was not couched in terms of NEPA, the Commission's decision on the question likewise was not so presented.³⁹

Nonetheless, it observed that its recommendation was prompted by — and presented — the same type of cost-benefit balance that the County

³⁶ CLI-83-17, 17 NRC 1032, 1034-35 (1983) (footnotes omitted).

³⁷ *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-728, 17 NRC 777, 793-95 (1983) (low power testing is an expected step in the licensing process not involving environmental impacts different from those evaluated for a full power license so that there is no need for a separate environmental statement focusing on the costs and benefits of low power testing).

³⁸ See LBP-83-57, *supra*, 18 NRC at 626.

³⁹ *Ibid.*

asserts must be made under NEPA. Hence, in the Board's view, a NEPA decision was embraced within the Commission's overall determination. The Board also found, after an analysis of federal court decisions, that NEPA did not require a separate assessment before a low power license could be issued.⁴⁰

The NEPA issue is raised on appeal by Suffolk County. LILCO and the staff support the Board's result. At oral argument, however, we asked whether, in light of its earlier decision on low power licensing, it would not be appropriate to certify this issue as well to the Commission for disposition. Counsel for the applicant suggested that "it would be highly desirable" to certify the matter in the interest of obtaining a prompt and definitive agency ruling on the subject.⁴¹ In his view, it was likely that the matter would be presented to the Commission in due course whatever our determination may be, and would then surely be presented to a court for ultimate decision.⁴² He stated:

It is an engaging issue, from the County's perspective, and now from the State's. They are not going to drop it. There is some force to it that was not ultimately compelling, in our judgment, by any means. So we would like to get it resolved as soon as possible, but we would prefer that it be resolved as soon as possible, by the group within the Agency that can take final action on it.⁴³

Neither the County nor the staff objected to prompt certification of the issue.⁴⁴

We have decided to include this issue in our certification to the Commission. As Suffolk County argues, and the Licensing Board recognizes, the matter is intimately tied to the Commission's earlier determination that a low power license could be issued despite a lack of approval of final offsite emergency plans. Nonetheless, the NEPA arguments were not presented to the Commission in connection with its earlier decision. Indeed, because the Licensing Board earlier raised the issue *sua sponte*, the parties had no opportunity to offer the Commission their comments or arguments on one side or the other.⁴⁵ We believe it sensible to have the Commission entertain these arguments and construe its earlier decision in light of them.

⁴⁰ *Id.* at 627-32.

⁴¹ App. Tr. 160.

⁴² *Ibid.*

⁴³ *Ibid.*

⁴⁴ *Id.* at 161 (Suffolk County). *Id.* at 162-63 (staff).

⁴⁵ See CLI-83-17, *supra*, 17 NRC at 1036 (Separate views of Commissioner Asselstine).

Accordingly, we certify to the Commission under 10 C.F.R. § 2.785(d) the following questions:

1. Are the terms "important to safety" and "safety-related" to be deemed synonymous for the purpose of establishing an acceptable quality assurance program in accordance with GDC 1 of Appendix A and Appendix B to 10 C.F.R. Part 50?
2. How should the outcome of Question 1 be applied to the operating license application proceeding before us?
3. Is some form of environmental evaluation under NEPA required as a precondition to issuance of a license for low power operation in this proceeding if such issuance is otherwise warranted?

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Morton B. Margulies, Chairman
Frederick J. Shon
Dr. Richard F. Foster**

In the Matter of

**Docket No. 50-508-OL
(ASLBP No. 83-486-01-OL)**

**WASHINGTON PUBLIC POWER
SUPPLY SYSTEM, et al.
(WPPSS Nuclear Project No. 3)**

April 19, 1984

**RULES OF PRACTICE: LATE-FILED PETITION
TO INTERVENE**

A petitioner whose late-filed petition to intervene has met the requirements of 10 C.F.R. § 2.714(a)(1) need not meet any further qualifications to have its admitted contentions litigated. It is not to be treated differently than a petitioner whose petition to intervene was timely filed.

MEMORANDUM AND ORDER

**(Ruling on Applicant's Motion for Reconsideration and Other
Relief, of March 20, 1984**

On March 20, 1984, Washington Public Power Supply System (Applicant or Power Supply) submitted a motion to the Licensing Board for it to reconsider its Memorandum and Order of March 2, 1984 (unpublished), holding that petitioner Coalition for Safe Power

(Coalition) satisfied requirements called for in a remand by the Appeal Board and reinstating a prior order admitting Petitioner as a party intervenor to the proceeding, along with its nine admitted contentions. Applicant further requested that should the Licensing Board decide not to reconsider its prior determination, the matter be referred or certified to the Appeal Board.

Coalition in a response dated April 4, 1984, opposes Applicant's motion. Nuclear Regulatory Commission Staff did not file an answer.

DEVELOPMENT OF THE PROCEEDING

This matter evolved from Coalition's filing a late petition to intervene and to hold a hearing, in this captioned matter, involving an application for an operating license for a nuclear generating station, located near Satsop, Washington.

On April 21, 1983, we issued an unpublished Memorandum and Order finding that Coalition had satisfied the five-part test of 10 C.F.R. § 2.714(a)(1) permitting the acceptance of its late-filed petition to intervene and that it met the standing and interest requirements of 10 C.F.R. § 2.714. Coalition was permitted to file proposed contentions, as provided in 10 C.F.R. § 2.714(b).

Petitioner submitted seventeen proposed contentions of which it subsequently withdrew seven. Following a special prehearing conference on August 17, 1983, we issued an unpublished Memorandum and Order on September 27, 1983, admitting nine of the contentions.

The Applicant appealed from the result under 10 C.F.R. § 2.714(a), confining itself to the claim that Intervenor's petition should have been denied because of its untimeliness. It alleged Coalition had failed to meet the five-part test of 10 C.F.R. § 2.714(a)(1) that passing permits the acceptance of an untimely petition.

The Appeal Board issued its decision in *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3), ALAB-747, 18 NRC 1167 (1983), vacating the September 27, 1983, order and remanding the proceeding to the Licensing Board. Its concern was the satisfying of the third factor of the test, dealing with a petitioner's ability to assist in developing a sound record in the proceeding. The instructions of the Appeal Board at page 1181 of the November 15, 1983 decision were:

We accordingly vacate the relevant portion of the Licensing Board's April 21 memorandum and order and remand the intervention petition to that Board with instructions to require the Coalition to make an additional showing on the third factor. [Footnote omitted.] Should the Board find the showing to cure the deficiencies we have discerned in the cursory and unilluminating recitation on the third

factor contained in the Coalition's petition, the grant of intervention is to be reinstated. Otherwise, intervention is to be denied. . . .

The majority opinion of the Appeal Board in the remand provided two ways by which the requirements of 10 C.F.R. § 2.714(a)(1)(iii) could be met. One method was Petitioner could satisfy the requirements of *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725, 1730 (1982), under which Coalition should both (1) identify specifically at least one witness it intends to present; and (2) provide sufficient detail respecting the witness' proposed testimony to permit the Licensing Board to reach a reasoned conclusion on the likely worth of that testimony on one or more of the contentions admitted to the proceeding by the Licensing Board's order of September 27, 1983.

On December 6, 1983, we required a further showing by Petitioner in accordance with the remand. Petitioner responded on January 10, 1984, and elected to meet the requirements outlined above. Applicant answered on February 6, 1984, stating Petitioner's response did not fulfill the requirement of the remand. Nuclear Regulatory Commission Staff had replied on February 2, 1984, that it did.

Our review of Coalition's supplemental petition of January 10, 1984, disclosed that as to one proposed witness named to support Contentions 11 and 12, Petitioner had not satisfied the requirements of *Grand Gulf* and that the deficiency set forth in the remand remained.

We further found that Petitioner's response relating to Contention 16 was satisfactory in meeting the requirements of *Grand Gulf* and it has provided us with sufficient detail respecting the testimony to reach a reasoned conclusion that establishes Coalition's ability to assist in developing a sound record, as required by the Appeal Board. We thereupon reinstated our prior order that admitted Coalition as a party intervenor in this proceeding, along with the nine contentions.

Applicant on March 20, 1984,¹ filed the subject motion requesting that we reconsider our March 2, 1984, Memorandum and Order, that had the effect of readmitting Intervenor's nine contentions, and place a limitation on the scope of Coalition's participation commensurate with its demonstrated ability to contribute to the development of a sound

¹ Power Supply simultaneously filed an appeal with the Appeal Board contending we erred in finding Coalition's proposed witness could support Contention 16 and Intervenor would contribute to the development of a sound record as provided by *Grand Gulf*, which resulted in our reinstatement of the prior grant of intervention. Applicant sought dismissal of the proceeding. The Appeal Board found the appeal to be without merit. *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3), ALAB-767, 19 NRC 984 (1984). By an unpublished Memorandum and Order of April 9, 1984, we deferred ruling on the subject motion pending disposition of the appeal.

record. Alternatively Applicant requests that the Licensing Board refer pursuant to 10 C.F.R. § 2.730(f) the denial of the motion, or certify the question pursuant to 10 C.F.R. § 2.718(i), to the Appeal Board.

ARGUMENT ON THE MOTION FOR RECONSIDERATION

Power Supply contends it was error for us to permit Coalition to participate as a party intervenor on all nine contentions, when it only made a showing as to ability to develop a record, in regard to Contention 16. It points out that the Licensing Board found as to Contentions 11 and 12 that Coalition failed to demonstrate on the record an ability to contribute to the development of a sound record and that no findings were made on the ability of Intervenor to contribute to the development of a sound record as to its remaining six contentions. We had found at page 10 of our unpublished Memorandum and Order of March 2, 1984, that Coalition had not attempted to demonstrate its ability to contribute to the development of a sound record in regard to the six contentions. The remand only required a response by Coalition to one or two contentions.

At page 15 of its motion Applicant would deny Coalition a further opportunity to show its ability to develop a sound record as to the remaining six contentions and thereby effectively limit Intervenor to only litigating Contention 16.

Power Supply further asserts that no basis exists to treat an untimely petitioner in the same manner as one which has sought intervention promptly. It argues that if the modification is not ordered there will no longer be any need for an untimely petitioner for intervention to establish a linkage of its ability to contribute to the development of a record to all of the issues it seeks to raise. It contends that the order of the Licensing Board is anomalous because "it holds as to contentions that Petitioner is unable to contribute to the development of a sound record but nevertheless allows Petitioner to litigate those issues. It also allows Petitioner to litigate issues as to which no findings were made on its ability to contribute."

Coalition argues that Applicant is seeking to have the Licensing Board apply the five-factor test of 10 C.F.R. § 2.714(a)(1) to each of its contentions, which has no basis in the regulations. It contends that to now apply the five-part test to the contentions at this stage of the litigation as Power Supply proposes would penalize the Intervenor on an *ex poste facto* basis and be prejudicial.

DETERMINATION OF THE MOTION TO RECONSIDER

As a result of filing its petition to intervene late, Coalition had to satisfy the five-part test of 10 C.F.R. § 2.714(a)(1) in order for us to accept the submission. Coalition satisfied this requirement and we found it had the necessary standing and interest to intervene and that nine of its contentions were admissible under 10 C.F.R. § 2.714(b). Applicant by its motion now proposes that Intervenor was to have established, in the manner required under 2.714(a)(1)(iii), its ability to assist in developing a sound record for each of the contentions that were admitted, for them to be acceptable for litigation in this proceeding.

The Commission's statutes, regulations and case law provide no such requirement. The Appeal Board in its remand of November 15, 1983, did nothing to intimate Intervenor would have to justify each of its contentions, in the manner stated, for them to be considered by the Licensing Board. In requiring Coalition to "provide sufficient detail respecting that witness' proposed testimony to permit the Board to reach a reasoned conclusion on the likely worth of that testimony on one or more of the contentions admitted to the proceeding in the Board's September 27 memorandum and order" the Appeal Board was only treating with the contentions in the context of satisfying 2.714(a)(1), thereby permitting the entertainment of the late-filed petition by the Licensing Board and enabling Coalition to participate as a party. The nature of its directive was clear. Should Intervenor establish for a minimum of one contention an ability to assist in developing a sound record, the grant of intervention previously entered was to be reinstated, thereby reestablishing Coalition's prior status as a full-party intervenor. The mandate had nothing to do with requiring a petitioner, who had filed late and who later overcame this handicap, to face additional hurdles to have its contentions considered, beyond those applicable to other petitioners. Coalition was not called upon by the Appeal Board to make a 2.714(a)(1)(iii) showing for each of its contentions.

Power Supply has provided no legal or factual basis for treating the contentions of a petitioner that made a late filing and satisfied the requirements of 2.714(a)(1) differently from those of any other petitioner, as it proposes. Either type of petitioner may be in a position of not being able to make a sound record as to contentions it has had admitted. An Applicant has available prior to hearing an effective remedy to cope with either party's inability, irrespective of whether or not its initial petition to intervene was timely filed. Summary disposition on the pleadings can be pursued. Section 2.749 of Title 10 of the Code of Federal Regulations permits any party to a proceeding to move on the

pleadings for a decision by the presiding officer in that party's favor as to all or any part of the matters involved in the proceeding.

Should Coalition be unable to develop a sound record as to any of its contentions, Power Supply, prior to hearing, could move for summary disposition. If Applicant's position is meritorious it would obviate any need for an evidentiary hearing on those issues. Applicant has an adequate remedy at hand to deal with any contentions Coalition cannot substantiate. It has provided no reasonable justification for requiring the additional remedy it proposes.

There are other material deficiencies in the motion. Even if the motion had merit, it is fatally untimely. It should have been raised when Coalition was in the process of submitting its contentions approximately one year ago, and not following this period of continuous litigation. Applicant would now preclude Intervenor from proceeding with contentions it filed almost a year ago because it failed to demonstrate compliance with a requirement that was first proposed on March 20, 1984, and of which Intervenor could not have previously been aware. We cannot impose any such *ex post facto* requirement upon Coalition. Unquestionably it would be a violation of due process.

Our finding that Coalition failed to demonstrate an ability to contribute to the development of a sound record regarding Contentions 11 and 12 provided us with no basis for foreclosing Intervenor from litigating those two contentions. Our determination was made wholly within the context of the remand and 10 C.F.R. § 2.714(a)(1), with all of their ramifications. Timeliness was one of the factors considered. At page 5 of the March 2, 1984, Memorandum and Order, we stated, "[w]e should have been apprised by this time, as to what his evaluation revealed."

We made no judgment as to Intervenor's overall ability to litigate the contentions, within the time frames and procedures involved. It was not our function to do so at that time. We did not find as Applicant states at page 4 of its motion that, "the Licensing Board found it could *not* make a contribution to the development of a sound record."

If Applicant is convinced of Intervenor's inability to make a case on the contentions, it can proceed with the procedures already in place and previously discussed, *i.e.*, summary disposition on the pleadings, to forestall Intervenor from bringing the issues to an evidentiary hearing.

On the basis of all of the foregoing we find Applicant's motion of March 20, 1984 for reconsideration should be denied.

ALTERNATIVE REQUEST FOR REFERRAL OR CERTIFICATION

Applicant in its motion requests that should we decide not to reconsider the Memorandum and Order of March 2, 1984, the issue raised be referred or certified to the Appeal Board, under 10 C.F.R. § 2.730(f) or § 2.718(i).

Power Supply correctly advises that interlocutory appeals are not favored in Commission practice and that interlocutory review is appropriate when the challenged licensing board ruling either (1) threatens the party adversely affected by irreparable impact which, as a practical matter, could not be alleviated by a later appeal or (2) affects the basic structure of the proceeding in a pervasive or serious manner.

Interlocutory review is not appropriate on the facts before us. Our decision does not threaten Power Supply with an irreparable impact.

The proceeding is presently in a hearing mode. The decision of the Appeal Board of April 10, 1984, denying Applicant's appeal and permitting the reinstatement of our Memorandum and Order of March 2, 1984, confirmed it. No question exists whether Intervenor has a litigable contention in Contention 16, as required by 10 C.F.R. § 2.714(b). Nothing Power Supply raises in its motion alters this situation.

Of the remaining eight admitted contentions there are two for which we found Coalition had not made an adequate showing as to its ability to assist in developing a sound record in the proceeding. It is only as to these contentions that there is any conceivable basis for the relief Applicant seeks *viz*, to restrict the contentions with which Intervenor can go forward. This amounts to a small part of the proceeding. Requiring Applicant to litigate these two contentions cannot suggest causing it irreparable injury.

Even as to those two contentions, Power Supply is not without a remedy should it seek to minimize its expense. It can request dismissal of Contentions 11 and 12, prior to any evidentiary hearing, through summary disposition. If successful, Applicant has not suffered any meaningful damage. If unsuccessful, its cause for complaint was unfounded. With the completion of the facility expected years in the future, it cannot be argued unusual delay is a factor for consideration.

Under any circumstance, irreparable harm will not come to Applicant through our ruling, if final.

Our ruling does not affect the basic structure of the proceeding in a pervasive or serious manner. For the reasons stated above, there will be no major impact on the proceeding as a result of the determination. Our decision is also consistent with existing statutes, regulations and case

law so that it will not affect the proceeding in a pervasive or unusual manner. It is what Applicant is seeking to accomplish through its novel approach that could have such a result.

Applicant's concern that unless this matter is appealed and put to rest other petitioners will be permitted to follow the same alleged improper practice of Coalition is unfounded. Power Supply could find no precedent as to similar cases and terms the factual situation here unique. It is unlikely this situation will recur with any meaningful frequency in the future.

If Applicant is determined to have a petitioner, who has filed a petition to intervene late and then had it accepted, meet different standards for the admissibility of its contentions than other petitioners, it could move to amend the regulations governing the acceptance of contentions for litigation. Commission regulations 10 C.F.R. §§ 2.758(e) and 2.802 provide for such procedure.

For all of the foregoing reasons Applicant's request to refer or certify the issue to the Appeal Board is denied.

ORDER

Applicant's motion for reconsideration of the Licensing Board's Memorandum and Order of March 2, 1984 granting Coalition intervenor status and readmitting its nine contentions, and/or for referral or certification of the question of whether a limitation should be placed on the

scope of Coalition's participation in this proceeding, is found to be without merit and is hereby denied.

**THE ATOMIC SAFETY AND
LICENSING BOARD**

**Morton B. Margulies, Chairman
ADMINISTRATIVE LAW JUDGE**

**Frederick J. Shon
ADMINISTRATIVE JUDGE**

**Dr. Richard F. Foster
ADMINISTRATIVE JUDGE**

**Dated at Bethesda, Maryland,
this 19th day of April 1984.**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Lawrence Brenner, Chairman
Dr. Richard F. Cole
Dr. Peter A. Morris**

In the Matter of

**Docket Nos. 50-352-OL
50-353-OL**

**PHILADELPHIA ELECTRIC COMPANY
(Limerick Generating Station,
Units 1 and 2)**

April 20, 1984

**RULES OF PRACTICE: ADMISSIBILITY OF
CONTENTIONS, DEFERRED RULINGS ON**

To admit contentions on undeveloped portions of emergency plans is to risk unnecessary litigation. But to deny the contentions is to unfairly ignore the insufficient development of those portions. Fairness and efficiency seem to dictate that rulings on such contentions be deferred. The principal aims in such deferrals are to encourage negotiation, to avoid unnecessary litigation, and to make necessary litigation as focused as possible. *Cf. Cincinnati Gas and Electric Co.* (Wm. H. Zimmer Nuclear Station, Unit 1), ALAB-727, 17 NRC 760, 772-74, 776 (1983).

**EMERGENCY PLANNING: ADOPTION OF PLANS BY
LOCAL ORGANIZATIONS**

Though a board's findings on emergency planning are necessarily predictive, nothing "dictates" that a board make its findings on emergency planning before the plans are adopted by county and local

organizations. Section 50.47(a)(2) of 10 C.F.R. says, in part, "in any licensing proceeding, a FEMA finding will constitute a rebuttable presumption on questions of adequacy and implementation capability." Since under the procedures of some States, plans are not submitted to FEMA for formal review until after they've been adopted, the quoted passage implies there might be proceedings in which a board, making its findings after FEMA's, would be making its findings after the plans were adopted.

EMERGENCY PLANS: IMPLEMENTING PROCEDURES

The contents of implementing procedures, being highly detailed and related more to emergency preparedness than to the soundness of the emergency plans, are not to be litigated. *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076 (1983). But *Waterford* does not say that everything planners might choose to relegate to implementing procedures is thereby beyond litigation, but only items at the level of the ministerial detail appropriate to such documents.

EMERGENCY PLANS: DISTRIBUTION OF POTASSIUM IODIDE TO THE PUBLIC

Neither the Commission's regulations nor the guidance in NUREG-0654 require that radioprotective drugs be distributed to the general public. See, e.g., *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-754, 18 NRC 1333, 1334 (1983). FEMA guidance leaves to the States the responsibility of deciding whether to distribute potassium iodide (KI) at all, even to emergency workers. *Id.* at 1335. But licensing boards may rule on, and have ruled on, the reasonableness of States' decisions not to administer KI to the general public. See *id.* at 1335, and the case it affirms, LBP-83-71, 18 NRC 1105, 1109 n.13 (1983). Several licensing boards have compiled full records on the costs and the benefits of distributing KI to the general public. See, e.g., *Callaway*, LBP-83-71, 18 NRC 1105. The reasons behind State policies against distributing KI to the public are now quite familiar to licensing boards, and their rulings are uniform: "State policies against . . . distribution [to the general public] have not been found contrary to requirements for providing adequate protective measures for emergency planning purposes." *Callaway*, ALAB-754, 18 NRC at 1335, quoting LBP-83-71, 18 NRC at 1109. There is no point in compiling yet another record on this well-settled issue.

**RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS
EMERGENCY PLANNING: HUMAN RESPONSE
TO RADIATION**

Litigation of the general issue of human response to radiation danger, with testimony by experts instead of workers with specific responsibilities under the plans, would be a pointless battle between experts, the Inter-venors' abstractly and inconclusively arguing that humans are less willing to face radiation dangers than they are other sorts of dangers, and the Applicant's experts abstractly and inconclusively arguing the contrary. However, with contentions which focus on the responses of specific groups of people with specific responsibilities under the emergency plans, there is more than mere speculation on which to rest a finding about the degree to which such personnel can be relied on in a radiological emergency. Even more important, it would be possible to determine how critical the functions these personnel will be trained to perform are to the implementation of the plans. Indeed, one possible efficient and probative approach for the litigation of such specific contentions would be an examination of the sensitivity of the effect on the success of the plans of less-than-full participation by the specific named groups, and/or any provisions in the plans to compensate for varying degrees of non-participation by those groups.

**EMERGENCY PLANS: NOTIFICATION OF
TRANSIENT POPULATION**

The emergency plans include much that aims to give adequate notification and instruction to the transient population in the plume exposure emergency planning zone (EPZ). Nonetheless, in the event of an emergency, some members of this population might not hear the sirens, or know what they meant, or have radios, or be familiar with the roads in the plume EPZ. Thus, these persons might have to depend more on their own resources in finding out what to do than permanent residents of the plume EPZ would have to. Yet, the plans cannot reasonably be expected to provide more for this population than they already do. If everyone were left to figure out for himself what to do after the sirens sounded, and picked up later if he didn't figure it out, there would be, in effect, no emergency plans at all. On the other hand, the plans cannot be required to be specific to every individual, or again, there would be no acceptable plans at all. What NUREG-0654 calls "a best effort" will sometimes have to do. *See, e.g.,* NUREG-0654, Appendix 3, Section C.4.d.

EMERGENCY PLANNING: NOTIFICATION OF TRANSIENT POPULATION

The phrase, "transient population," which Section IV.D.2 of 10 C.F.R. Part 50, Appendix E, uses to define the group for which there is to be some special means of notification, does not refer only to people who take up temporary residence in the plume EPZ, as the use of the same phrase in NUREG-0654, Section II.G.2 shows. There, many of the devices suggested as means to notify the "transient population" would apply to temporary residents and temporary non-residents alike.

TECHNICAL ISSUES DISCUSSED: EMERGENCY PLANNING

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**SPECIAL PREHEARING CONFERENCE ORDER
RULING ON ADMISSIBILITY OF OFFSITE EMERGENCY
PLANNING CONTENTIONS (AND DISMISSING CEPA,
LEWIS, AND WHITE AS PARTIES)**

This Special Prehearing Conference Order contains our discussions and rulings on offsite emergency planning contentions filed in the Limerick proceeding. Immediately following this page is a tabular summary of our rulings. Following this table are an introduction and our discussions and rulings on individual contentions.

SUMMARY OF RULINGS

Lewis-1	Denied	1030
Lewis-2	Denied	1032
White-1	Denied	1034
FOE-1	Admitted in Part, Denied in Part (Considered with LEA-24)	1065
Commonwealth-1	Admitted in Part, Denied in Part	1036
Commonwealth-2	Withdrawn (Considered with LEA-23)	1065
City-1 through City-9	Deferred	1038
City 10 and City 11	Deferred	1039
City 12	Deferred	1038
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LEA-5 and LEA-6	Deferred	1044
LEA-7	Denied	1044
LEA-8	Denied	1047
LEA-9	Denied	1049
LEA-10	Denied	1051
LEA-11	Admitted	1053
LEA-12	Admitted	1053
LEA-13	Admitted	1056
LEA-14	Admitted	1059
LEA-15	Admitted (Considered with LEA-12) ..	1053
LEA-16	Denied	1061
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LEA Drills	Withdrawn	1062
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LEA-19	Denied	1062
LEA-20	Denied	1064
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LEA-22	Admitted (Considered with LEA-14) ..	1059
LEA-23	Deferred	1064
LEA-24	Admitted in Part, Denied in Part	1065
LEA-25	Denied	1069
LEA-26	Admitted in Part, Denied in Part	1070
LEA-27	Admitted (Considered with LEA-13) ..	1056
LEA-28	Admitted	1073
LEA-29 and LEA-30	Withdrawn	1074

INTRODUCTION

During the week of March 5, 1984, we held a prehearing conference on the admissibility of offsite emergency planning contentions. During the conference, we heard argument on written contentions which had been submitted by several private parties and by governmental participants. We now rule on those contentions and confirm the discovery schedule arrived at during the conference.

The following parties took part in the prehearing conference: The NRC Staff; Philadelphia Electric Company, the Applicant; Limerick Ecology Action (LEA); Friends of the Earth in the Delaware Valley (FOE); Marvin I. Lewis; Joseph A. White; and a group of inmates in the State Correctional Institution in Graterford, Pennsylvania, represented by their attorney, Angus R. Love. The City of Philadelphia and the Commonwealth of Pennsylvania appeared as governmental participants, as permitted by 10 C.F.R. § 2.715(c).

By letter dated October 21, 1983, the Consumers' Education and Protective Association (CEPA) had stated its intent to continue as a party on offsite emergency planning issues. We ruled that CEPA could continue as a party in our November 10, 1983, "Order Dismissing Keystone Alliance and the Pennsylvania Consumer Advocate" (unpublished), at 1. In our January 30, 1984, Notice of this prehearing conference, we said, at 2, "[a]ll parties and governmental participants which seek to participate in the litigation of offsite emergency planning issues are required to attend." CEPA did not file contentions or attend the conference. Having no contentions remaining in any part of the Limerick operating license proceeding, CEPA is dismissed from the proceeding. Tr. 7579.

These offsite emergency planning contentions were filed well over two years after the August 21, 1981, notice of hearing on Philadelphia Electric's application to operate the Limerick plant. The contentions are, therefore, arguably late-filed. Thus, in the light of a recent decision, *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041 (1983), we would be bound to balance certain factors before admitting any of these contentions, however admissible they might be were they not late. Before we consider *Catawba* further, a brief review of certain aspects of the emergency planning phase of the Limerick proceeding is in order.

The contentions before us now are part of a second set — in some respects a revised set — of emergency planning contentions in the Limerick proceeding. The first set was filed November 24, 1981, by LEA, CEPA, and other participants. That first set numbered 31 and included contentions on both onsite and offsite emergency planning issues. The Applicant argued about this first set that since the Commonwealth and local governments had not yet issued draft emergency plans intended to conform with the then newly revised emergency planning regulations in 10 C.F.R. § 50.47 and Appendix E to 10 C.F.R. Part 50, we should defer ruling on the contentions. We agreed, and in our June 1, 1982, "Special Prehearing Conference Order," we deferred our rulings. See LBP-82-43A, 15 NRC 1423, 1519. We proceeded to deal with onsite issues and offsite issues on separate schedules, returning to onsite issues sooner, since we had the Applicant's plan in hand before the offsite plans. Later, we scheduled the filing of new or revised offsite planning contentions around the Federal Emergency Management Agency's (FEMA) receipt of draft State and local government plans after review by the Pennsylvania Emergency Management Agency (PEMA). See our "Memorandum and Order Confirming Schedules Established During Prehearing Conference," May 16, 1983 (unpublished), at 4-5.

Over a year after we had deferred our rulings, the Commission issued its *Catawba* decision. It ruled that, in considering whether to admit contentions filed late because they could not be adequately specific without information available only in relevant documents unavailable to the public until shortly before the contentions were filed, Licensing Boards had to consider and balance all five factors set out in 10 C.F.R. § 2.714(a)(1) as having a bearing on the admissibility of late-filed contentions. The unavailability of a relevant document, the Commission said, could be considered under "good cause," the first of the five factors, but the Boards were not to treat that factor as automatically controlling. *Catawba, supra*, 17 NRC at 1045. The Commission went on to apply its ruling to proceedings on emergency planning issues and

concluded that, certainly, once the Applicant had filed its onsite plan, contentions could be based on it, to the extent that it did not depend on unavailable offsite plans, and to the extent that it made assumptions about the offsite plans. *Id.* at 1049. At any rate, the Commission said, intervenors were expected to “raise [emergency planning] issues as early as possible.” *Id.* at 1050. There was a “substantial public interest,” the Commission said, “in efficient and expeditious . . . proceedings.” *Id.* at 1048.

Arguably *Catawba* applies here. Indeed, LEA and the Staff do apply it, both concluding that on balance, the contentions before us are admissible in relation to a balancing of the five factors listed in 10 C.F.R. § 2.714(a)(1). See Staff’s Response at 3-7, and LEA’s February 5, 1984, Supplemental Filing. We agree with their conclusion. But we wish to point out that the intervenors did indeed “raise issues as early as possible” (*Catawba, supra*, 17 NRC at 1050), and that the present set of contentions is in many ways a revision of the set filed over two years ago. Moreover, we deferred ruling on that first set at the urging of the Applicant, a party very likely to benefit from expeditious proceedings. Consistent with the approach the parties agreed to take toward the first set of contentions, the Applicant, in its answer to these contentions, quite properly does not mention *Catawba* in relation to any contention it construes to be about offsite plans.

The law which governs emergency planning is rooted in certain Commission regulations and one document of Commission guidance. Section 50.47 is the basic text. Section 50.47(b) contains sixteen standards with which all emergency plans must comply. These standards are elaborated on in the “evaluation criteria” in 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. These criteria are intended for use by planners in drafting, and by the Staff in reviewing, plans. The criteria are not requirements. Reviewers may judge measures other than those the criteria recommend as adequate to bring the plans into conformity with the standards in Section 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). Last of the roots of the law of emergency planning is Appendix E to 10 C.F.R. Part 50, which sets out with more particularity than does Section 50.47(b) certain standards the Applicant’s emergency plans must meet.

Overarching all of these regulations and the guidance given is the rule in Section 50.47(a)(1), that no operating license will be issued unless

the NRC finds that "there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." One difficulty in implementing this standard in operating license hearings is that a licensing board's findings on the emergency plans are likely to have to be predictive. Under Section 50.47(a)(2), the emergency preparedness exercises required by Section 50.47(b)(14) are "part of the operational inspection process and are not required for any initial licensing decision." Thus, a licensing board's task is very likely to be to find whether there is "reasonable assurance prior to license issuance that there are no barriers to emergency planning implementation or to a satisfactory state of emergency preparedness that cannot feasibly be removed." 46 Fed. Reg. 61,134, 61,135 (1981). "Thus, while the plan need not be 'final,' it must be sufficiently developed to permit the board to make its 'reasonable assurance' finding . . ." *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1104 (1983).

In dealing with a number of the contentions before us, we faced what appeared to be rather early stages in the development of some portions of certain plans. Since there was every prospect that these portions would undergo further development, we could not admit contentions on these portions without risking what might later prove to be unnecessary litigation. But neither could we deny the contentions, given the insufficient development of those portions. Thus, in relation to some contentions, we found we were in the same position we were in when we had the first set of emergency planning contentions before us: Fairness and efficiency seemed to dictate that we defer our rulings. Our principal aims in such deferrals have been to encourage negotiation, to avoid unnecessary litigation, and to make necessary litigation as focused as possible. These aims seem to have been served by our having deferred ruling on the first set of contentions. Moreover, we think that these aims are in keeping with the underlying aim of *Catawba*. As we deal with the contentions of the sort we have just described, we shall be more particular about our reasons for deferring ruling on them.

To be admissible, contentions must be set forth with reasonable specificity, and with adequate bases, legal and factual. 10 C.F.R. § 2.714(b).

A word on the task we faced in ruling on these contentions: The participants filed nearly fifty contentions; the thirty-five the private parties filed were especially hard to sort out. Many of them were quite long and not shaped to help a reader distinguish contention from supporting assertion, or principal point from minor. Moreover, this disorder within individual contentions often obscured the order among contentions. We

found the prehearing conference useful — and LEA's contribution to that conference particularly so — in putting the contentions in more order. Because the conference clarified many of the contentions, and because LEA simply changed some of them to a degree, LEA's original filing is not a reliable indication of the present intent of the intervenors. Therefore, the original filing must be construed in the light of our discussions here of individual contentions. To clarify individual contentions and bring out the order among the contentions, we discuss some of them out of the numerical order LEA gave them, and we take care to point out relations among them of similarity and analogy, of general and particular, and of logical dependence.

Our task has not been made easier by the Applicant's having objected to the admission of each of the contentions. With nearly fifty contentions on so complex an undertaking as emergency planning, that the Applicant could not bring into focus one admissible contention seems to us not quite credible. We have, nevertheless, attended to the Applicant's arguments with care, finding some sound, others not.

We define four terms here as they are used in this Order. Commission law on emergency planning distinguishes between the "plume exposure pathway emergency planning zone" — a roughly circular area with a radius of about 10 miles — and the "ingestion exposure pathway emergency planning zone," another roughly circular area, but having a radius of about 50 miles. The names of these zones accurately indicate what the protective measures for the respective zones are designed to prevent. We shall refer to the zones by the expressions, "plume EPZ" and "ingestion EPZ." Counties which overlap, or are contained in, the plume EPZ are called "risk" counties, and counties which lie outside the plume EPZ but are slated to support the risk counties in a radiological emergency are called "support" counties.

SCHEDULE FOR THE CONTENTIONS OF THE GRATERFORD PRISONERS

Eighteen inmates of the Graterford State Correctional Institution in Graterford, Pennsylvania are represented in this proceeding by Angus R. Love, Esq. of Norristown, Pennsylvania. They were unable to present contentions during the prehearing conference because the separate emergency plan which the Commonwealth has drawn up for the Graterford prison cannot yet be made available to them, even in draft form. The plan is subject to review by a number of organizations *seriatim*, including the Department of Defense and the National Guard, and that

review is not yet complete. Tr. 7581. Moreover, agreements on certain questions of security are yet to be worked out. *Id.*

While the Board is concerned that counsel for the prisoners be provided adequate time to examine the plan, we must also avoid needlessly prolonging the hearings at this late stage in the operating license proceeding. Therefore, we order the following: The Commonwealth of Pennsylvania is to make available to counsel for the Graterford prisoners some form of the emergency plan for their prison as soon as possible. The form of the plan the Commonwealth makes available should be close enough to the final form of the plan to give the prisoners adequate grounds for deciding whether to file contentions, and if so, what contentions; we recognize that the details of the plan will not necessarily be those that will exist at the end of the long review process. Tr. 7582. We further order that as soon as the Commonwealth has provided the prisoners with some adequate form of the plan, the Commonwealth inform the Board and the other parties that it has done so. Unless the plan is far larger than there is now reason to expect it to be, the Graterford prisoners will have 20 days from the time they receive the initial form of the plan to file contentions. The contentions are to be received by us and the Applicant, NRC Staff and the Commonwealth on the twentieth day. Other parties may receive the contentions shortly thereafter. Tr. 7582-83.

We encourage the Graterford prisoners to discuss and attempt to resolve with the Commonwealth, and any others involved, their concerns about the adequacy of the Graterford plan. If, after examining the plan, the prisoners either have no concerns about the plan or, having concerns, are able to come to agreements with the responsible bodies, we ask that the prisoners inform us of the outcome. Tr. 7583.

LEWIS-1

Intervenor Marvin I. Lewis filed two contentions. The Staff and the Applicant oppose the admission of both contentions, and we rule that neither is admissible. We discuss Lewis-1 first. It is arguably a late onsite emergency planning contention, and the Applicant so argues. Applicant's Answer at 50. We, however, ground our ruling, as the Staff does its opposition, on the contention's lack of bases.

Lewis-1 has two parts, the first of which is that reactor operators should not have to make contact with offsite management before declaring an evacuation emergency, for in certain emergencies, time would be too precious to spend calling offsite management.

Mr. Lewis is in error in this part of his contention. As the Applicant points out, offsite managers do not have to be called before an emergency requiring evacuation is declared. Under Section 5.2.1.1 of the Limerick Emergency Plan, the responsibilities of verifying that an emergency exists, classifying it according to level, and notifying offsite organizations belong to the Interim Emergency Director. This office is held by the Shift Superintendent, or his alternate, the Shift Supervisor, both of which positions are filled 24 hours a day at the plant. Applicant's Answer at 50.

The second part of the contention alleges that because the plans do not contain the names and telephone numbers of the offsite managers who are to be called in an emergency, there is no assurance that the plans can be implemented. The heart of Mr. Lewis' concern, as he expressed it during the prehearing conference, is that if the plans do not contain the necessary names and numbers, those names and numbers might not be any place where the people who would need them could find them. Tr. 7591. He added that if the people who would need them "formally had a procedure that spelled out which senior management offsite and which numbers to call before they could do anything, then . . . [he] could not have an objection." *Id.*

Such formal procedures do, in fact, exist. The Commonwealth says that the needed names and numbers appear in the standard operating procedures for the Emergency Operations Center and in the duty officer's instruction and contact book. Tr. 7592-93. The Applicant adds that the names and numbers also appear in the implementing procedures for the onsite plans, copies of which, with the names and numbers blacked out, the Intervenor's have had for some time. Tr. 7594. Thus, all who need to know those names and numbers have them, and thus, by his own account, Mr. Lewis can have no objection.

It is worth explaining why the names and numbers of offsite management are not included in the emergency plans, and are blacked out in the Intervenor's copies of the implementing procedures: As the Applicant points out, the NRC requires that the phone numbers be kept confidential, for if they were not, members of the general public could use them to frustrate, inadvertently or deliberately, an emergency response. Applicant's Answer at 50-51. *See* Generic Letter 81-27, from Director, Division of Licensing, Office of Nuclear Reactor Regulation (July 9, 1981). In addition, these names and numbers may be subject to relatively frequent change. It would be counterproductive to include such changeable information, requiring updating, in the formally issued and widely distributed emergency plan.

LEWIS-2

Lewis-2, LEA-14, and LEA-22 all deal with the distribution of potassium iodide (KI), a radioprotective drug; but since Lewis-2 makes a broader claim about KI than either of LEA's contentions make, and since LEA-14 and 22 share concerns other than KI, our treatment of Lewis-2 has little in common with our treatment of LEA's two contentions, and so we shall discuss them later.

KI is a blocking agent: By being absorbed by the thyroid, KI keeps radioactive iodine 131, which could be released in a reactor accident, from accumulating in the thyroid. KI thus protects one organ against one radioisotope. The Commonwealth's emergency plan does not call for distribution of KI to the general public. Mr. Lewis contends that everyone who lives within 50 miles of the plant should have KI on hand, and know how to use it, before Limerick begins to operate. Tr. 7595. In calling for distribution of the drug before plant operation, Mr. Lewis relies on the following FDA statement: "An important factor in obtaining satisfactory blocking of peak radioactive iodine uptake is the temporal relation of stable iodide administration to radioiodine exposure." FDA-HHS Publication 81-8158, March 1981, at 2. Mr. Lewis contends that distribution at the time of an accident would be too late for satisfactory blocking.

Besides the FDA publication, Mr. Lewis cites no bases, but the following portions of Section II.J.10 of NUREG-0654 are relevant: State and local organizations' plans for the plume exposure EPZ shall include:

- e. Provisions for the use of radioprotective drugs, particularly for emergency workers and institutionalized persons . . . whose immediate evacuation may be infeasible or very difficult, . . .
- f. . . [and] the method by which decisions by the State Health Department for administering radioprotective drugs to the general population are made during an emergency . . .

The Staff, the Applicant, and the Commonwealth oppose this contention. We deny it. The Applicant argues that no NRC regulation or guidance requires distribution of KI to the general public, and the Staff argues that the Commonwealth's present plan — the full particulars of which were not set out at the prehearing conference but which includes distribution of KI to emergency workers, though, as we noted, not to the general public — is consistent with the guidance in NUREG-0654, § II.J.10.e.-f., quoted above.

More important than what the opponents of the contention say about what is required is what they say about who requires it. The Commonwealth says that FEMA leaves it to the States to decide whether to distribute KI to the general public. Tr. 7596. The Applicant goes the next step and claims that distribution of KI to the public is “wholly a matter of individual State determination,” and “therefore . . . beyond consideration by this Board.” Applicant’s Answer at 51. The Applicant cites no authority.

It is well established that neither the Commission’s regulations nor the guidance in NUREG-0654 require that radioprotective drugs be distributed to the general public. *See, e.g., Union Electric Co.* (Callaway Plant, Unit 1), ALAB-754, 18 NRC 1333, 1334 (1983). Indeed, FEMA guidance leaves to the States the responsibility of deciding whether to distribute KI at all, even to emergency workers. *Id.* at 1335.

On the other hand, it is equally well established that licensing boards — necessarily looking more to the Commission’s requirement in 10 C.F.R. § 50.47(a)(1) that there be reasonable assurance that adequate protective measures will be taken in an emergency, than to FEMA guidance — may rule on, and have ruled on, the reasonableness of a State’s decision not to administer KI to the general public. *See id.* at 1335; the case it affirms, LBP-83-71, 18 NRC 1105 (1983); and the cases cited there at 1109 n.13. Mr. Lewis would have us do likewise. Tr. 7599.

However, we decline to do so. Since the accident at Three Mile Island Unit 2 in 1979, several licensing boards have compiled full records on the costs and the benefits of distributing KI to the general public. *See, e.g., Callaway*, LBP-83-71, 18 NRC 1105. We note that the earliest of these records concerns the Commonwealth’s policy and is to be found, fittingly, in one of the decisions in the Three Mile Island Unit 1 Restart Proceeding, *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), LBP-81-59, 14 NRC 1211, 1663-70 (1981), *decision on appeal*, ALAB-697, 16 NRC 1265 (1982). The testimony of the experts in these records is becoming repetitious, and the reasons behind State policies against distributing KI to the public are now quite familiar to licensing boards. The most recent listing of those reasons can be found in *Callaway*, ALAB-754, *supra*. Most important, the licensing boards’ rulings are uniform: “state policies against . . . distribution [to the general public] have not been found contrary to requirements for providing adequate protective measures for emergency planning purposes.” *Id.* at 1335, *quoting* LBP-83-71, 18 NRC at 1109. Mr. Lewis has given us no reason to think we should make a different ruling. We see no point in compiling yet another record on this well-settled issue.

Lewis-1 and Lewis-2 having been denied, Mr. Lewis has no contentions remaining in the emergency planning phase of the Limerick proceeding. On March 14, 1984, Mr. Lewis filed a "Motion for New Contention Based on IE Notice No. 84-17." This motion is denied, as will be set forth in an order to be issued soon. With that denial, Mr. Lewis has no contentions remaining in any phase of the Limerick proceeding and is thus no longer a party in this proceeding. Mr. Lewis may file objections to, or appeal, this Order; the procedure for doing so is set out in the last section of this Order.

WHITE-1

This contention, which we rule inadmissible, brings into focus the limits of what emergency planning can do. Mr. Joseph A. White contends that the plans do not provide adequate notification, shelter, or evacuation to employees of moving companies working in the plume exposure EPZ (such as himself), or to other people in similar situations, for example, people delivering goods in the plume exposure EPZ, or truckers and tourists who pass through it but don't spend the night. Mr. White contends that he and such transients might be in places within the plume exposure EPZ which the sirens designed to give early notification of an emergency could not reach (Tr. 7601, 7612); that even if these transients heard the sirens, they probably would not know what the sirens meant (Tr. 7601); that even if they somehow knew, many of them would be without radios and so would not know what action to take (Tr. 7602, 7612); and that even if they had a radio, or found out by other means what action they were supposed to take, they could well be unfamiliar with the roads in the EPZ (Tr. 7603). Among the bases Mr. White cites, the one which speaks most clearly of people in Mr. White's situation, 10 C.F.R. Part 50, Appendix E, Section IV.D.2, says, in part, "[s]igns 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."

The Staff and the Applicant oppose this contention, for similar reasons. The Applicant argues that the sirens will cover as large an area within the plume exposure EPZ as is physically possible — 100% of it probably (Tr. 7606) — and that if from seeing large numbers of people taking protective action, a transient person such as Mr. White describes did not figure out what was happening and seek advice, local authorities would find him and help him on their final run through the EPZ. Tr. 7605-06. But, the Applicant's main argument is simply that in the emergency plans such people are given the same protection members of

the general public are given, and that nothing in Commission law requires that Mr. White's group be given special treatment. Applicant's Answer at 52. In particular, the Applicant argues, the bases Mr. White cites do not require such special treatment: For example, though the basis quoted from above, Section IV.D.2 of 10 C.F.R. Part 50, Appendix E, gives special attention to measures taken to inform a "transient population," it is referring only to people who take up temporary residence in the plume exposure EPZ. Applicant's Answer at 52 n.99.

We doubt whether the phrase, "transient population," is to be so narrowly construed. NUREG-0654, Section II.G.2 contains the passage we quoted from Appendix E of Part 50, but expands on it by giving as examples of acceptable measures, "decals, posted notices or other means, placed in hotels, motels, gasoline stations and phone booths." Some of these measures would appear to apply to people in Mr. White's situation and to the other sorts of transients he identifies, as well as to people temporarily residing in the plume exposure EPZ.

Nonetheless, we agree with the Applicant to the extent that we find no basis in Commission law for requiring that the groups Mr. White identifies be treated in some way other than the way in which they are already treated in the emergency plans. If everyone were left to figure out for himself what to do after the sirens sounded, and picked up later if he didn't figure it out, there would be, in effect, no emergency plans at all. On the other hand, the plans cannot be required to be specific to every individual, or again, there would be no acceptable plans at all. What NUREG-0654 calls "a best effort" will sometimes have to do. *See, e.g.*, NUREG-0654, Appendix 3, Section C.4.d. Mr. White has identified a group of people for whom best efforts are likely to be adequate but may not always be so, and yet are all that can be required. Already the plans include much that is aimed at transient populations. For example, notification by siren is provided for the whole plume exposure EPZ; information on the meaning of the sirens and advice on appropriate action in an emergency will be in public phone books and in brochures distributed to hotels, motels, state parks, etc., in the plume exposure EPZ (Tr. 7604); more information will be available by radio on the Emergency Broadcast System. Mr. White says he would like to have the information in the brochures to complement the information on radio (Tr. 7607), and he points out that his work doesn't take him to hotels, nor even often where decals and the like will be posted (Tr. 7607-08). Businesses such as the one Mr. White works for may notify the Commonwealth that they would like the information contained in the brochures, and the Commonwealth will make it available (Tr. 7609).

Beyond this we don't think the Commonwealth can go. Neither we nor the parties have been able to imagine how the Commonwealth could compile a list of businesses which are not located in the plume exposure EPZ but whose employees often work there. The class of such businesses is far too open.

Because we have declined to admit Mr. White's contention, he is no longer a party in this proceeding. He may, of course, appeal our ruling. But regardless of the outcome of any appeal he may make, we note here the quality of both his preparation for this proceeding and his participation in it: Throughout the long prehearing process he has been concise, thought-taking, intelligent, aware of the factors relevant to his contention, and attentive to procedures. We believe Mr. White's interest in this proceeding would be to some degree satisfied, and LEA's participation in the proceeding benefited, were Mr. White to render some assistance to LEA's able representatives to the extent they are mutually willing to do this.

COMMONWEALTH-1

As we note below in discussing LEA-14 and LEA-22, the Commonwealth's emergency plans call for providing dosimeters to all emergency workers. LEA-14 and LEA-22 contend that dosimeters should also be provided to two segments of the general public which under some circumstances could become, in effect, groups of emergency workers. Commonwealth-1 contends that the emergency plans must include arrangements for the procurement and distribution of both self-reading and permanent record dosimeters to every offsite emergency worker. Discussions are going on now between the Commonwealth and the Applicant on arrangements for procurement and distribution of dosimeters. The principal question in those discussions apparently is who will buy the dosimeters. Tr. 8167. In effect, then, the Commonwealth is contending that the emergency plans must record the results of the discussions it and the Applicant are having. The Staff would admit this contention. The Applicant would not. We, modifying the Applicant's argument, admit the contention only as it applies to self-reading dosimeters.

An earlier case in which the Commonwealth participated, *Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1)*, ALAB-698, 16 NRC 1290 (1982), partly controls here. There the Commonwealth had asked the Appeal Board to rule either that predistribution of a permanent record dosimeter to each emergency worker was required by the Commission's regulations, or, that the regulations did not so require but that there was no reliable evidence of any alternative means of radiation

exposure control that would assure the safety of emergency workers. *Id.* at 1296. One of the principal bases for the Commonwealth's claim was the following sentence from NUREG-0654, § II.K.3.a: "Each organization shall make provisions for distribution of dosimeters, both self-reading and permanent record devices."

The Appeal Board ruled that, although permanent record dosimeters would be a "useful added measure of protection for emergency workers" (*Three Mile Island*, ALAB-698, *supra*, 16 NRC at 1301), no regulation mandated the use of dosimeters of any sort (*id.* at 1294), and that permanent record devices would be required only if they were necessary to reasonably assure the safety of emergency workers. *Id.* at 1299. The Appeal Board then concluded that the Commonwealth's plans for the distribution and use of self-reading dosimeters were "sufficient to assure reasonable protection for emergency workers" (*id.*), and, therefore, that permanent record devices were not required. *Id.* at 1301.

No one has argued before us that the Commonwealth's plans for the distribution and use of self-reading dosimeters are materially different from what they were in *Three Mile Island*. Therefore, we think this Appeal Board decision compels us to rule that the Limerick emergency plans need not include arrangements for the procurement and distribution of permanent record dosimeters. If permanent record devices are not required, then neither are arrangements for their procurement and distribution.

The Applicant argues that *Three Mile Island* compels us to make an analogous ruling on self-reading dosimeters, but the Applicant is ignoring that the Appeal Board rested its decision on the adequacy to workers' safety of the plans for the use of self-reading dosimeters. The Commonwealth argues that *Three Mile Island* says only that predistribution of permanent record devices is not necessary, not that planning for their procurement and distribution are not. Tr. 8164, 8167-68. However, we think the Appeal Board ruled more broadly. When discussing the adequacy to workers' safety of the plans for the use of self-reading dosimeters, the Appeal Board decided nothing about the virtues of predistribution, but only that the absence altogether of permanent record devices is not likely to compromise the safety of emergency workers. See *Three Mile Island*, *supra*, 16 NRC at 1299-1301.

The only issue which remains under Commonwealth-1 is whether reasonable assurance of the necessary supplies of self-reading dosimeters requires that the Limerick emergency plans include arrangements for the procurement and distribution of such dosimeters. The Applicant implies that the discussions now going on between it and the Commonwealth reasonably assure the necessary supplies. We, however, rule now, as we

shall analogously elsewhere in this order, that the plans must show either that the necessary supplies are in place, or that the mechanism for acquiring and placing them exists. It is not clear that either of these requirements has been met. Therefore, we admit Commonwealth-1 as it applies to self-reading dosimeters, but we hope that the discussions between the Applicant and the Commonwealth will make litigation of this issue unnecessary.

(Commonwealth-2 has been withdrawn. *See also* LEA-23 below.)

CITY 1 THROUGH CITY 9, AND CITY 12

The City filed twelve "Issues of Concern." Ten of them deal with protective measures which the Commonwealth's emergency plan would require for the ingestion EPZ in a nuclear emergency at Limerick. At the prehearing conference, the City and the Commonwealth asked that we defer ruling on those ten, to give the discussions which have been going on between the City and the Commonwealth more time to bear fruit. Tr. 7972. The Commonwealth said that the additional time would be useful for two reasons: that the discussions required the participation of several State agencies, and that the filing the City had made in reply to the Applicant's and Staff's responses to the City's filing of issues had furthered the discussions. Tr. 7975-76. Both the City and the Commonwealth were confident they would come to considerable agreement in the discussions.

The Staff and the Applicant opposed deferring ruling on the City's issues. The Staff argued that since the parties had come to the prehearing conference prepared to discuss the City's issues, it would be more efficient to have rulings now, and that those might help narrow the scope of the discussions the City and the Commonwealth were having. Tr. 7973-74. Trying to strike a balance between efficiency and encouraging negotiation, we at first decided to hear argument on the City's issues but defer ruling on them until after a status report on April 23. Tr. 7978. We thought it unlikely we could rule on the contentions soon at any rate, and the Commonwealth represented to us that some of the City's issues might well be settled before we could rule. Tr. 7979.

However, later in the week of the prehearing conference, it became clear that the time we would have given to hearing argument on the City's issues was more pressingly needed for evidentiary hearings on other matters. April 19 was established as the date for receipt of the report of results of the negotiations. Tr. 8154-55. (At the City's telephone request, on April 18, the Board extended the receipt date to April 23.) We suggested that interested parties might want to take part in the

continuing discussion of the City's issues (Tr. 8155) or keep themselves otherwise informed of the progress of those discussions. Tr. 8157.

CITY-10 AND CITY-11

These two of the City's issues deal with the Applicant's implementing procedures (IP) rather than the Commonwealth's plans. We did hear argument on City-10 and City-11, and at first intended to rule on them when we ruled on the bulk of the emergency planning contentions; but at the close of argument we decided to defer ruling on these two of the City's issues also. Tr. 8151.

City-10 and City-11 together assert that three of the Applicant's implementing procedures are unclear on some important matters. IPs 318 and 319 set out procedures related to calculations of radiation exposure caused by ingestion of contaminated water and fish. City-10 asserts that IPs 318 and 319 do not say who is to perform the calculations, for under the heading "Responsibilities" in those IPs there appears only the word "None." The City also claims that IPs 318 and 319 do not provide for notifying downstream users of the water should it become contaminated. IP 287 sets out procedures related to notifying downstream users of the Schuylkill River should it become contaminated, but City-11 asserts that this IP should specify what level of contamination requires notification.

The Applicant argues that City-10 and City-11 are late-filed onsite emergency planning contentions and that the City is, therefore, obliged to address the five factors 10 C.F.R. § 2.714(a)(1) requires licensing boards to consider before ruling on the admissibility of late-filed contentions. The Applicant also argues that under *Waterford, supra*, 17 NRC 1076, the contents of implementing procedures, being highly detailed and related more to emergency preparedness than to the soundness of the emergency plans, are not to be litigated. *Id.* at 1106-07. Last, speaking to the merits, the Applicant argues that IPs must be read in the context of other planning documents, and that if IPs 318, 319, and 287 are so read, it will be clear that the Limerick Dose Assessment Team is assigned the calculations in IP 318 and 319. The Applicant asserts that the Limerick Dose Assessment Team is fully aware of its responsibilities under IPs 318 and 319. The Applicant also argues that the notification procedures the City says are missing from those two IPs are set out in IP 287, and that what the City says is missing in IP 287 will be found in IPs 210 and 312. The Staff argues similarly about City-10, but, for no stated reason, would admit City-11.

On February 28, 1984, the City replied to the Applicant's answer, although we had not invited reply.* In its reply, speaking to procedure, the City addressed the factors we must balance before ruling on late-filed contentions and argued that *Waterford* had ruled only that IPs did not have to be final before a licensing board could authorize a full-power operating license, not that IPs did not have to be clear. Speaking to the merits, the City replied that if the Limerick Dose Assessment Team was to do the calculations described in IPs 318 and 319, then under the heading "Responsibilities" in those IPs, there should appear "Limerick Dose Assessment Team" instead of "None," and that if IPs 210 and 312 clarify IP 287, they should be listed as references in IP 287.

We had hoped that the Applicant and the City could come to some agreement on these apparently minor points of draftsmanship even as we were hearing argument on City-10 and City-11. On the one hand, the changes the City sought were minor and, according to the Applicant, were accurate reflections of the facts. Tr. 8146. On the other hand, although the City is right that implementing procedures are important, and that those to whom responsibilities have been assigned must know of the assignment (Tr. 8149), we are inclined to think that the changes the City wants do concern the sort of detail *Waterford* says should not bog down hearings (17 NRC 1107), and that at this level of detail, whether the Applicant made the requested changes or not, it would be free to make even larger changes later, even after the hearings were over.

Nonetheless, the Applicant sticks to the position that the changes are not necessary and that they clarify nothing, and the City continues to think that the changes are important enough to be litigated if necessary.

We defer ruling on City-10 and City-11. We will rule now neither on the merits, nor on whether these two issues are late-filed, nor on whether *Waterford* prevents us from considering them. Instead, the City and the Applicant are to try to come to some agreement on these two issues and to include in the status report on the discussions between the City and the Commonwealth due on April 23 a report on the discussions of these two issues. Tr. 8154. We note that *Waterford* would not necessarily keep us from ruling on these two issues. We do not read *Waterford* to say that everything which appears in an IP is thereby beyond litigation, but only that a certain level of detail, a level entirely appropriate to IPs, is. We wish it to be clear that we are not urging that the discussions of

*Ordinarily such an uninvited reply would raise procedural difficulties, but when it concerns the admissibility of contentions we have no strong objection to receiving it. Moreover, the Commonwealth, at least, has found the reply helpful. Tr. 7976. However, parties should seek leave in advance, even if only by telephone, to file such a reply.

these two issues have any particular outcome other than a resolution of the issues.

LEA-1 THROUGH LEA-4

In LEA-1 through LEA-8, LEA contends, in a variety of ways, that the emergency plans for Limerick do not meet the first of the planning standards set out in 10 C.F.R. § 50.47(b). That standard, Section 50.47(b)(1), requires that the responsibilities for emergency response have been assigned and that the primary response organizations have enough staff to carry out their assigned responsibilities. LEA-1 through LEA-4 are based, in part, simply on the fact that officials from the county level down have not yet formally adopted the plans which apply to them. LEA-1 contends that the responsibilities outlined in these plans have not yet been assigned because the plans have not yet been adopted. LEA-2 contends there is no reasonable assurance that organizations from the county level down, the municipalities principally (Tr. 7665-66), have enough staff to carry out their tasks under the plans. Here LEA rests in part on the practical proposition that officials are not likely to adopt plans they haven't the staff to carry out. Tr. 7667. Appended to the contention are several tables from the Municipal Radiological Emergency Response Plans showing not only that the municipalities have unmet needs, but also that they have not yet determined the extent of their unmet needs. The contention is not that a certain task would require more staff than the planners think it would (Tr. 7668), but that, however many people the task may require, unadopted plans for which officials don't yet know they have the staff do not provide reasonable assurance the necessary staff will be available.

LEA-3 contends that the plan for Montgomery County, a risk county, is unworkable without aid from Bucks County, a support county, and that since the Bucks County Commissioners have not yet adopted the plan designed for them, there is no reasonable assurance that the plan for Montgomery County can be implemented. LEA-4 makes the analogous contention about the reliance of the plans for Berks and Montgomery risk counties on the plan for Lehigh County, a support county. In these two contentions LEA is not claiming that the plans for Berks and Montgomery Counties are deficient for depending on support from Bucks and Lehigh, nor that there is any deficiency in the Bucks or Lehigh plans themselves, but only that, even if Berks and Montgomery had adopted their plans by now, responsibilities under those plans still could not be said to have been assigned, for those plans allocate some

support responsibilities to Bucks and Lehigh, neither of which has adopted any plans.

We asked LEA to show us more precisely than it had in the exhibit which accompanied LEA-3 what responsibilities the supporting counties had which, if not performed, would leave a great deficiency in the Berks and Montgomery County plans. Tr. 7675-77, 8051. On March 14, LEA filed papers which show to our satisfaction that Berks and Montgomery would rely a great deal on Bucks and Lehigh in an emergency. For instance, Bucks would help Montgomery with traffic control and transportation of evacuees, provide medical support, and manage reception centers. Lehigh would, for instance, be prepared to receive 8,200 students from Berks and Montgomery if they had to be evacuated during school hours. In responding to LEA's March 14 filing, the Commonwealth says that LEA identifies no deficiencies in the plans of the supporting counties (Commonwealth's Response to LEA's March 14 Supplemental Filing, at 4), and the Applicant says LEA has not shown why it would want to litigate the matters listed in the filing (Applicant's Answer to LEA's March 14 Supplemental Filing, at 8). True enough on both counts, but we didn't ask for a list of deficiencies in the plans of the supporting counties.

The Applicant opposes admitting any of these first four contentions. The Staff would admit all of them. The Commonwealth has expressed no opinion on the admissibility of LEA-1 and LEA-2 but opposes admitting LEA-3 and LEA-4.

The Applicant's first argument is that the incomplete, evolving state of the plans, which makes the Board's findings necessarily predictive, also makes adoption of the plans pointless until the plans are more complete, and thus "dictates" that the Board's findings be made before the plans are adopted. Applicant's Answer at 10-11. The Applicant points out that PEMA procedures, in recognition of the evolving state of the plans, do not call for formal adoption of them until after the exercises required by Section 50.47(b)(14) to test the plans and the readiness of the organizations with responsibilities under the plans. The exercises are now scheduled for July 1984. Tr. 7659.

The Applicant's second argument against admitting any of the first four contentions is that, whatever the timing of adoption may be, LEA has neither alleged any particular deficiency in the plans, nor given any reason to be concerned that the plans will not be adopted. The Commonwealth argues the same about LEA-3 and LEA-4. Commonwealth's Response to LEA's March 14 Supplemental Filing, at 4. We infer that the Commonwealth would argue the same about LEA-1 and LEA-2. If, the Applicant argues, at a later stage in planning, some deficiency in the

plans or difficulty in getting them adopted should come to light, LEA could move to reopen the record. Tr. 7657-58.

LEA-1 through LEA-4 are good examples of the kind of contention on which, fairness suggests, a Board should defer ruling. Nothing "dictates" that we make our findings on emergency planning before the plans are adopted. The record appears to show that PEMA does not require formal adoption of the plans until they are otherwise ready for review by FEMA (Commonwealth's Response to LEA's March 14 Supplemental Filing, at 4), which is sometime after the emergency exercises. On the other hand, PEMA leaves local organizations free to adopt their respective plans before the exercises, with the understanding that the results of the exercises may call for changes in the plans. Tr. 7658-59. Moreover, the Commission's regulations on emergency planning foresee cases in which adoption will precede a Board's findings. Section 50.47(a)(2) says, in part, "in any licensing proceeding, a FEMA finding will constitute a rebuttable presumption on questions of adequacy and implementation capability." Since under the procedures of some states, among them Pennsylvania, plans are not submitted to FEMA for formal review until after they've been adopted, the quoted passage implies there might be proceedings in which a Board, making its findings after FEMA's, would be making its findings after the plans were adopted. To admit these contentions now might be to burden the proceeding with litigation which, as LEA readily grants (Tr. 7647, 7665, 7674) may prove unnecessary. Indeed, we think that something short of formal adoption could make the litigation unnecessary, for according to the way we construe these four contentions, LEA seeks no more than reasonable assurance the plans will be adopted. Tr. 7672. That is all we would seek.

On the other hand, to deny the contentions is premature also. At the moment, LEA may have nothing very specific to point to as a reason for thinking that some organizations might not adopt the plans which apply to them, but according to LEA, neither are there grounds for reasonable assurance that all the organizations will adopt their respective plans. According to LEA, the plans are too sketchy and many of the organizations for which they are being written are, as yet, little involved in filling them out. Tr. 7645-46, 7659. It might turn out that after the plans became more complete, some organization, seeing more clearly what was expected of it, would refuse to adopt its plan.

Our deferring ruling on LEA-1 through LEA-4 is, we think, in harmony with the Appeal Board's treatment of a similar situation in *Cincinnati Gas and Electric Co.* (Wm. H. Zimmer Nuclear Station, Unit 1), ALAB-727, 17 NRC 760 (1983). There, in an initial decision, the

Licensing Board had determined that the incomplete state of arrangements between a risk county and a support county for the evacuation of schoolchildren did not provide reasonable assurance that the support county could, or would, help. The Licensing Board granted the intervenors a right to a further hearing, without showing of cause, on this and related matters. The Appeal Board affirmed this aspect of the initial decision. *See id.* at 772-74, 776. "In our view, the gaps are simply too large to leave to a license condition to remedy. The intervenors must be afforded an opportunity to test the revised plans in an adjudicatory hearing." *Id.* at 774. Analogously, the gaps here are too large to permit us to deny the contentions at this stage, or, on the other hand, to admit them. Therefore, they are deferred. The parties shall exchange and discuss changes to the *status quo* and file appropriate proposals for further consideration by the Board, as it becomes appropriate to do so.

LEA-5 THROUGH LEA-7

Common to these three contentions is a concern with the letters of agreement which NUREG-0654, II.A.3 puts forward as instruments by which to satisfy Section 50.47(b)(1)'s requirements that responsibilities be assigned and the necessary staff assured. LEA-5 contends that sometimes when the plans should mention letters of agreement, they do not. In such cases, LEA claims, the plans don't even say that the letters are to be developed. Tr. 7677. Since the plans sometimes do say that such letters are to be developed, LEA infers that when they are not mentioned at all, it may be that the planners think none are required. Tr. 7684. LEA argues that, in such instances, there is no reasonable assurance of enough staff, and thus no reasonable assurance the plans could be implemented. Tr. 7678. LEA-6 contends that even in the cases of letters which the plans speak of as "to be developed," there is no reasonable assurance that the planning standard in Section 50.47(b)(1) will be met, for it is not possible to say yet whether the letters will be adequate. Tr. 7679.

LEA-7 contends, finally, that the existing letters of agreement are, in fact, not adequate. LEA cites as an example the "Statement of Understanding" Berks and Chester counties have worked out with the South-eastern Pennsylvania Red Cross. The Statement, LEA claims, "fails to mention any problems caused by a radiological emergency." LEA claims that letters of agreement should take into account, should "resolve" — LEA doesn't say how — what it calls "three issues": that there may be volunteers who would risk injuries not caused by radiation, but not injuries which are caused by radiation; that radiation injuries are not covered

by regular insurance policies, and the Price-Anderson Act limits a licensee's liability for damages stemming from a radiological emergency; and that since the area affected by a radiological emergency is greater than the plume EPZ, the families of volunteers who live outside the plume EPZ but in the affected area may want to evacuate, and thus may force the volunteer to choose between one duty and another. Without such letters, LEA argues, responsibilities have not been assigned and staff assured. During the prehearing conference, LEA made clear that throughout these three contentions it is speaking of letters of agreement with organizations, not individuals. Tr. 7682. The parties agree that Commission law and guidance do not call for letters of agreement with individuals.

LEA-5 through LEA-7 are analogous to several other contentions: In LEA-1 through LEA-4, LEA grounds its claim that Section 50.47(b)(1) is not met on the fact that the plans have not yet been adopted; in LEA-5 through LEA-7, LEA grounds the same judgment on the absence of what LEA would consider adequate letters of agreement. LEA-7, 8, 12, and 15 all make claims about human response in a radiological emergency, and LEA-12 and LEA-15 also discuss letters of agreement. We shall be more particular about the relations between LEA-5 through LEA-7 and these later contentions when we rule on the later contentions.

The Applicant and the Staff object to admitting LEA-5 through LEA-7. Judging by a PEMA action we shall report later, we infer that the Commonwealth would not admit LEA-7. The Commonwealth has not said, nor can we infer, whether it would admit LEA-5 and LEA-6. We defer ruling on LEA-5 and LEA-6 and deny LEA-7. In opposing LEA-5 and LEA-6, the Applicant argues that the very existence of the plans, and their submission to PEMA and FEMA, reflect commitments by the planning organizations to implement the plans, and that since LEA offers no reason to think that these organizations will not honor their commitments, it must be presumed they will. Letters of agreement, the Applicant claims, only confirm these unquestioned commitments, and thus the absence of, or incomplete development of, these letters presents no litigable issue.

As support for its position, the Applicant points to the Appeal Board's treatment of a similar situation in *Waterford, supra*, 17 NRC 1076. There, risk parishes (counties) were negotiating, but had not yet signed, letters of agreement with neighboring parishes for vehicles and drivers. Nonetheless, evidence adduced in full hearing showed that the neighboring parishes had the necessary resources. Apparently, there was no question that the neighboring parishes intended to provide these resources to

the risk parishes. *Id.* at 1105. The Appeal Board affirmed the Licensing Board's ruling that the absence of final letters of agreement was not to be litigated but could be dealt with by a license condition which required that there be such letters before a full-power license was issued. *Id.* at 1105-06.

The Staff objects to admitting LEA-5 and LEA-6 because the Staff thinks these two contentions duplicate, though it doesn't say exactly how, LEA-1 and LEA-2. We note in passing that although LEA-5 and LEA-6 are, as we have said, analogous to LEA-1 and LEA-2, they do not duplicate them. The Commonwealth, though not saying whether it would admit LEA-5 and LEA-6, points out that some organizations are not required to be parties to letters of agreement, organizations of full-time police or firemen being examples. Tr. 7682. Under NUREG-0654, II.A.3, which provides guidance on drawing up letters of agreement, "written agreements" with organizations whose "response functions are covered by laws, regulations or executive orders . . . are not necessary."

We defer ruling on LEA-5 and LEA-6. The parties shall exchange and discuss changes to the *status quo* and file appropriate proposals for further consideration by the Board, as it becomes appropriate to do so. Again, LEA has little basis for these contentions other than the uncertainties that still surround the plans. However, those uncertainties make it difficult to rule that there is reasonable assurance that those organizations which should be parties to letters of agreement will be. On the record before us, it is not even clear yet whether the lack of mention of letters of agreement at certain places in the plans is significant. These uncertainties highlight an important difference between the situation here and the situation in *Waterford*, the case on which the Applicant relies. In *Waterford*, the Licensing Board and the Appeal Board had a full, evidentiary, record on which to base a judgment that capabilities and commitments were assured, and that any work which was still to be done to make the letters of agreement final was purely formal. We, however, have no such record.

LEA-7 merits different treatment. LEA's claim that the letter of agreement between the Red Cross and Berks and Chester Counties "fails to mention any problems caused by a radiological emergency" may mean simply that the letter fails to mention nuclear emergencies. If LEA's claim means this, it is not correct about Berks County. As the Applicant points out, the letters between the Red Cross and Berks and Montgomery Counties expressly refer to "nuclear incidents." The agreement between the Red Cross and Chester County is less explicit, but we cannot attribute much weight to a concern that the American Red Cross, an organization which has demonstrated in a great number of different kinds

of emergencies its abilities, and which has experience with radiological emergency planning at more than one nuclear power plant, would not be adequately prepared with resources and staff to fulfill its obligation to provide support, particularly when such support would be primarily outside the plume exposure EPZ. Moreover, we note that both FEMA and PEMA have approved the agreement between Chester County and the Red Cross as it applies to the Peach Bottom Atomic Power Station. Tr. 7707.

However, LEA clearly wants in these letters of agreement more than the plain mention of nuclear incidents. In its written contention, LEA wanted the letters of agreement to "resolve at least these three issues," namely the factors — which we set out earlier — involving human response in radiological emergencies, insurance coverage for radiation injury, and the desire of the families of emergency workers living outside the plume EPZ to evacuate. We agree with the Staff that nothing in NUREG-0654, II.A.3, the Staff's guidance on letters of agreement, requires these letters to "resolve" these factors. During the prehearing conference, LEA said that it sought in the letters of agreement nothing more than assurance that "everybody has agreed to and understands what their participation involves." Tr. 7706. It is not the burden of the letters alone to provide such assurance. That assurance depends on the planning process and training programs in addition to the letters of agreement; the letters are only required to be summaries of the commitments.

LEA-8

In LEA-8, LEA contends that the emergency plans are based on false assumptions about how emergency workers, both voluntary and professional, will respond in a radiological emergency. LEA cites testimony in the Three Mile Island, Unit 1, restart proceeding (TMI-1) by Mr. Lamison of PEMA that some professional people did not carry out their responsibilities during the emergency caused by the accident at TMI in March 1979. See TMI-1 Restart, Docket 50-289, Tr. 17,826. LEA also cites testimony in the same proceeding by Kai Erikson that emergency workers "would regard their real job as tending for their families." *Id.*, ff. Tr. 21,686. Unless, LEA argues, the plans are based on true assumptions about how workers will respond in a radiological emergency, there is no reasonable assurance that the requirement in Section 50.47(b)(1) that there be adequate staff to implement the plans will be met.

This contention is analogous to LEA-2. Both contentions argue that there is no reasonable assurance of enough staff, but LEA-2 argues from the fact that certain plans are not yet adopted, while LEA-8 argues from what LEA asserts to be the reliance of the plans on false assumptions. LEA-8 is also analogous to LEA-7, which is also concerned with whether enough staff will be available. LEA-7 argues, in part, that existing letters of agreement do not adequately take into account human response to danger from radiation; LEA-8 argues that the plans themselves do not do so. Finally, LEA-12 and LEA-15 make the same claim LEA-8 does, but only about schoolteachers and staff, and school bus drivers. The Applicant and the Commonwealth would deny LEA-8. The Staff would admit it. We deny it.

Both the Applicant and the Commonwealth view this contention as merely a general and speculative attack on the training programs. See the Commonwealth's response at Tr. 7716. The Applicant is confident that the training program will adequately inform workers about their responsibilities and the conditions under which they may have to perform them, and will identify workers who would not perform their responsibilities. The Commonwealth argues that TMI-1 Restart testimony by its witness, Mr. Lamison, about the behavior of some professionals during the accident at TMI was not meant to be applied to all plants, but that it was meant only to support improving emergency planning. Tr. 7715. The Applicant alleges that responses of emergency workers during the site emergency at the Ginna facility near Rochester, New York, in February 1982 provide good evidence that the improved emergency planning has proved effective. Applicant's Answer at 22 n.39.

Putting these arguments on training aside, we deny the contention because of its lack of specificity. The contention is so general that we cannot imagine how litigation of it would be fruitful. LEA says it would litigate the general issue of human response to radiation danger, and present testimony by experts, not workers with specific responsibilities under the plans. We foresee a pointless battle between experts, the Intervenor's abstractly arguing that humans are less willing to face radiation dangers than they are other sorts of dangers, and the Applicant's experts abstractly arguing the contrary.

The Staff claims that litigation of these issues can't be anything but abstract. Tr. 7719. We disagree, and so does the Commonwealth. Tr. 7717. We admit LEA-12 and LEA-15 below because, although they raise the same issues, they focus on specific groups of people with specific responsibilities under the Limerick plans. Thus, arguments in litigation of LEA-12 and LEA-15 can be more than merely speculative. The parties could, for instance, examine the planned role of the specific

named groups, and assess the significance and sensitivity of less-than-full response by the groups on which LEA-12 and LEA-15 focus.

LEA-9 AND LEA-18

A principal focus of each of the contentions LEA-1 through LEA-8 is the requirement in Section 50.47(b)(1) that there be enough staff to implement the plans. The principal focus of both LEA-9 and LEA-18 is whether there will be enough resources, especially financial resources, to implement the plans. LEA-9 asserts that the plans do not provide reasonable assurance of enough resources. LEA-18 is more specific. It asserts that the plans do not provide reasonable assurance of enough resources for the training programs described in the evaluation criteria in NUREG-0654, II.O.4.a.-j. LEA-9 also mentions training, but only tangentially, when it says that the plans make no provision for financial assistance from the Applicant for training and resources. LEA-9 then cites Section 50.47(b)(1) and thus shows that between them, LEA-9 and LEA-18 treat the absence of assurance of funding for training as a failure to meet both the requirement in Section 50.47(b)(15) that training be provided, and the requirement in Section 50.47(b)(1) that the necessary staff be assured: Where there is too little funding for training, there will be too few staff, is the implied argument in LEA-9, which is thus analogous to LEA-1 through LEA-8. But the main argument in LEA-9 is simply the general one that there isn't assurance yet of enough funds to implement the plans.

It may appear that LEA-9 and LEA-18 together contend that the Applicant is required by law to help make up shortfalls in the funds and other resources of State and local organizations. LEA-9's remark that the plans don't provide for financial assistance from the Applicant is echoed by LEA-18's quoting the following sentence from NUREG-0654: "If State and local governments lack the capability and resources to accomplish this training, they may look to the licensee and the Federal government (FEMA) for assistance in this training." II.O.4.a.-j., n.2.

However, LEA-9 cites another passage in NUREG-0654 which shows that the Applicant is not required by law to help make up these shortfalls. Section I.G in NUREG-0654, at 25, says, in part, that funding and technical assistance "must be discussed between the individual nuclear utilities and the involved State and local governments," and that "the nuclear utility may have an incentive based on its own self interest as well as its responsibilities to provide electric power, to assist in providing . . . resources that the State and local governments may need but are themselves unable to provide." If it is assumed that LEA has read this

passage which it cites, then LEA-9 and LEA-18 must be construed to contend not that the Applicant must help make up shortfalls in the resources of other organizations, but that it should. This construction of LEA-9 and LEA-18 is confirmed by what LEA says about certain discussions between Chester County and the Applicant. On February 5, 1984, LEA provided us with copies of two letters from Chester County to the Applicant, one dated September 22, 1983, the other July 25, 1983. The letters report how much the County has spent on emergency planning for the Applicant's nuclear plants and list unmet needs. The earlier letter urges that the County and the Applicant discuss ways to reduce the burden on the County. Of these letters, LEA says, "we think that frankly, what we are seeing is no resolution The County . . . says, . . . we don't have the resources . . . [T]he position of the Applicant seems to us to be, well, it's your responsibility." Tr. 7724. LEA wants the Applicant to break what LEA thinks to be a deadlock.

Both Staff and the Applicant object to admitting LEA-9 and LEA-18. The Commonwealth has taken no position on their admission. We deny them both. Both the Staff and the Applicant point out, of course, that the Applicant is under no legal obligation to provide resources to organizations who need them but don't have them. The Applicant also argues that LEA has alleged no specific deficiency in the plans, and that the plans state that training will be provided by FEMA, PEMA, the Applicant, and the risk counties. The Applicant also reports that in a letter dated February 1, 1984, the Applicant agreed to provide Chester County some of the services and equipment it still needs.

LEA might well think that it has alleged a specific enough deficiency in the plans, namely, that they have no provisions for financial and other assistance from the Applicant. However, if the lack of such provisions were in an absolute sense a deficiency — and we do not decide that it is — we know of no law which would empower us to remedy the deficiency. Certainly the advice in the passages quoted from NUREG-0654 does not amount to such a law.

As an alternative to litigating whether the Applicant should provide certain resources, LEA wants to litigate whether the plans could be implemented in the absence of needed resources. Tr. 7725. It is clearly impossible to litigate so general a contention. It is, of course, possible to have litigation on a specific unmet need. LEA-11, for instance, which we admit below, alleges, with names and numbers, that the school districts don't have enough buses to evacuate the schools in one lift. But LEA-11 is far more specific than even LEA-18, which alleges nothing more than a lack of assurance of resources for training; it speaks of no

particular plan, no particular training program, nor any particular shortfall.

It might even be possible to determine whether Chester County could do without the needs it listed as unmet in the letters LEA provided us, both of which are now over six months old. LEA would like to litigate that much at least. *Id.* But such litigation would be broad and unfocused, and at best would be premature. Chester's lists were in no way final. They were items (of varying importance) in the normal give and take of the planning process, in which a county takes stock of its resources and then decides whether it can make up the shortfalls and, if not, whom it will ask for help. As we have noted, the Applicant has agreed to meet some of Chester's needs. Moreover, the Commonwealth apparently is yet to be drawn into the process fully. The Commonwealth says that PEMA will help local governments meet their needs (Tr. 8089), but that PEMA depends on being told by the local governments that they lack specific resources. By the time of the prehearing conference, the Commonwealth had not been informed of many of the needs LEA labels unmet in the material attached to LEA-10. Tr. 7731.

We note, finally, that a local government has the power to say that it doesn't see how it can approve its plan unless certain resources are provided it.

LEA-10 AND LEA-17

Of all of LEA's contentions which are responses to the uncertainties that still surround the plans, LEA-10 and LEA-17 are the most general. We deny them.

LEA-10 claims, simply, that because so much in the plans is marked "to be developed," there is no reasonable assurance that adequate protective measures will be taken in the event of a radiological emergency. LEA-17 contends that the municipal emergency plans contain many errors, contradictions, and omissions, and that although some of these shortcomings are not by themselves significant, taken as a whole, they raise doubts that the municipal plans can be implemented. Attached to LEA-10 are several pages of items marked "to be developed" in the plans, and attached to LEA-17 are several pages of items LEA alleges to be errors, contradictions, and omissions in the municipal plans. As legal bases, LEA-10 cites all the Commission's emergency planning standards and guidance, thus implying that the plans as they stand meet none of the Commission's planning standards or evaluation criteria. In a similar vein, LEA-17 cites the two most general regulations, 10 C.F.R.

§ 50.47(a)(1) and (2), and one of the most general pieces of guidance, Section I.J in NUREG-0654.

The Staff, the Applicant, and the Commonwealth all oppose the admission of these two contentions. During the prehearing conference, it was LEA-10 that most inclined us to consider deferring ruling on some of LEA's contentions (Tr. 7747-50), and we are deferring rulings on LEA-1 through LEA-6, and LEA-23. But we can only deny LEA-10 and LEA-17. We see no way to litigate these contentions, either as general propositions, or as collections of specific ones, each one about a specific item on one of the many pages attached to the contentions. As general propositions — “[t]he plans are too undeveloped to provide reasonable assurance of adequate protective measures,” or, “[t]he plans cannot be implemented because they have too many errors and omissions” — neither LEA-10 nor LEA-17 can be litigated, for a judgment that a plan is too undeveloped or too error-ridden must rest not on how many items in the plan are still “to be developed” or are incorrect, but on which items are still to be developed or corrected, whether there are obstacles to the development and correction of those items, and what the obstacles may be.

Therefore, if LEA-10 and LEA-17 could be litigated at all, they could only be litigated as sets of specific allegations. However, were we to litigate every item, even every sort of item, listed in the many pages LEA attached to these two contentions, the litigation of the two would know no bounds. The lists on those pages could no doubt be shorter: Some of the items in those lists are clearly too detailed for emergency planning litigation, but as to the many other items in those lists, it appears that LEA has made no attempt to distinguish the significant from the insignificant. At the prehearing conference, LEA requested an opportunity to make LEA-17 more specific. Tr. 8071. We granted the request and asked LEA to choose from the lists attached to LEA-17 those items LEA thought to be the most significant ones not covered by LEA's other contentions. Tr. 8071-72. We also asked LEA to try to find time to discuss those items with the other parties. Tr. 8072. However, on March 14, 1984, LEA merely resubmitted a large, unorganized (by significance or otherwise) list of what it called “examples that are typical of the kinds of errors and omissions LEA has found” in the municipal plans. LEA should have told us exactly what it wanted to litigate. Therefore, LEA-10 and LEA-17 are denied for lack of basis and specificity.

LEA-11

Contentions LEA-11 through LEA-16 have as their main concern the protection the emergency plans provide students and staff in schools and day-care centers. We admit most of these contentions.

LEA-11, as explained at the prehearing conference, alleges that the plans for the school districts in the plume EPZ — plans which under PEMA regulations cover both public and private schools — contain insufficient information to reasonably assure that there will be enough buses to evacuate the schools in the plume EPZ in one lift. The plans themselves call for evacuation in one lift. LEA appends tables to the contention showing what LEA claims to be the numbers of buses the school districts in Montgomery County need but don't have. The Applicant claims there are errors in the tables. The Staff and the Commonwealth would admit the contention, the Applicant would not. Since the County plans refer to unmet school bus needs as needs "to be developed," LEA-11 could be viewed as a part of LEA-10, which alleges that all the plans are too undeveloped to assure that adequate measures would be taken in an emergency. LEA-10 was too general to litigate. LEA-11 is not, and we admit it.

The Applicant argues that there is no reason to think that an adequate number of buses won't be found as the plans become more developed, and therefore that there is nothing to litigate, "as long as the mechanism exists for obtaining that number of buses when the time comes." Tr. 7779. Judging from the brief discussion, during the prehearing conference, on just what the mechanism is, it is not clear the mechanism does exist. *See* Tr. 7781-82. Further development of the plans or, failing that, litigation can determine whether it does.

LEA-12 AND LEA-15

These contentions make analogous assertions about different groups of school personnel: LEA-12 deals with schoolteachers and staff, LEA-15 with school bus drivers. Therefore, we consider them together. They both belong to the group of contentions, LEA-11 through LEA-16, concerned with children and schools.

In LEA-12, LEA contends that the school district plans do not provide reasonable assurance that in a radiological emergency, there will be enough teachers and staff to stay at schools, or with evacuated students, as circumstances require. LEA-15 contends, analogously, that the same plans provide no reasonable assurance that there will be enough school bus drivers in a radiological emergency. The bases of the two contentions

are largely the same, that more of these personnel would abandon their posts in a radiological emergency than would in a non-radiological emergency, that all of them who are parents will be tempted to see to the safety of their own children first, and that there are no letters of agreement which explicitly bind these personnel to perform their duties in a radiological emergency. As additional factual bases for LEA-15, LEA cites what it contends in LEA-11 is the absence of reasonable assurances there will be enough buses to evacuate the schoolchildren in one lift: Where there aren't enough buses, there aren't enough drivers, LEA says. Tr. 7994.

Clearly, LEA-12 and LEA-15 belong to the group of contentions on human response during a radiological emergency, LEA-8 being chief among them, and to the group of contentions which centers on letters of agreement, LEA-5 through LEA-7; thus we shall be repeating some of the things we said in response to some of those contentions. The Staff, the Applicant, and the Commonwealth are divided on whether to admit LEA-12 and LEA-15. Applicant would deny both. The Staff would admit one but not the other. The Commonwealth, while not stating specifically what it would do, would likely not object to parts of these contentions. We admit both.

Echoing its answers to the other contentions on human response in a radiological emergency, especially LEA-8, the Applicant asserts that LEA has alleged no particular deficiency in the school district plans, nor offered anything more than speculation as grounds for thinking that some school personnel would not perform in an emergency the tasks they're trained to perform. The Applicant also asserts that nothing in NUREG-0654 requires that schools have letters of agreement with their own personnel.

The Staff would not admit those parts of LEA-12 and LEA-15 which raise issues about human response in a radiological emergency but would have those issues litigated under LEA-8, which the Staff would admit even though it calls LEA-15's similar concerns about human response baseless. But the Staff would admit that part of LEA-12 which talks about letters of agreement, though not the analogous part of LEA-15. The Staff claims, for reasons that escape us, that LEA-15 calls for letters with individuals rather than with organizations, but that LEA-12 doesn't. All parties agree, as do we, that letters with individuals are not required.

The Commonwealth did not tell us how it would reply to the parts of LEA-12 and LEA-15 which concern human response to radiation, but in its discussion of LEA-8, the Commonwealth said that it would not object to the admission of a contention which made "specific allegations"

about the response to radiation of "specific groups of emergency workers." Tr. 7717. We infer, therefore, that the Commonwealth does not object to the admission of the parts of LEA-12 and LEA-15 which concern human response, for these deal with specific personnel working under specified circumstances. The Commonwealth does object to the admission of those parts of LEA-12 and LEA-15 which deal with letters of agreement. In response to LEA-12, the Commonwealth says that the letters asked for in the contention are not necessary (Tr. 7786), and in response to LEA-15, that the letters asked for there are necessary only with organizations which might be leasing buses to the school districts. Tr. 7999. Apparently, the Commonwealth is impliedly arguing concerning teachers, staff, and drivers directly employed by the schools what it impliedly argues about the response functions of full-time police and fireman (Tr. 7682), that those functions are, in the language of NUREG-0654, II.A.3, "covered by laws, regulations or executive orders" and thus, under the same criterion, A.3, do not have to be covered by separate written agreements.

As we understand LEA-12 and LEA-15, they are not about letters of agreement *per se* as ends in themselves, but regard such letters only as one way to contribute to reasonable assurance that in an emergency there will be enough school personnel to implement the school plans. See Tr. 8001. We note that LEA's concerns with letters of agreement are more generally stated in LEA-5 through LEA-7 and thus are dealt with in our treatment of those three contentions. Therefore, we consider LEA-12 and LEA-15 to be solely about human response in a radiological emergency and do not discuss the arguments the Applicant, the Staff, and the Commonwealth make about whether such letters are required by law. So understood, LEA-12 and LEA-15 are admissible. We think that the abstractness and inconclusiveness which would afflict any litigation of LEA-8 could be avoided under these two more specific contentions, for they deal not with the response of some everyman in some every situation, but with specific personnel assigned specific tasks. With such specificity, there is more than mere speculation on which to rest a finding about the degree to which such personnel can be relied on in a radiological emergency; even more important, it is possible to determine how critical the functions these personnel will be trained to perform are to the implementation of the plans. Indeed, one possible efficient and probative approach for the litigation of these two contentions would be an examination of the sensitivity of the effect on the success of the plans of less-than-full participation by available school bus drivers and teachers, and/or any provisions in the plans to compensate for varying degrees of nonparticipation by school bus drivers and teachers.

LEA-13 AND LEA-27

Three of LEA's contentions assert that the degree of protection the plans provide persons in the care of certain private facilities is inadequate. LEA-13 is concerned with day-care centers and preschools, LEA-27 with a home for the elderly and two homes for the mentally retarded, and LEA-16 with private schools. We treat LEA-13 and LEA-27 together, but LEA-16 requires separate treatment and so we consider it by itself at its proper place in the numerical order of LEA's contentions.

LEA-13 contends principally that day-care centers and preschool programs in the plume EPZ are not provided for in existing plans, or at least not adequately provided for. The contention covers both profit and non-profit institutions, but not those which have only a few children. Tr. 7788. The principal thought behind this contention is that emergency conditions — separation from parents at an unexpectedly critical time, changes in schedule and environment and so on — can frighten young children, perhaps even make them unmanageable, and therefore that planning which does not consider carefully how to deal with young children will not adequately protect them in an emergency. At the prehearing conference, we asked LEA to furnish the parties and us with a list of the institutions LEA thought the plans should cover. Tr. 7794, 7987. On March 14, 1984, we received the list.

As written, LEA-13 claims also that the numbers of parents who may try to pick up their children before they are evacuated from preschool and day-care facilities are not reflected in the plans' analyses of evacuation traffic patterns. We construe this claim to be not a separate issue for litigation, but something LEA might argue in litigation in response to an assertion that an emergency plan makes adequate provision for parents to pick up their children before evacuation.

LEA-27 contends that no emergency plans cover Spring Mountain House, Camp Hill Village, and Camp Hill Special School, all located in the plume EPZ. Spring Mountain House, in Montgomery County, is characterized by the written contention as a nursing home, and by the Applicant as a boarding house. At the prehearing conference, LEA said Spring Mountain House was a residence for elderly people, some of whom were under nursing care. Tr. 8131. According to LEA, both Camp Hill Village and Camp Hill Special School are residential schools for the mentally retarded, both in Chester County. Tr. 8130-31. LEA says that it is contending not that the only way to assure adequate protective measures for the people cared for in these facilities is to draw up separate plans for the facilities, but only that the plans at some level —

the township perhaps being the most appropriate — should include careful consideration of the special needs of the people in these facilities, especially their transportation needs in the event of an evacuation. Tr. 8130-32.

The Staff would admit both LEA-13 and LEA-27 (Tr. 8132); the Applicant and the Commonwealth would admit neither (Tr. 7792, 8136). We admit both. Part of the Applicant's argument against both LEA-13 and LEA-27 is based on a distinction in the Commonwealth's Disaster Operations Plan, Annex E at E-31. There the Commonwealth requires specialized plans for "hospitals, nursing homes, and other public institutions," but not for people who will be notified at a home, office, or other private place; these people are to be covered by the plans which protect the general public. The Applicant argues that under the Commonwealth's distinction, private institutions such as the Camp Hill residential schools, and at least some of the day-care and preschool programs LEA lists, are to be covered by the plans which protect the general public, not by specialized plans. The Applicant adds that the special needs of people in these institutions, as of people elsewhere in the general population, will be provided, after having been determined by population surveys undertaken by the risk counties. The Applicant also notes that both Camp Hill schools have responded to one of the surveys (Applicant's Answer to LEA's March 14 Filing, at 3), and that implementing procedures under development will provide the transportation needs identified in those surveys (Tr. 8133). The Commonwealth, basing itself on the Applicant's response, is confident that Spring Mountain House and the Camp Hill schools are adequately provided for in the present plans. Tr. 8136.

. Making a distinction similar to the one in Annex E of the Disaster Operations Plan, the Commonwealth says that school district plans need not include profit day-care and preschool programs (Tr. 7791). The Commonwealth intends to make sure that any non-profit programs on LEA's March 14 list are included in school district plans (Commonwealth's Response to LEA's March 14 Filing, at 2), but LEA did not note which institutions on its list were non-profit, though we had asked them to (Tr. 7794). Some assurance of coverage for the profit programs is given by the Commonwealth's requirement that all day-care and preschool facilities be listed in the municipal plans (Tr. 7792-93), and that "the municipal coordinator . . . review plans that these institutions draw up for themselves, giving any aid that is required." Tr. 7793. PEMA is making sure now that the institutions LEA listed at our request "are identified and accounted for in the municipal plans." The Commonwealth's Response to LEA's March 14 Filing, at 2.

In sum, the Applicant and the Commonwealth agree there is reasonable assurance now that the institutions LEA is concerned about in LEA-13 and 27 are, or will be, provided for in some plan, and that all that remains to do is to check lists in municipal and school plans, and to issue implementing procedures tailored to the results of population surveys. Thus, the argument concludes, there is nothing to litigate (Tr. 8136): It is not the Board's job to check lists, and "the Commission did not want licensing hearings to become bogged down with litigation about such details" as implementing procedures consist of. *Waterford, supra*, 17 NRC at 1107.

However, we are not satisfied that there is nothing litigable in these two contentions. For one thing, the Commonwealth's distinctions between public and private, profit and non-profit, seem to imply odd results. For instance, Spring Mountain House as a nursing home — and therefore, under Annex E, a public institution — must be covered by a specialized plan, but Spring Mountain House as a boarding home need not be, even though Spring Mountain House as either is a facility in which there are many elderly, some of whom are under nursing care.

The list in the Commonwealth's Annex E of institutions which must have specialized plans — hospitals, nursing homes, and other public institutions — resembles, but also differs from, a list in the definition of "special facility population" in NUREG-0654, Appendix 4, Section II: "those confined to institutions such as hospitals and nursing homes" and "the school population." The Staff relies on this definition in not objecting to the admission of LEA-13 and LEA-27 (Tr. 8132), perhaps because although neither the definition nor anything in Appendix 4 calls for specialized plans for special facilities, the definition does focus on the nature of the population the facilities serve and not on whether they are public, non-profit, or licensed.

More important, as we have noted, LEA is not contending that the institutions listed in these two contentions be covered by specialized plans, but only that the planning for them be adequate. Tr. 7791-92, 8131-32. Specialized plans might be a sufficient, but possibly not necessary, way to assure that there will be adequate plans for these facilities. It is not clear yet that these facilities will be adequately provided for merely by being listed in, say, a county plan, or by being covered in implementing procedures which take some cognizance of the results of population surveys. Implementing procedures properly so-called are not to be litigated, but it may be that not everything relegated to implementing procedures by a particular plan is at the level of the ministerial detail which is appropriate to such a document. LEA-13 and LEA-27

will be resolved without litigation of such detail, but not necessarily without a look at some implementing procedures.

LEA-14 AND LEA-22

These are two of the three contentions dealing with the distribution of potassium iodide (KI). The other of the three, Lewis-2, called for distributing KI to the general public in at least the plume EPZ. LEA-14 and LEA-22 call for distribution to certain segments of the general public in the plume EPZ. LEA's two contentions also deal with matters other than KI, including dosimetry, which is taken up in LEA-23/Commonwealth-2 also. We denied Lewis-2 but will admit LEA-14 and 22, thinking, however, that both can be settled, LEA-22 quite easily.

As written, LEA-14 is divided into two parts both of which are rooted partly in LEA-11, which contends that there is no reasonable assurance of enough buses to evacuate the schools as quickly as the school district plans demand, namely, in one lift. The first part of LEA-14 contends that because some drivers may have to make repeated trips into the plume EPZ, and some school personnel may have to stay in the plume EPZ longer than now planned to care for students until they are evacuated, the drivers and school staff are, in effect, potential emergency workers and should be provided the KI and dosimetry supplied other emergency workers. The second part of LEA-14 contends that these same drivers and school staff, being potential emergency workers, should be trained as emergency workers. As written, the second part of LEA-14 also contended that to assure that these potential workers received the proper training, there should be "training criteria" and "accountability programs" in the plans, but at the prehearing conference, LEA dropped this part of the contention. Tr. 7792.

As explained at the prehearing conference, LEA-22 makes nearly analogous claims about farmers who have livestock to tend in the plume EPZ, but where LEA-14 contends that certain people should be classified as emergency workers and be provided for as such, LEA-22 contends that even though emergency plans already designate farmers who have livestock in the plume EPZ as emergency workers, those farmers are not provided with KI, dosimetry supplies, or training on the use of these materials or on procedures for reentering the plume EPZ. As written, LEA-22 appeared to contend that these farmers should also be given access to decontamination facilities, but at the prehearing conference, LEA said that it had not intended to raise any issue about decontamination. Tr. 8105.

The Applicant opposes both contentions. The Staff would admit all of LEA-14 except the claim that the school bus drivers and school personnel should receive KI, but the Staff would deny LEA-22 altogether. The Commonwealth also would deny LEA-22 but didn't say whether it would deny LEA-14, and we are unable to infer whether it would. As we said, we admit both contentions. We discuss LEA-22 first because our discussion of it will provide some helpful background for our ruling on LEA-14.

The Commonwealth reports that Annex E, Appendix 16, page B-8 of the Commonwealth's Disaster Operations Plans does state that farmers with livestock in the plume EPZ will be designated emergency workers if the plume EPZ is evacuated. But Annex E also states that the county emergency management agencies will provide these farmers with KI and dosimetry if they reenter or stay in the plume EPZ. The Annex also describes procedures for distribution of KI and dosimetry and for farmers' reentering the plume EPZ. Tr. 8106. But the Commonwealth's plan does not expressly provide for training the farmers. Tr. 8107. Thus, the Commonwealth's plan meets all of LEA's stated concerns about farmers except its concern that they be adequately trained to use KI and dosimetry and to reenter the plume EPZ. But it is easy to read a dosimeter (Tr. 8108-09), or to self-administer KI, or to follow the right procedures in reentering the plume EPZ. Besides, the Commonwealth says that "there's no question" that in an emergency, these farmers would be given the instructions they needed. Tr. 8107. Thus, the Commonwealth and the Applicant argue that there is nothing left in LEA-22 to litigate.

However, the Commonwealth also says that such training as LEA wants these farmers to receive "certainly can be read into" the plan. *Id.* LEA replies that if express provision for such training were incorporated into the Commonwealth's plan, LEA's concern would be met. Tr. 8107, 8109. Thus, the parties are so close to agreement on LEA-22 that we fully expect them to settle, rather than go to the trouble to litigate the little that is still at issue between them.

It could be argued that, since we've admitted LEA-11, LEA-14 is unnecessary: Either the result of the litigation of LEA-11 will be reasonable assurance that there are enough buses to evacuate the schools in one lift — in which case, drivers and school personnel will not need KI, dosimetry, or the training suited to emergency workers — or it will be proposed that evacuating the schools in two lifts is an adequate protective measure, in which case LEA may argue, in its proposed findings or elsewhere, that drivers and school personnel will have to be provided for as emergency workers.

However, on reflection after the prehearing conference, the Board believes that LEA-14 does not depend solely on any lack of reasonable assurance of enough buses. We now construe LEA-14 to be contending also that even if there were reasonable assurance of enough buses to evacuate the schools in one lift, reasonable assurance is not perfect assurance, and that the plans should provide for the possibility that for unforeseeable reasons evacuation of the schools might require two lifts and thus cause the drivers and school personnel to become emergency workers. *Cf.* Tr. 7991.

At bottom, LEA is asking that the plans treat school bus drivers and school personnel as they do farmers with livestock in the EPZ: As members of the general public who in certain circumstances would be designated as emergency workers and provided for as such. We think we detect some willingness on the part of the Commonwealth to treat drivers and school personnel this way. Tr. 7991. Therefore, we have some ground for hoping that LEA-14 can be settled before litigation.

LEA-16

This is the last of the six consecutive contentions on schools and children. As are LEA-13 and LEA-27, LEA-16 is concerned with how well the emergency plans provide for certain institutions. LEA-16 contends that although school district plans do provide for private schools, there is no reasonable assurance that the needs of private schools for enough buses to evacuate those schools in one lift, for prompt notification of an emergency, and for adequate training for school personnel, will not be overlooked. The Staff and the Commonwealth would admit the contention; the Applicant would not. We deny it.

In relation to none of the three needs LEA-16 lists is it admissible. As LEA notes (Tr. 8059), LEA-11's claim that there is not yet reasonable assurance of enough buses to evacuate all schools in one lift includes LEA-16's claim that there is no assurance of enough buses for the private schools. Since we admitted LEA-11, we need not admit the corresponding part of LEA-16.

As to prompt notification, LEA's concern is not that there are procedures for notifying the private schools of an emergency which differ from procedures for notifying the public schools and make it less likely that the private schools will receive prompt notification — the Commonwealth reports that private schools would be notified the same way public schools would be (Tr. 8063) — but that in some school districts the number of schools to be notified is so great that the private schools might somehow receive notification less prompt than the notification

the public schools would receive. *Id.* LEA has given us no basis for concern that any of the mechanisms of notification now under consideration (*see* Tr. 8064-66) could have such a result.

As to training, LEA wants assurance simply that personnel in private schools will, if notified of an emergency, know what to do. Tr. 8066. LEA has given us no reason to think that the training which the Applicant says private school personnel are to receive (Tr. 8065) is materially different from the training public school personnel are to receive. LEA may be concerned that the training which private school personnel are to receive may not adequately prepare them to be emergency workers, but that concern is encompassed in LEA-14, which we have admitted. We note that many private schools in the plume EPZ have drawn up their own plans. Applicant's Answer at 34.

LEA DRILLS (VIII-38)

This contention has no number in the system LEA used to renumber its contentions. Here LEA claims that the emergency plans do not contain sufficient detail on the conduct of the exercises and drills required by 10 C.F.R. § 50.47(b)(14), that there is no assurance the exercises and drills are realistic enough, and that a true test of preparedness does not permit participants to have prior knowledge of the dates, times, and other details of the test.

LEA withdrew this contention at the prehearing conference. LEA's principal aim in filing the contention was to secure an opportunity to comment on the drills and exercises. Tr. 8080. Since filing the contention, LEA has learned that under 44 C.F.R. § 350.10 (1983) there will be at least one public meeting in the vicinity of the Limerick plant between the first joint (utility, State and local governments) exercise of the plans and FEMA approval of them. LEA is confident that under Section 350.10 it will have ample opportunity to comment, and in a more appropriate forum than ours. Tr. 8086-87. We agree. The adequacy of the exercises and drills is best determined after they are held, at which time LEA may make its views known in the forum provided by FEMA.

LEA-19 AND LEA-21

Three contentions deal with the communications systems planned. LEA-26, considered separately below, is concerned largely with prompt notification of the public. LEA-19 contends that the emergency plans

fail to demonstrate that the system for communications among the emergency response organizations can operate effectively under a wide range of adverse conditions, including heavy commercial telephone traffic, bad weather, blackouts, jammed telephone links, spontaneous evacuation both inside and outside the plume EPZ, and some number of volunteers who will not risk radiation injury. LEA-19 also contends that there is no assurance that the communications links between county and local governments can operate 24 hours a day. LEA-21 is more specific. It contends that although the primary communications link with the municipal Emergency Operations Centers (EOC) is the telephone, the municipal EOC's have too few telephone lines. The Applicant opposes both LEA-19 and LEA-21. The Staff and the Commonwealth would admit both contentions. Tr. 8095, 8101. We deny both.

LEA's concerns in these two contentions are largely related to the role commercial telephone plays in the communications links among response organizations. But, as described in Appendix B of each risk county-plan, those links include much more than commercial telephone. The risk counties will also have a dedicated telephone "switch" and direct radio links with municipal police, fire, and medical personnel. A dedicated telephone switch permits conference calling and does not depend on the commercial telephone system. Three radio systems will be in use: the Radio Amateur Civil Emergency Services, the Amateur Radio Emergency Services, and the new PEMA Radio System. Appendix B in each risk county plan also states that each risk county EOC will be organized, equipped, and staffed, when augmented, to operate 24 hours a day for an extended time.

Taken together, LEA-19 and 21 are merely a broadside attack. They put forward no basis for thinking that this diverse and redundant communications system could, under some adverse circumstance, become so impaired on all levels that it could not operate effectively. The Commonwealth says that it has some concerns about the system and gives one example: From its review of the plans, the Commonwealth is unclear on whether the communications system would include a telephone link between each risk county and each municipality. Tr. 8095. If the example Commonwealth has given us is rightly called an example, the Commonwealth's concerns are at a level of detail best dealt with outside adjudication. If, when the emergency plans are in final form, any party has a similar communications concern which ought to be considered in adjudication, that party can come back to us.

LEA-20

In this contention, LEA claims that not all the municipal Emergency Operations Centers (EOC) have been designated, and that no alternative municipal EOC has been designated. At the prehearing conference, LEA withdrew its call for designation of alternative EOCs, on the correct ground that nothing in Commission law requires that there be alternative EOCs. At the prehearing conference, the Applicant claimed that all the municipal EOCs had been designated (Tr. 8098-99), but in its March 14 filing, LEA identifies three townships for which EOCs have not been designated. The Applicant opposes the contention. The Staff would admit it. The Commonwealth has not said whether it would admit the contention but has stressed certain requirements which have to do with the EOCs. We shall mention those requirements shortly.

We deny LEA-20 because it raises no litigable issue. It does not contend that any EOC site, present or proposed, is deficient in any respect. No party disputes that unless all the municipal EOCs are designated before the exercises planned for July 1984, reviewing authorities will declare the plans deficient. LEA does not contend that there is any obstacle to designating any municipal EOC. The closest thing to an adjudicable dispute in connection with this contention concerns the possibility of townships' sharing EOCs. Twice in its filings on LEA-20, the Applicant has claimed that townships may share an EOC. Applicant's Answer at 39, and Applicant's Response to LEA's March 14 Filing, at 4. The Commonwealth claims, though, that townships may share an EOC only if they also have the same emergency plan and use the same EOC staff. Commonwealth's Response to LEA's March 14 Filing, at 3. But this dispute, if dispute it is, is not formally before us. If the Commonwealth, the Staff and FEMA do not see to it that all the municipal EOCs are properly designated, then LEA can file for appropriate relief.

LEA-23

The next three contentions are tied together by the middle one of them. Both LEA-23 and LEA-24 are concerned with vehicular traffic in the plume EPZ, and both LEA-24 and LEA-25 are concerned with the size of the plume EPZ.

Both LEA-23 and Commonwealth-2 allege deficiencies in the Applicant's time estimates for evacuation in the plume EPZ. NUREG-0654, Section II.J.8 recommends that the licensee include such estimates in its emergency plan. Among the deficiencies alleged by LEA and the Commonwealth were use of the wrong evacuation routes and of outdated or

inconsistent census data, and inadequate consideration of the effects of adverse weather.

The Commonwealth has withdrawn its contention (Tr. 8110-11), and we defer ruling on LEA-23. A new evacuation time study is due soon from the Applicant's consultant. Apparently, the Commonwealth did not know until after it had filed its contention that the new study was under way. The Commonwealth now says that, as outlined to the Commonwealth by the Applicant's counsel, the new study appears to address the Commonwealth's concerns (Tr. 8110), and that the Commonwealth will be working closely with the Applicant's consultant as the study is brought to completion and will submit comments on the completed study to the Applicant and FEMA. Tr. 8111. Satisfied that its concerns will be given adequate attention, the Commonwealth, with our approval, withdraws Commonwealth-2.

LEA, however, stands in a different relation to the new time estimate study. As the written form of LEA-23 shows, LEA knew before it filed its contention that a new study was in progress. Nonetheless, perhaps because LEA doesn't have the Commonwealth's power to make a formal review of the new study, LEA filed a contention on the old time estimates. But that contention really amounts to a claim about the new study, namely, that it should not contain the deficiencies LEA alleges the old one contains.

Once more, we face a contention we can neither admit nor deny and, therefore, defer ruling on. LEA, of course, can point to no specific deficiencies in a study it has had no opportunity to review. However, by alleging specific deficiencies in the old studies, deficiencies some of which there might be reason to think could be carried over into the new study, LEA has argued with as much basis and specificity as circumstances allow. We note too that LEA's concerns about the time estimates appear not to overlap the Commonwealth's concerns much. Therefore, not all of LEA's concerns will necessarily be represented by the Commonwealth in its work with the Applicant on the new study. We expect the Board and the participating parties to receive a copy of the new study as soon as possible after it becomes available. The parties shall exchange and discuss changes to the *status quo* and file appropriate proposals for further consideration by the Board, as it becomes appropriate to do so.

LEA-24 AND FOE-1

Both FOE and LEA advance contentions which are concerned with, among other things, the effect of traffic congestion on evacuation. Friends of the Earth in the Delaware Valley (FOE) contends that the

emergency evacuation plans should include Valley Forge State Park and the King of Prussia area because the heavy traffic in these areas will impede the evacuation of the EPZ. LEA contends the same in LEA-24, and argues similarly there that the plans should also include the Marsh Creek and French Creek State Parks, a certain "Horseshoe Trail," and Exton Mall.

For reasons we give below, we admit both of these contentions, but only to the extent they call for planning against the effect traffic congestion in the areas outside the EPZ they name could have on evacuation of the plume exposure pathway EPZ. We take up first the inadmissible portions of both contentions.

FOE, besides contending that the emergency plans should include certain areas where traffic congestion is common, also asserts, almost in passing, that the Applicant should not be granted a license to operate Limerick until "the safety of the 7.2 million people in the entire 50 mile radius is assured in case of an accident" (coordinated Intervenor's Contentions at 55), and more radically, that since "there is no way to provide for the safety of residents in the King of Prussia area or the users of [Valley Forge National Historical Park] except by removing the threat of a nuclear accident at Limerick," the Applicant should be denied a license to operate Limerick. *Id.* at 56. If these assertions are intended as contentions, there are neither factual nor legal bases for them. It is simply not correct, as a matter of law, that nothing short of denying the Applicant a license could provide for the safety of people in the King of Prussia and Valley Forge Park areas. Moreover, under 10 C.F.R. § 2.758, to contend, in effect, that the EPZ should be expanded to 50 miles is an impermissible attack on the requirement in 10 C.F.R. § 50.47(c)(2) that the plume exposure EPZ be "about 10 miles in radius." *See also* our discussion of LEA's similar assertions in LEA-25.

Some parts of LEA-24 are inadmissible because they lack factual basis or duplicate other contentions. Two of the areas LEA contends should be included in the plans for the EPZ, French Creek State Park and a certain "Horseshoe Trail," are already in the EPZ. French Creek State Park lies just inside the western edge of the zone, and the "Horseshoe Trail" LEA speaks of, apparently one of several "Horseshoe Trails" in the Limerick area (Tr. 7634), runs through the EPZ, from French Creek Park to Valley Forge Park. Tr. 7637. LEA argues that its contention is, in fact, about the adequacy of planning for certain commercial and recreation areas, some inside, some outside the EPZ. Tr. 7638. LEA reads its contention to claim that there is no reasonable assurance that people in recreation areas inside the EPZ would receive adequate notification of an emergency. Tr. 7636. LEA claims there is not yet enough information to

conclude that the siren system the emergency plans call for can be heard everywhere in the EPZ. *Id.* Granting LEA's interpretation of its own contention, LEA-24 overlaps with LEA-26, which concerns notification in general, and sirens in particular. Since notification is the principal subject of LEA-26, we do not admit the part of LEA-24 which overlaps LEA-26.

Therefore, what remains of LEA-24 and FOE's contention is the claim that to help assure that an evacuation of the plume exposure EPZ would not be impeded by traffic congestion connected with Marsh Creek State Park, Valley Forge National Historical Park, the King of Prussia area, and Exton Mall, these areas should either be included in the EPZ, or adequate plans for traffic control in those areas should be made to avoid an adverse effect on evacuation of the EPZ. Most of Valley Forge Park lies just outside the EPZ, on the southeast. The King of Prussia area is further southeast, about 4-5 miles outside the EPZ. Exton Mall is near the intersection of U.S. 30 and PA 100, about 14 miles south of the Limerick plant, and about 2 miles south of the approximate 12-mile EPZ southern boundary. Marsh Creek State Park lies just outside the EPZ on the southwest, within a mile of PA 100. LEA is concerned that congestion at Marsh Creek and Exton Mall, a reception center, could impede evacuation along PA 100, an important evacuation route running north and south through the western half of the EPZ.

We admit these two contentions in these focused forms, with the understanding that the issue joined is not necessarily whether the plume exposure EPZ should be expanded to include the four named areas, but whether the emergency plans provide reasonable assurance that traffic congestion in the four named areas will not significantly impede evacuation of the EPZ. We will entertain evidence that nothing short of including these four areas in the EPZ will provide such assurance, but the evidence could show that there are less drastic ways to deal with traffic congestion. Thus construed, LEA-24 is linked more to the claim in LEA-23 that the county plans have unreliable evacuation time estimates than to the claim in LEA-25 that the EPZ should include Philadelphia, a claim which is not motivated by a concern about traffic congestion.

Both the Staff and the Applicant oppose the admission of these contentions in their focused forms. The Staff claims that the Intervenors are trying to expand the EPZ, and thus are attacking the regulations without making the arguments 10 C.F.R. § 2.758 requires to accompany such an attack. In a similar vein, the Applicant claims that the Intervenors have argued none of the special circumstances which, under 10 C.F.R. § 50.47(c)(2), might call for modest expansions of the EPZ. Applicant's Answer at 53. The Applicant argues further that the present plans

adequately take into account congestion in general, and congestion in these four areas in particular. Congestion outside the EPZ, the Applicant says, "would necessarily be considered" in the evacuation time study, now being revised. *Id.* at 44, 53. The Commonwealth backs the Applicant here with the somewhat more general claim that the emergency plans already take congestion outside the EPZ into account. Tr. 7619-20. A closer look at any one of the four areas the Intervenors want included in the EPZ will show, the Applicant says, that congestion outside the EPZ poses no significant threat to evacuation of the EPZ. For example, common sense says, according to the Applicant, that during an evacuation emergency local authorities would not permit cars which have no good reason to be in the EPZ to exit Marsh Creek State Park on the northeast and thus impede traffic on PA 100 southbound out of the EPZ at the traffic consolidation point on PA 100 just south of Eagle and west of Byers. Tr. 7641, 7643. The Applicant argues that even if common sense did not prevail, the traffic northbound out of the park could be stopped at the first intersection north of Eagle on PA 100. Although this intersection is in the EPZ, it is outside the 10-mile circle; thus traffic intercepted there would not, according to the Applicant, affect traffic in the 10-mile circle. Tr. 7643.

Similar arguments could be made, the Applicant says, about the other areas the Intervenors want included in the EPZ. Tr. 7641, 7643. Besides, the Applicant says, "there is ample room beyond the ten mile area to accommodate all kinds of vehicles." Tr. 7642.

We are not persuaded by these arguments of the Staff and the Applicant. The Applicant's argument about Marsh Creek State Park leaves too many questions unanswered: Are there plans which implement what the Applicant argues common sense would dictate in dealing with traffic trying to exit the park on the northeast? Do the present plans take into account congestion caused by park traffic? Is there any way to leave the park except on the northeast? If there is, is there a significant possibility that traffic leaving that other way could, even though it is not heading into the EPZ, impede the flow of traffic out of the EPZ? If arguments similar to the one the Applicant makes about Marsh Creek could be made about Exton Mall, King of Prussia, and Valley Forge, what are those arguments? In particular, why isn't traffic heading south and southeast out of these three places at least as likely to impede traffic leaving the EPZ as the traffic heading into the EPZ, the only traffic the Applicant considered in its argument about Marsh Creek? More generally, the Applicant says that the evacuation time study "would necessarily" consider congestion outside the EPZ, but we ask whether the study in fact does so.

Finally, the Staff's argument that these contentions impermissibly attack the regulations is heavy machinery better saved for another contention, and the Applicant's argument that the Intervenors plead none of the factors which 10 C.F.R. § 50.47(c)(2) says could support expanding the EPZ is not accurate. The Staff's argument suits LEA-25, which contends that the EPZ should include Philadelphia, better than LEA-24, which calls for adjustments of only a few miles. The EPZ in some places already extends to nearly 13 miles from the Limerick plant, and the Commonwealth believes "it would be worthwhile to at least consider expanding the EPZ to include Valley Forge," though not Exton Mall. Tr. 7641. The Applicant's argument on pleading factors listed in Section 50.47(c)(2) overlooks the Intervenors' having pleaded at least two of those factors. The Intervenors are concerned about congestion in certain highly traveled areas, and thus about the factor in Section 50.47(c)(2) called demography. Moreover, they are concerned about the flow of traffic on evacuation routes, and thus about the factor in Section 50.47(c)(2) called access routes.

Since LEA-24 encompasses FOE's contention, we admit and consolidate both contentions as construed by us above. Thus both FOE and LEA are parties in the proceedings related to this contention, designated LEA (FOE)-24. LEA is to be the lead intervenor, and thus FOE is to coordinate all its prehearing activities (including discovery) and litigation of this contention with LEA.

LEA-25

This is the last of three contentions in which an expansion of the plume EPZ is suggested, but in its main concern, LEA-25 is closer to the City of Philadelphia's concerns with emergency planning for the ingestion EPZ.

LEA-24 and FOE-1 called for expanding the plume EPZ to include certain areas where traffic congestion is frequently very heavy. The main concern of those two contentions was that, unless adequately considered in the plans for the plume EPZ, traffic congestion in those areas could significantly impede evacuation of the plume EPZ. As written, LEA-25 makes the more radical claim, asserted apparently in passing in FOE-1, that the plume EPZ should be expanded to include the Philadelphia metropolitan area, to reduce the chance of latent cancer deaths in these areas after a nuclear accident at Limerick. The Staff and the Applicant oppose the contention. The Commonwealth has expressed no opinion on its admissibility. We deny it.

The Staff and the Applicant regard the contention as an impermissible attack on the Commission's regulations. *See* 10 C.F.R. § 2.758. Although 10 C.F.R. § 50.47(c)(2) permits adjustments to the 10-mile radius of the plume EPZ under certain circumstances, the adjustments the language "about 10 miles" in Section 50.47(c)(2) contemplates are far more modest than the large expansion urged in LEA-25. Several of the modest adjustments Section 50.47(c)(2) contemplates have already been made to the Limerick plume EPZ, and it is possible that more will be made as a result of the litigation of LEA(FOE)-24; but these adjustments, either present or possible, lengthen the radius of the plume EPZ by at most only a very few miles in some places.

However, LEA-25 could be read less narrowly to be asking merely for increased planning for the Philadelphia area, planning which might include some measures now intended for the plume EPZ alone, such as sheltering or evacuation. But even if read less narrowly, LEA-25 is not admissible. The City of Philadelphia has filed here several "issues of concern" about planning for the ingestion EPZ, of which the Philadelphia metropolitan area is a part; those issues are specific enough to form a basis for discussions between the City and the Commonwealth. But LEA does not contend here that the plans for the ingestion EPZ do not conform to NRC regulations and guidance. We have no power to require those plans to meet other standards.

We note that NRC regulations and guidance on the size of the plume EPZ and the measures to be implemented in the ingestion EPZ were drafted by persons well aware of the few nuclear plants located near major metropolitan areas. Those regulations and that guidance make no exceptions for Limerick, or for other plants similarly situated. Nor do those regulations and that guidance rely on evacuation of any part of an ingestion EPZ in a nuclear emergency.

LEA-26

This is one of three contentions on the communications system envisioned in the emergency plans. The other two contentions, LEA-19 and LEA-21, focused on the effects of adverse conditions on certain parts of the system. LEA-26 consists of several connected claims most of which concern the promptness of notification, especially notification of the public. We admit only part of LEA-26.

LEA-26 first contends that no system for prompt notification of the public is in place, that the principal such system, the siren system, is not yet installed, and thus not tested. Unless, LEA argues, that system is tested as installed, there is no assurance that it will work.

LEA-26 next contends that the system which is the backup to the siren system is inadequate. The sirens run on AC power from normal transmission lines and thus would not work in a blackout. Tr. 8123. To provide notification to the public if the sirens were not to work, the emergency plans call for a system called route-alerting, in which police, firemen, and other emergency workers would notify the public by traveling planned routes in vehicles with loudspeakers. LEA claims that there has been no indication that route-alerting could be carried out quickly enough to meet the time standards set out in NUREG-0654, Appendix 3, § B, and, more generally, that there is no basis for concluding that route-alerting is an effective way to alert the public. Effectiveness aside, LEA contends, there is no assurance of enough personnel and vehicles to carry out the alerting as planned, and the plans do not contain route-alerting sector maps.

The third part of LEA-26 contends that the Applicant's plans call for telephone notifications to emergency response organizations to be made sequentially contrary to the guidance in NUREG-0654, Appendix 3, § C.2.b., and that time would be wasted logging one call before making the next. LEA also claims in this part of LEA-26 that ten sets of telephone calls would have to be made one after the other before the public alerting system was activated. Thus, there is no assurance, LEA contends, that public notification could come soon enough to meet the time standards in NUREG-0654, Appendix 3, § B.2.a.

Last, and not directly related to promptness, LEA-26 contends that the Emergency Broadcast System (EBS) is not adequate. The only factual basis given for the claim is that in Chester County the EBS uses a station which doesn't run 24 hours a day.

The Applicant opposes admitting any of LEA-26. The Staff would admit all of it. The Commonwealth expresses no opinion on the admissibility of any part of the contention. The Applicant argues, correctly we believe, that under *Waterford, supra*, 17 NRC 1076, the installation and testing of the sirens are exactly the sort of matter which the Staff will properly oversee. *Id.* at 1104-05. Since LEA hasn't alleged with specificity any deficiency in either the plans for the siren system or the mechanism by which the installation and testing of the system will be reviewed, there is nothing in this first part of LEA-26 to litigate. Accordingly, we deny this first part.

About route-alerting, the Applicant argues that the risk county plans adequately describe the procedures used in route-alerting, that LEA has not shown that any municipality in the plume EPZ lacks the resources for route-alerting, and that route-alerting sector maps cannot be drawn

up until the sirens are installed, since the locations of the routes to be alerted depend on the locations of the sirens which fail.

If the testing and installation of the siren system is not a matter for adjudication, it appears to us that the making of route-alerting sector maps isn't either, for the maps depend on the installation of the sirens. Therefore, we deny the part of LEA-26 having to do with maps. Neither do we admit that part of LEA-26 which calls for a showing that route-alerting is an effective way to alert the public. LEA proffers no basis for thinking that route-alerting is not effective. We note that both FEMA and licensing boards have said that route-alerting might be a necessary backup to some siren systems. *See, e.g., Consolidated Edison Co. of New York* (Indian Point, Unit 2), LBP-83-68, 18 NRC 811, 938-39 (1983).

However, we admit the issue LEA raises about whether there will be enough resources for route-alerting. The emergency plans should show either that there are enough personnel and vehicles for route-alerting, or else that the mechanisms for acquiring those resources exist. But it is not clear to us yet that the plans show more than the procedures for carrying out route-alerting. *See Applicant's Answer at 47.*

As to notification of emergency response organizations by sequential telephone calls, the Applicant argues, and the Commonwealth agrees (Tr. 8125), that LEA wrongly assumes the calls will be made sequentially. In fact they will be made by several people calling at once, the Applicant claims. LEA claims, however, that it would appear from the titles of the persons who would be called that the calls must be made in the order in which they are listed in the county plans. Tr. 8124. We suspect that the parties could have settled this issue among themselves before they brought it here. Of course, they may still be able to settle it among themselves. In the meantime, it is admitted for litigation. We note that logging the calls, a practice the Applicant says is required by NUREG-0654, Appendix 3, § C.2.b., becomes an issue here only if the calls are, in fact, made sequentially and one call logged before the next one is made.

The last claim LEA-26 makes — that the EBS is not adequate — lacks basis and specificity, but we admit for litigation LEA's claim that the Chester County EBS uses a station (WCOJ) which doesn't run 24 hours a day and we construe the issue thus raised to extend to any EBS station which doesn't run 24 hours a day. The Applicant argues that either arrangements could be made with the station already chosen in Chester County to broadcast in the off-hours in an emergency, or a replacement station could be chosen from outside the county. Again, the plans should show either that such arrangements have been made, or that

there exists a mechanism for making them. The choice of WCOJ for Chester County might indicate that the mechanism is not yet in place.

In sum, LEA-26 is admitted as to the issues of resources for route-alerting, the order of the telephone calls by which emergency response organizations would be notified, and arrangements for securing 24-hour-a-day broadcast capability for the EBS.

LEA-28

As written, LEA-28 contended that all the emergency plans for Limerick were deficient because, though they assigned the National Guard the tasks of towing cars disabled on the main evacuation routes in the plume EPZ, and of providing gasoline along the same routes, the plans did not say where the Guard would find enough tow trucks, fuel trucks, and fuel, nor how long it might take the Guard to mobilize in heavy traffic or bad weather.

At the prehearing conference, the Commonwealth asserted with great firmness that the Guard had the resources and the will to do its assigned tasks. Tr. 8139-40. Thinking that the strength of the Commonwealth's response might reflect facts that would satisfy LEA, we asked LEA to discuss its concerns with the Commonwealth, and to report to us whatever effects the discussions had on LEA-28. Tr. 8140-41. LEA's March 14 filing includes a report of the discussions LEA had with the Commonwealth, and a listing of the issues which remain under LEA-28. It appears that the discussions have alleviated some of LEA's concerns and focused others. Two issues remain, and we admit both for litigation.

The first of these issues has to do with mobilization of the Guard. One result of the discussions between LEA and the Commonwealth was that Berks County now has assigned to it a Guard battalion which would not have to cross the plume EPZ to get to the County, but LEA remains concerned about the length of time it might take the Guard to mobilize in heavy traffic or bad weather. The Commonwealth does not say whether it would admit this issue. The Applicant would not, arguing that LEA proffers no basis for this part of the contention (Applicant's Answer to LEA's March 14 Filing, at 4), and that the effects of adverse weather are among the things which must be considered before a decision to evacuate (*id.* at 6). Nonetheless, a decision to evacuate in bad weather is conceivable. Perhaps there are other measures besides the assignment of a new battalion to Berks which could reduce the obstacles to a quick mobilization of the Guard.

The other issue which remains after the discussions between LEA and the Commonwealth is somewhat new because it does not wholly involve

the Guard. LEA contends that there is no assurance of enough resources to provide towing, gasoline, and snow removal on non-State roads. The Commonwealth agrees and would admit this part of LEA-28. Commonwealth's Response to LEA's March 14 Filing, at 3. The Applicant opposes this part of the contention also, arguing, not entirely relevantly, that between them, the Guard and the Commonwealth have enough resources to provide towing, fuel, and snow removal for the main evacuation routes. Applicant's Answer to LEA's March 14 Filing, at 5. The Commonwealth, however, says that the Guard has neither resources for snow removal, nor responsibilities for it under the Commonwealth's plan. Commonwealth's Response to LEA's March 14 Filing, at 3.

LEA-29 AND LEA-30

LEA, with our approval, has withdrawn these two contentions. Tr. 8143. Like LEA-10 and LEA-17, LEA-29 and LEA-30 were quite general. But where LEA-10 and 17 involved the incompleteness of the emergency plans, LEA-29 and 30 argue broad deficiencies in the very nature of the plans.

DISCOVERY

Discovery may begin immediately on contentions admitted by the Board in this Order. All discovery requests must be served by June 25, 1984. Tr. 8390-91. Other than the time within which to make discovery requests, discovery is subject to the directions and time limits set forth at 2-3 in our unpublished Order of May 16, 1983.

As we noted in the Introduction to this Order, the text of the contentions LEA filed is not a reliable indication of the present intent of the Intervenor. The proponent of an admitted contention has the burden of modifying the text of the contention in the course of discovery so that the text will accurately reflect both our construction here of the contention and clarifying information gathered in the course of discovery. At some later point, shortly after discovery, a date will be set for the filing of better focused and reworded contentions. Work on improving the wording of the contentions should be performed on an ongoing basis and discussed among the parties, in anticipation of the requirement to file reworded contentions after the discovery period.

OBJECTIONS AND APPEALS

Under 10 C.F.R. § 2.751a(d), parties may file objections to this Order (requests for reconsideration) before this Licensing Board within 5 days after the date of service of the Order; the Staff has 10 days after the date of service within which to file objections. Parties may not file replies to the objections unless the Board so directs.

Pursuant to 10 C.F.R. § 2.714a, within 10 days after service of this Order, a party may file a motion of appeal and supporting brief before the Atomic Safety and Licensing Appeal Board. Any other party may file a brief in support of or in opposition to the appeal within 10 days after service of the appeal.

Appeals permitted under § 2.714a are limited as follows: Petitioners for leave to intervene may only appeal an order wholly denying intervention on the question of whether intervention should have been permitted in whole or in part. An order granting a petition for leave to intervene is appealable by a party other than the Intervenor on the question of whether the petition should have been wholly denied. In the circumstances of the Limerick proceeding taken as a whole, it appears that only CEPA, Mr. Lewis, and Mr. White, at this time, have the opportunity to appeal, if they so desire, on the question of whether their intervention should have been permitted in whole or in part.

IT IS SO ORDERED.

THE ATOMIC SAFETY AND
LICENSING BOARD

Lawrence Brenner, Chairman
ADMINISTRATIVE JUDGE

Dr. Richard F. Cole
ADMINISTRATIVE JUDGE

Dr. Peter A. Morris
ADMINISTRATIVE JUDGE

Bethesda, Maryland
April 20, 1984

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)**

April 23, 1984

In an operating license amendment proceeding, the Licensing Board admits an intervenor and two of its contentions relating to the suspension of technical specifications to perform certain tasks.

ATOMIC ENERGY ACT: RIGHT TO HEARING

Under Section 189a of the Atomic Energy Act, where the Commission determines that a license amendment involves no significant hazards consideration, the amendment may be issued and made immediately effective in advance of any required hearing.

RULES OF PRACTICE: RIGHT TO HEARING

Where an amendment is issued and made immediately effective under a determination of no significant hazards consideration, a timely filed contention will not be considered moot, even if the contested action has been completed.

SECOND ORDER FOLLOWING PREHEARING CONFERENCE

(Admitting Intervenor and Ruling on Contentions)

Memorandum

I. STANDING

On June 14, 1983, June 23, 1983 and August 1, 1983, Mississippi Power and Light Company, Middle South Energy, Inc., and South Mississippi Electric Power Association (Licensees) applied for changes in the technical specifications for Grand Gulf, Unit 1. On September 23, 1983, the NRC Staff issued the requested changes as Amendment No. 10 to the Grand Gulf Unit 1 license, effective on that date. Staff determined that no significant hazards consideration was involved and made the amendment immediately effective without first offering an opportunity for a public hearing. Subsequently, on October 26, 1983, a notice of issuance of Amendment No. 10 was published in the *Federal Register* (48 Fed. Reg. 49,608). The notice authorized the filing of petitions for hearing by November 25, 1983, to Licensees or any person whose interests might be affected by the issuance of the license amendment.

On November 17, 1983, Mr. Ken Lawrence filed a timely petition to intervene and request for hearing on behalf of Jacksonians United for Livable Energy Policies (JULEP). Mr. Lawrence gave his address as a post office box in Jackson, Mississippi, more than 50 miles from the plant. Staff and Licensees opposed the petition on the grounds that the petition lacked the requisite demonstration of interest in the licensing proceeding of any individual member of petitioning organization or any aspect sought to be litigated.

On December 11, 1983, Petitioner filed an amended petition and request for hearing. Three signed and witnessed statements by individual members of Petitioner organization were attached to the amended petition, authorizing JULEP to act on behalf of those members in petitioning to intervene and requesting a hearing in this proceeding. One of the authorizing members was alleged by the amended petition to reside about 15 miles northeast of the facility. The amended petition also questioned the propriety of three aspects of Amendment No. 10 which, presumably, Petitioner sought to litigate. Subsequently, apparently at the suggestion of Staff (not the Board), Petitioner filed notarized statements by the same three individual members of Petitioner organization,

again authorizing JULEP to act on their behalf in petitioning to intervene and requesting a hearing. Affidavits Attached to Petitioner's Response to NRC Staff and Licensee, January 12, 1984.

At the prehearing conference held in Vicksburg, Mississippi on February 29, 1984, Licensees continued to object to Petitioner's standing to intervene. Although they did not question the residence of one of JULEP's members approximately 15 miles from the facility, they insisted that something more than geographical proximity and an interest as a member of the general public is necessary to confer standing. Tr. 20-21. Staff did not object to Petitioner's standing to intervene, especially in light of its having submitted sworn statements in affidavit form attesting to the facts relating to standing. Tr. 25.

We have reviewed the precedents cited by Licensees in objecting to Petitioner's standing. We see none that would support a challenge to the standing of an organization petitioning to intervene on health and safety matters within the scope of the notice of opportunity for hearing, which has an authorizing member residing within 50 miles of the facility. See, for example, *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-522, 9 NRC 54 (1979); *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-322, 3 NRC 328 (1976).

Petitioner has the requisite standing to intervene. Since we determine that two of its contentions are litigable, as discussed below, we admit Petitioner to the proceeding.

II. CONTENTIONS

In its amended petition of December 11, 1983, JULEP raised three matters relating to Amendment 10 of the operating license. Petition, ¶¶ 6-8. Staff treated them as litigable aspects of the proceeding that would satisfy the requirements of 10 C.F.R. § 2.714; Licensees disagreed. Staff Response to Amended Petition, January 3, 1984, at 4-5; Licensees' Answer to Amended Petition, December 22, 1983, at 9-10.

In the supplement to its petition to intervene, filed prior to the prehearing conference, JULEP raised three contentions which it sought to have admitted to the proceeding. These contentions were discussed at the prehearing conference.

Also, however, at the prehearing conference, Petitioner offered the matters previously raised in paragraphs 6-8 of the amended petition (treated as litigable "aspects" by Staff, and non-litigable ones by Licensee) as its first three contentions, renumbering the contentions raised in its supplemental petition as Contentions 4, 5 and 6. The Board

accepted the renumbering. Although Licensees objected to the admission of Renumbered Contentions 1, 2 and 3 without any showing of satisfying the five-factor test of 10 C.F.R. § 2.714(a)(1) required for late-filed contentions, the Board overruled that objection. We indicated that we are unaware of any authority that would require, or even permit, us to disregard matters that were raised in the original petition or amended petition and treat them as raised later. Since Staff and Licensees were caught by surprise (*i.e.*, in fact, misled by Petitioner's supplement to petition which referred only to Renumbered Contentions 4, 5 and 6 as those which it "seeks to have admitted in this proceeding"), they were unprepared to respond to Renumbered Contentions 1, 2 and 3 at the prehearing conference. We, therefore, set further time limits for them to file written responses and for Petitioner to reply. We indicated further that we would not schedule another prehearing conference to discuss these contentions. Tr. 17, 28-32.

The parties have filed their respective positions on Renumbered Contentions 1, 2 and 3 within the time limits prescribed by the Board. We affirm, here, our ruling that those contentions were timely filed. We will discuss all of the contentions in the order argued by the parties at the prehearing conference and in the later filings, *viz*, first, Renumbered Contentions 4, 5 and 6, and then, Renumbered Contentions 1, 2 and 3.

Renumbered Contention 4

Petitioner contends that the Safety Evaluation on Amendment 10 to NPF-13, Grand Gulf Nuclear Station, Unit 1, unrealistically assumes perfect fuel.

Basic to this contention and Renumbered Contentions 5, 6 and 1 is an understanding of the major change involved in Amendment 10 to the operating license. Previously, the High Pressure Core Spray (HPCS) system, a portion of the emergency core cooling system, was designed to initiate when its instruments sensed a certain water level and pressure in the reactor pressure vessel. Under the worst anticipated loss-of-coolant accident, involving a steamline break inside containment, the peak cladding temperature was calculated to reach 900°F. Because the instruments, which were calibrated for normal operating conditions, read higher than actual water level at low coolant temperatures and pressures, Amendment 10 changed the technical specifications so that the system would not become operable until a higher operating pressure is reached. Consequently, a recalculation of the peak cladding temperature that would be reached under the postulated worst failure is now 1322°F, as opposed to the 900°F previously calculated (assuming

no inaccuracy in the instrumentation). In other words, because, hypothetically, the system would activate at a later point in time, the peak cladding temperature might rise 422°F above what had been calculated previously. The higher peak cladding temperature calculated under the changed technical specifications would, nevertheless, be significantly below the peak cladding temperature permitted in 10 C.F.R. § 50.46(b)(1), of 2200°F.

JULEP's Renumbered Contention 4, inferentially, appears to recognize that the calculated peak clad temperature under the revised technical specifications of 1322°F is well within the regulatory limit of 2200°F. However, Petitioner contends that this regulatory standard is based on the assumption of there being "perfect fuel," *i.e.*, undamaged fuel, in the reactor. This assumption, Petitioner claims, should not be made with regard to Grand Gulf. According to JULEP, because of the lack of experience and possible lack of satisfactory training and qualifications of the operators and other personnel of Grand Gulf, it is likely that the cladding may have been, or will be, damaged during fuel insertion. Petitioner's Supplement to Petition at 1; Tr. 33, 37-38.

Under 10 C.F.R. § 2.758, no rule or regulation of the Commission (such as § 50.46(b)(1) which sets the calculated peak cladding temperature at 2220°F), shall be subject to attack, although a party to an adjudicatory proceeding may petition for a waiver or exception to the rule. However, the sole ground for petition for waiver or exception shall be that special circumstances with respect to the subject matter of the particular proceeding are such that the rule or regulation would not serve the purposes for which the rule or regulation was adopted. Section 2.758(b).

During the prehearing conference, we examined Petitioner at length with regard to any possible special circumstance that would support the imposition of a more limiting regulatory standard for peak cladding temperature than that established by § 50.46(b)(1). *See*, for example, Tr. 38-48. The only difference between Grand Gulf and other nuclear plants that Petitioner relies upon is the asserted lack of training and experience of operators and poor management which could have led to damaged fuel at Grand Gulf.

We determine that Petitioner has failed to support any "special circumstance" that would permit a waiver of 10 C.F.R. § 50.46(b)(1). Any connection between the asserted lack of training and experience and the possibility of damage to the fuel cladding is too tenuous to support a waiver. Because of Petitioner's failure to show any direct support for its position that there is a strong possibility that the fuel is damaged, Petitioner not only fails to support a waiver of the regulatory

standard, but it fails also to satisfy the specificity requirements for contentions of 10 C.F.R. § 2.714(b).

Moreover, Petitioner could offer no support for its contention that the Safety Evaluation of Amendment 10 “assumes perfect fuel.” Presumably, Petitioner believes that the regulatory standard of § 50.46(b)(1) is based upon an assumption of perfect fuel and that, consequently, Staff’s Safety Evaluation of Amendment 10 also makes that assumption. Staff, however, denies that it makes the assumption for this plant or for any other plant. Staff Response to Petition Supplement at 5; Tr. 49. Again, Petitioner fails to make a *prima facie* showing that there are any special circumstances with regard to this facility that would justify waiving the regulatory standard of § 50.46(b)(1). Not only has it made no showing that the fuel cladding is more likely to be damaged here than at any other plant, it has also failed to make any showing that damaged cladding is not taken into account in the regulatory standard that applies to all plants.

The contention is denied.

Renumbered Contention 5

The safety evaluation of the High Pressure Cooling System (HPCS), based on the questionable assumption of perfect fuel, leaves a programmatic gap in safety performance.

This contention, although worded differently, in substance is identical to the preceding contention. Based upon Petitioner’s assertion of lack of training and experience and poor management, it assumes damage to the cladding and therefore the inappropriateness of the regulatory standard with regard to peak cladding temperature.

For the same reasons given with regard to Renumbered Contention 4, above, Renumbered Contention 5 is inadmissible and we deny it.

Renumbered Contention 6

The safety evaluation of Amendment 10 in its entirety is unrealistically based on single failure criteria. That is, unless one thing by itself poses a danger to the public, the risk is not considered significant enough to address. This constitutes a serious shortcoming of the evaluation and may well render it an ineffective attempt to accurately ascertain safety hazards.

Although there appeared to be differences in opinion between the parties as to what constitutes single failure criteria, Petitioner’s

assumption that single failure criteria were used in evaluating the safety of this facility was based on its understanding that the single failure criterion is used for all nuclear plants. Tr. 76-80. In fact, Appendices A and K of Part 50 adopt the single failure criterion as the regulatory standard. Petitioner seeks to impose a different standard upon the Grand Gulf facility for the same reasons it wished to apply a different regulatory standard with regard to the peak cladding temperature in the prior contentions, to wit, because of the asserted poor past performance of management, and the inexperience and lack of training of the operators. Tr. 77-79.

As with regard to the prior two contentions, Petitioner has failed to demonstrate any nexus between the asserted poor past general performance of Licensees and the standard it wishes the Board to impose in place of the regulatory standard imposed on all nuclear plants. Consequently, it has made no showing of a "special circumstance" which would permit a waiver of the regulatory standard. The contention must be denied.

Renumbered Contention 1

The changes made by Amendment 10 include redefining Operability range for High Pressure Core Spray (HPCS) until the first refueling outage due to water level instrumentation inaccuracies at low pressure (MP&L letter dated August 1, 1983). As page 4 of the NRC Safety Evaluation of Amendment 10 indicates, the belief that little or no change in the peak cladding temperature would be expected is based on a best-estimate basis, which indicates that few or no criteria are available for this determination. A serious situation could result if this assertion, which may be based on no or insufficient evidence, proves wrong. Given this, the matter should be fully explored through a hearing before proceeding.

Like the previous contentions, this contention concerns the revised technical specifications for the HPCS and the reanalyzed event involving a steamline break inside containment. In addition to the Appendix K to Part 50 calculation which results in a peak cladding temperature of 1322°F for the reanalyzed event, the Staff also stated in its analysis that on a "best estimate" basis little or no change in peak cladding temperature is expected. From the discussion (Tr. 84-88, 90-92), it was clear that there were two separate estimates involved: the "conservative" recalculation under Appendix K arriving at the maximum peak cladding temperature of 1322°F; and the "best estimate," being a realistic estimate, that there would be little or no change in the peak cladding temperature from what would have been expected under the original technical specifications.

Renumbered Contention 1 questions the evidence on which this "best estimate" is based. This "best estimate" by Staff, however, is not material to whether the license change in question is acceptable. What is important in this regard is whether peak cladding temperature, recalculated in accordance with requirements of Appendix K to 10 C.F.R. Part 50, is within the limitations of 10 C.F.R. § 50.46. In other words, even if the Staff's realistic estimate were incorrect (that there would be little or no change in peak cladding temperature), the regulatory limit of 2200°F would concededly still not be approached.

Renumbered Contention 1 must be denied as immaterial.

Renumbered Contention 2

Amendment 10 permits suspension of Specification 4.0.4 to allow the plant to attain operating conditions necessary for ADS Trip System surveillance testing (MP&L letter dated June 14, 1983). The Safety Evaluation stresses that the surveillance test must be completed within 12 hours. There is no indication and no information that 12 hours is a short enough period to insure safety. It appears to be an arbitrary length of time.

According to Licensees' explanation of the suspension of Specification 4.0.4, they were granted a unique one-time exception, permitting them to delay testing of a particular component until sufficient reactor pressure was reached. They requested this exception because valve operation with no or inadequate steam flow may cause damage to the valve seating surfaces, possibly leading to improper valve operation. Additionally, in order to perform the surveillance test, observation of certain main steam-related parameters was required. These observations were only possible under certain minimum steam pressure conditions. Thus, the exception permitted Licensees to properly conduct a required surveillance test. Licensees' Response to Order Following First Prehearing Conference, at 8. Now that the test has been completed, Licensees contend that the issue is moot and the contention should be dismissed. *Id.* at 14-18.

Under general judicial authority, the one-time suspension of specification having been completed, the issue would be considered moot. *See, e.g., Weinstein v. Bradford*, 423 U.S. 147, 149 (1975); *Southern Pacific Terminal Co. v. ICC*, 219 U.S. 498, 515 (1911). However, the situation here is governed by the statutory and regulatory changes adopted in response to *Sholly v. NRC*, 657 F.2d 780 (D.C. Cir. 1980), *reh'g denied*, 651 F.2d 792 (1980), *vacated*, 103 S. Ct. 1170, 75 L. Ed. 2d 423 (1983).

In *Sholly*, the Commission had permitted the Metropolitan Edison Company to release radioactive gas into the atmosphere from the damaged Three Mile Island Nuclear Plant without affording Petitioners a right to notice and hearing. The Court of Appeals held that Section 189a of the Atomic Energy Act did not permit the NRC to dispense with a requested hearing on a license amendment even if the Commission had previously made a finding that the modification of license involved "no significance hazards consideration."

As a result of *Sholly*, at the request of the Commission, Congress included Section 12 in Pub. L. 97-415, the NRC Authorization, to amend Section 189a of the Atomic Energy Act of 1954. The new language provided, *inter alia*, that where the Commission determines that a license amendment involves no significant hazards consideration, the amendment "may be issued and made immediately effective in advance of the holding and completion of any required hearing." Section 189a(2)(A) (42 U.S.C. 2239(a)(2)(A)).

We understand this language (and similar language in 10 C.F.R. § 50.58(b), promulgated under the changes made in the Atomic Energy Act by Pub. L. 97-415) to require a hearing, if requested, in all cases in which the amendment has been issued and made effective, notwithstanding that the action permitted under the amendment may have been completed (which would otherwise have mooted a hearing on the amendment). *See also*, the Commission's Statement of Consideration in Promulgating § 50.58(b), at 48 Fed. Reg. 14,873 (1983). To hold otherwise would violate the integrity of the statutory and regulatory scheme whereby the Commission may act expeditiously on a license amendment without depriving petitioners of their right to a hearing.

Having determined that Licensees' objections on grounds of mootness cannot be sustained, we find further that the contention satisfies the basis and specificity requirements of 10 C.F.R. § 2.714, and we admit it.

Renumbered Contention 3

MP&L seeks suspension of Specification 4.0.4 to allow Grand Gulf Unit 1 to attain operating conditions necessary for Scram Discharge Volume surveillance testing (MP&L letter dated August 1, 1983). The Safety Evaluation, on page eight, indicates that this test must be completed within 72 hours after attaining sufficient rod density. Again, 72 hours appears to be an arbitrary figure, with no indication or information to support the assertion that it is sufficiently short to insure safety.

This contention, like the previous one, concerns a one-time suspension of the technical specifications to allow a test, which has now been completed. For the reasons given with regard to the prior contention, we cannot sustain Licensees' objections on the ground of mootness. Furthermore, we find that the contention satisfies the basis and specificity requirements of § 2.714.

The contention is admitted.

III. SCHEDULING

The two admitted contentions appear relatively simple. Discovery should not take long. Furthermore, we would encourage the parties to informally supply whatever relevant information is sought by the others. We would expect that discovery would be completed within three months. Although we will not now order that it be completed by then, we do require that each of the parties submit a status report at that time informing us of all the matters that have yet to be resolved preparatory to the hearing. The Board will schedule further proceedings at that time.

Order

For all of the foregoing reasons and based upon a consideration of the entire record in this matter, it is, this 23rd day of April 1984,

ORDERED:

1. That Petitioner JULEP *is admitted* to the proceeding as an Intervenor;
2. That JULEP's Renumbered Contentions 2 and 3 *are admitted*, and the others *are denied*;
3. That discovery shall now commence; and
4. That the parties shall each file a status report with the Board by August 1, 1984, advising the Board of all unresolved matters preparatory to hearing and of the parties' respective suggestions as to the dates for scheduling the final prehearing conference and the hearing.

Licensees shall have until ten (10) days after service of this Order, pursuant to 10 C.F.R. § 2.714a, to appeal this Order.

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**Herbert Grossman, Chairman
ADMINISTRATIVE JUDGE**

**April 23, 1984
Bethesda, Maryland**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

John G. Davis, Director

In the Matter of

(10 C.F.R. § 2.206)

SHIPMENTS OF HIGH LEVEL NUCLEAR
POWER PLANT WASTE

April 13, 1984

The Director of the Office of Nuclear Material Safety and Safeguards denies a request from the Sierra Club that the NRC halt all dry cask shipments of spent fuel in certain model casks until appropriate analyses are performed of an incident involving possible oxidation of spent fuel shipped to Battelle Columbus Laboratories.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

By letter to Charles E. MacDonald, Chief, Transportation Certification Branch of the Nuclear Regulatory Commission (NRC) dated November 7, 1983, Marvin Resnikoff, on behalf of the Sierra Club, requested the NRC to halt all dry cask shipments of spent fuel in Model Nos. NLI-1/2, NFS-4 (NAC-1) and IF-300 casks, including shipments from West Valley, New York and the Cooper Nuclear Station in Nebraska, until appropriate analyses are performed of an incident involving possible oxidation of spent fuel in a shipping cask received at Battelle Columbus Laboratories (BCL) in Ohio. In support of its request, the Sierra Club stated "[i]f nuclear fuel is shipped dry and an accident involving impact and fire occurs, then uranium could oxidize rapidly, producing a radioactive dust. As far as we are aware, this type of accident has not been analyzed by the NRC." The Sierra Club also requested that NRC:

1. Require General Electric (GE) and Nuclear Assurance Corporation (NAC) to update their Safety Analysis Reports (SAR) for the IF-300 NLI-1/2, and NFS-4 (NAC-1) casks to consider oxidized fuel; and
2. Reanalyze accident scenarios in NUREG-0170, NUREG/CR-0743, and NUREG/CR-2472 to consider the oxidation phenomenon.

Notice of receipt of the request and the NRC's intent to treat the request as a petition under 10 C.F.R. § 2.206 of the Commission's regulations was published in the *Federal Register* on December 5, 1983 (48 Fed. Reg. 54,550).

For the reasons set forth below, I have determined that: (1) fuel shipments need not be halted, (2) GE and NAC need not update their Safety Analysis Reports, and (3) the NRC accident scenarios to evaluate potential impacts of transportation need not be reanalyzed.

BACKGROUND

The NRC establishes safety and design standards for packages, known as Type B packaging, used to transport potentially hazardous radioactive materials, including spent reactor fuel. These standards require Type B packages to withstand conditions incident to normal transport (*see* 10 C.F.R. §§ 71.51(a) and 71.71) and certain hypothetical accident conditions, including impact and fire, without serious loss of containment and limited loss of shielding capability (*see* 10 C.F.R. §§ 71.51(a) and 71.73). The NRC reviews and specifically approves each Type B package design (10 C.F.R. § 71.31) to assure that the design meets applicable requirements. The approvals are issued in the form of a Certificate of Compliance for each package design. The NRC rules (10 C.F.R. Part 71) also require various procedural, administrative and technical requirements to be followed for use of Type B packages. The NRC regulations also specify Quality Assurance standards under which packages must be designed, fabricated, and used and require an NRC-approved Quality Assurance Program (10 C.F.R. § 71.101).

The NRC has conducted several studies of the environmental impacts of the transportation of radioactive materials, including spent fuel (WASH-1238, "Environmental Survey of Transportation of Radioactive Materials to and from Nuclear Power Plants," December 1972; and NUREG-0170, "Final Environmental Statement on the Transportation of Radioactive Material by Air and Other Modes," December 1977). In each case, the risk of radiological effects from the transport of spent fuel under both normal and accident conditions was found to be small.

INCIDENT

Details of the incident at BCL form the basis of Sierra Club's request and are documented in R.W. Klingensmith, *Airborne Contamination Released During Underwater Unloading of a Failed PWR Spent Fuel Assembly*, PATRAM Proceedings — Berlin, 646-53 (1980), and V. Pasupathi and R.W. Klingensmith, "Investigation of Stainless Steel Clad Fuel Rod Failures and Fuel Performance in the Connecticut Yankee Reactor," EPRI-2119, November 1981. Basically, in May 1980, an irradiated fuel assembly with known severe cladding failure (stainless steel) was shipped to BCL for examination. The fuel was shipped dry in a Model No. NFS-4 cask. Rod failure included 4-5-foot-long cracks approximately 1/8-inch wide. During shipment, the fuel may have reached a temperature of 285°C in an air environment. Upon removal of the cask head following flooding of the cask cavity and with the cask submerged in the pool, a dark cloud of material emanated from the cask. This resulted in contamination of the pool water and airborne contamination within the cask handling area.

No significant radiation doses were received by any employees during the incident and there was no release of radioactive material from the building.

The circumstances associated with the incident were reviewed in a routine NRC inspection at the BCL facility. The results were reported in Region III Inspection Report Nos. 70-008/80-02; 30-5728/80-02; 50-6/80-01 (November 25, 1980). A Notice of Violation was issued to BCL on December 8, 1980, for an overexposure to an employee's hand during preparation of the cask for reuse and for radioactivity in the fuel storage pool exceeding license conditions.

Subsequent to the incident, BCL reviewed and revised their receipt and handling procedures to consider receipt of failed fuel. Also, the Commission amended the Certificate of Compliance for the Model No. NFS-4 cask to preclude shipment of failed fuel assemblies (pellets) which are oxidized and to authorize other failed fuel to be shipped only in a dry non-oxidizing atmosphere. (Certificate of Compliance No. 6698, Rev. No. 15, to Nuclear Assurance Corporation and all users dated January 25, 1982.)

There are other Certificates of Compliance issued for Model Nos. IF-300, NLI-1/2, TN-8, TN-8L, TN-9, and NLI-10/24 casks which authorize the dry shipment of spent fuel. Certificates of Compliance for Model Nos. NLI-1/2 and NLI-10/24 casks require inerting of the cask cavity. The Certificates of Compliance for the Model Nos. NFS-4, IF-300, TN-8, TN-8L, and TN-9 casks permit an air environment.

DISCUSSION

In its petition, the Sierra Club does not ask that shipments of spent fuel be halted because of noncompliance with regulatory requirements. Rather, it asserts that the BCL incident is a type of incident that has not been previously considered by the NRC and that approvals issued by the NRC do not consider the oxidation phenomenon.

Following the receipt of the petition, the UO_2 fuel oxidation phenomenon and its potential impact on the transportation of irradiated power reactor fuel assemblies were further assessed in NRC Research Information Letter (RIL) No. 139, "Potential Oxidation of UO_2 in Irradiated Fuel and Its Regulatory Implications," March 5, 1984 (RIL-139), a copy of which is appended to this decision (not published). Its conclusions are briefly summarized below.

Under certain conditions UO_2 can react with available oxygen to form higher oxidation states. One of these higher oxidation states is U_3O_8 . Production of U_3O_8 is accompanied by a decrease in density from that of UO_2 (*i.e.*, volumetric expansion). The U_3O_8 expands and breaks off to form a powder as it is produced from the oxidation of the original UO_2 . This process is known as spalling.

The conditions necessary for UO_2 to achieve higher oxidation states are the presence of oxygen and sufficient heat. Conversely, the absence of either oxygen or sufficient heat will preclude UO_2 oxidation. In most cases spent fuel which is shipped is undamaged (*i.e.*, >97% of rods are expected to have undamaged cladding). Because the fuel rods are filled with helium, one of the necessary conditions for oxidation is not present (*i.e.*, oxygen) when cladding is not damaged. So, in the case of undamaged rods, even with high levels of heating, oxidation of UO_2 to higher oxidation states is precluded.

For damaged fuel rods, the internal helium gas would be lost. Such fuel would be exposed to its immediate ambient environment. In the case of spent fuel in transport, the immediate environment would be the cask cavity gas. If the cavity gas contains oxygen, one of the necessary conditions for oxidation is met. If sufficient heat is also present, then oxidation could take place. Experimental data indicate that temperatures exceeding 150°C (302°F) may be sufficient for UO_2 oxidation. Thermal analyses on NRC-approved spent fuel casks indicate that peak fuel temperatures, even with relatively low internal heat loads, may exceed 150°C under the normal and hypothetical accident conditions considered under the requirements of 10 C.F.R. Part 71.

Oxidation of UO_2 in failed fuel rods causes spalling of the fuel matrix. As the fuel spalls, dispersible radioactive material is produced. The spall

product releases additional gaseous fission products and contaminated particles. Although the start of spalling (*i.e.*, reaction initiation) is not immediate once the conditions necessary for oxidation are present, it can occur in a matter of minutes to hours at temperatures of 250°C or more, in a matter of days at about 200°C, and over a matter of years at about 150°C. It is evident that lower temperatures delay the initiation of the potential for UO₂ oxidation, but lower temperatures do not necessarily preclude it.

The spall product increases the available dispersible radioactive material but does not significantly add to the driving force needed to release material from a cask. The shipping casks have been designed to preclude the release of radioactive material under normal and hypothetical accident conditions of 10 C.F.R. Part 71. Because oxidation does not create or add to the driving force for release evaluated in the Part 71 analyses, these air-filled casks will preclude release even for conditions where oxidation occurs.

The potential of UO₂ oxidation does not reduce packaging effectiveness for normal or hypothetical accident conditions of 10 C.F.R. Part 71. The overall risk to public health and safety for conditions beyond the hypothetical accident conditions of 10 C.F.R. Part 71 and for sabotage events has been considered. Evaluations were done in the past (NUREG-0170; WASH-1238; NUREG/CR-0743, "Transportation of Radionuclides in Urban Environs: Draft Environmental Assessment," July 1980; and NUREG/CR-2472, "Final Report on Shipping Cask Sabotage Source Term Investigation," October 1982), but the possibility of UO₂ spalling was not specifically considered in these reports. Evaluations were performed recently by the NRC's Office of Research to determine if there was any increase in risk over previous studies from potential oxidation in the five air-filled cask designs and two helium-filled cask designs (*see* RIL-139, at 13-15, 19-23.) In both cases it was estimated that consequences are not increased by more than a factor of 4.0 and that impact on risk is minor (<15% increase). This upper bound of increased risk is not considered significant. For example, based on 2,182 spent fuel shipments/year (70% by truck and 30% by train), there is a likelihood of one latent cancer fatality in 2,060 years from an extremely severe transportation accident in which oxidation occurs.

The other situation to be considered for air-filled casks is the receipt and handling of these packages. While fuel oxidation does not significantly alter the risks of transport, it could increase the risks of personnel exposure during receiving and handling operations. This is especially true if the occurrence of oxidation is unsuspected; or if oxidation is suspected, but the extent of oxidation is unknown.

In view of the foregoing, and because there is no practical means of identifying all failed fuel assemblies, particularly if the cladding defects are small, I have concluded that the public health and safety requires that all dry spent fuel shipping casks should be inerted for shipment in order to avoid handling problems at facilities receiving spent fuel. In addition, fuel assemblies (rods) known or suspected to be failed should be canned for shipment. Accordingly, the applicable NRC Certificates of Compliance have been revised to require inerting for shipment. In addition, the certificates, except Certificate of Compliance No. 9010, prohibit shipment of failed fuel assemblies and fuel with cladding defects greater than pin holes and hairline cracks. Certificate No. 9010 permits such shipment only if the fuel is canned appropriately for shipment. Revisions may be made to the other certificates in the future to permit shipments of canned failed fuel. Copies of the revised certificates are attached to this decision.

CONCLUSION

The Sierra Club's request to halt all dry cask shipments of spent fuel including shipments from West Valley, New York and the Cooper Nuclear Station in Nebraska is based on its belief that appropriate analyses of fuel oxidation have not been performed. As outlined above, and in RIL-139, the issue of fuel oxidation has been addressed. Based on the information available to the NRC, the regulations governing the transportation of spent fuel and the requirements for inerting dry spent fuel casks and canning grossly failed spent fuel are adequate to protect public health and safety. Consequently, the Sierra Club's first request to halt shipments is denied. Because of the action taken to require inerting of all dry cask shipments of spent fuel, the Sierra Club's second request to require General Electric and Nuclear Assurance Corporation to update their Safety Analysis Reports to consider oxidized fuel is also denied. Based on the analysis of fuel oxidation as described in RIL-139 and the finding therein that the oxidation phenomenon is not a significant contribution to overall transport risk, the Sierra Club's third request to reanalyze accident scenarios in NUREG-0170, NUREG/CR-0743, and NUREG/CR-2472 is also denied.

A copy of this decision will be filed with the Secretary for the Commission's review in accordance with 10 C.F.R. § 2.206(c) of the Commission's regulations. As provided in 10 C.F.R. § 2.206(c), the decision will constitute the final action of the Commission 25 days after the date of

issuance, unless the Commission on its own motion institutes review of this decision within that time.

John G. Davis, Director
Office of Nuclear Material
Safety and Safeguards

Dated at Silver Spring, Maryland,
this 13th day of April 1984.

[The Appendix has been omitted from this publication but may be found in the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555.]

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of

Docket No. 50-271
(10 C.F.R. § 2.206)VERMONT YANKEE NUCLEAR
POWER CORPORATION
(Vermont Yankee Nuclear
Power Station)

April 16, 1984

The Director of the Office of Nuclear Reactor Regulation denies a petition pursuant to 10 C.F.R. § 2.206 from the Vermont Public Interest Research Group and the Vermont Yankee Decommissioning Alliance requesting issuance of an order to the Vermont Yankee Nuclear Power Corporation to show cause why its license should not be suspended pending resolution of certain issues related to intergranular stress corrosion cracking of reactor piping at the Vermont Yankee facility.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

The Vermont Public Interest Research Group (VPIRG) and the Vermont Yankee Decommissioning Alliance (VYDA) submitted a petition pursuant to 10 C.F.R. § 2.206 on October 25, 1983 requesting that the Nuclear Regulatory Commission (NRC) issue an order to Vermont Yankee Nuclear Power Corporation (licensee) requiring it to show cause why its license should not be suspended pending resolution of certain issues related to pipe cracks in its Vermont Yankee facility. Notice of receipt of this request was published in the *Federal Register* on November 17, 1983 (48 Fed. Reg. 52,370).

VPIRG/VYDA assert as the basis for their requested action a number of concerns with intergranular stress corrosion cracking (IGSCC) of reactor piping at the Vermont Yankee plant. After considering the request and for the reasons set forth below, I have concluded that continued operation of the Vermont Yankee Nuclear Power Station does not adversely affect the public health and safety and, therefore, no adequate basis exists to take the requested action at this time. Accordingly, I have determined that the VPIRG/VYDA request should be denied.

I.

The issue of IGSCC has been of concern to the staff for a number of years. As a result of extensive IGSCC found in the recirculation system piping of one boiling water reactor (BWR) in the spring of 1982, the NRC required inspections at other BWRs in 1982 and 1983. As further information was gathered from plant inspections about the extent and nature of the IGSCC problem, substantial industry and NRC effort was expended in conducting and improving inspection activities in this area.*

During the spring 1983 refueling outage at Vermont Yankee, augmented inservice inspection was performed on the recirculation system piping in accordance with Office of Inspection and Enforcement (I&E) Bulletin 83-02. The initial sample size covered twenty-six welds and was later expanded to sixty welds (including two residual heat removal (RHR) system welds) after ultrasonic indications were reported on welds in the initial sampling. The sixty welds inspected consist of forty, 12-inch-diameter riser welds and twenty large-diameter (≥ 20 -inch) piping welds. The criteria for selecting welds for examination included the consideration of high susceptibility rating in terms of stress rule index and carbon content matrix, inspection results from earlier examinations, and IGSCC experienced at other BWR plants.

The ultrasonic tests (UT) of pipe welds were performed by Magnaflux Company for the licensee. Their UT procedures, equipment, and personnel have satisfactorily demonstrated their inspection capability on the IGSCC cracked samples at the Electric Power Research Institute's (EPRI) Nondestructive Examination (NDE) Center in accordance with I&E Bulletin 83-02.

A total of thirty-four welds were found to show linear indications of possible cracks and all indications were reported to be parallel to the

*SECY-83-267C, "Staff Requirements for Reinspection of BWR Piping and Repair of Cracked Piping" November 7, 1983.

weld in the heat-affected zone (HAZ). The deepest indication was reported in a 12-inch-diameter riser weld and was 50% of wall thickness. The reported indications in the large-size pipe welds were relatively shallow and did not exceed 15% of wall thickness.

All thirty-four welds with UT indications were evaluated by NUTECH for the licensee using the methodology provided in the American Society of Mechanical Engineer's (ASME) Code Section XI IWB-3600. The twelve large-diameter welds with UT indications were found conditionally acceptable for returning to service for a 12-month fuel cycle after considering the IGSCC and fatigue crack growth. All twenty-two, 12-inch-diameter riser welds with UT indications were repaired by NUTECH using the weld overlay technique, and each overlay design was shown to meet the ASME Section III requirements including fatigue considerations. The licensee also installed local leak detection sensors (moisture-sensitive tapes) on seven uninspected 28-inch-diameter welds.

The staff reviewed Vermont Yankee's submittals regarding the inspection results including the description of the defects found, the repairs and the associated stress and fracture mechanics analyses and permitted the Vermont Yankee plant to return to power operation in its present configuration for one 12-month fuel cycle. Because of concern over the possible long-term growth of small IGSCC that may be present but not detected during the last inspection, the staff required that additional monitoring and tighter limits on unidentified leakage be implemented and that plans for inspection and/or modification of the recirculation and other reactor coolant pressure boundary (RCPB) piping systems during the next refueling outage, which is now scheduled for July 1984, be submitted for the staff review at least one month before the start of the next refueling outage.*

II.

The bases for staff judgment that continued operation of the Vermont Yankee Nuclear Power Station does not adversely affect the public health and safety can be summarized as follows:

1. A large percentage of welds, which are representative of those most likely to suffer IGSCC, were inspected during the last outage. For those welds having crack indications, weld repairs which the staff considers adequate were made. The staff's judgment is that all cracks which have been repaired will not fail

*"Order Confirming Licensee Commitments on Pipe Crack Related Issues," June 27, 1983 (48 Fed. Reg. 31,320 (1983)).

during a single operating cycle. No judgments have been made at this time concerning continued operation with these repairs beyond the current operating cycle.

2. For those welds not inspected, the staff has concluded that some of the large-diameter pipe welds probably will have IGSCC. However, based on the analysis of the results from the sampled welds, no uninspected circumferential cracks are expected to currently exceed much beyond 15% of the wall thickness. Consequently, these cracks would not be deep enough to jeopardize the safe operation of the plant before the next scheduled refueling outage. This is because the primary pipes at the Vermont Yankee Nuclear Power Station, even with IGSCC, will behave in a predictable nonbrittle manner with low crack growth rate.
3. Even if a crack were to grow completely through the pipe wall during the current operating cycle, analyses and experience indicate that it is likely that the pipe would leak for a period of time before pipe rupture. To address this possibility, the staff required enhanced leak detection capability. Leak detection systems now in place would detect a leak before pipe rupture.
4. Finally, if a large pipe were to rupture during the current operating cycle, which the staff judges to be extremely unlikely, analyses and experiments indicate that the emergency core cooling systems would operate to maintain any offsite radioactive releases within regulatory limits.

III.

To support their request for issuance of an order to show cause to Vermont Yankee, VPIRG and VYDA relied on a number of facts and assertions. In order to respond in an organized fashion to the petition, the staff has grouped these assertions into several issues listed below. The numbered paragraphs in the petition pertaining to each issue are identified in parentheses. Some paragraphs (such as statements of facts) do not appear because no specific response to these paragraphs is necessary. The issues are:

1. The quality of UT inspection at Vermont Yankee;
2. The scope and extent of UT inspection;
3. The adequacy of weld overlay repairs;
4. Compliance with NRC regulations; and
5. Lack of assurance of safe operation of the facility.

Each of these issues is summarized below and followed by the staff's evaluation and response.

Issue 1

A good quality of UT inspection of the pipe welds has not been assured (4, 31, 32, 33, 34, 53, 58) because:

- a. According to the "EPRI UT Sizing Round Robin Results," Magnaflux has used an unreliable inspection method at Vermont Yankee. (26, 27, 28, 29, 30)
- b. The Advisory Committee on Reactor Safeguards (ACRS) has expressed concern over the efficacy of UT sizing, evaluation procedures, and the weld overlay repair method, all of which pertain to Vermont Yankee. (3, 35, 36, 37, 43)
- c. The results of inspection at Vermont Yankee indicated that a large number of cracks were found. (18, 38, 39)
- d. The Executive Director for Operations (EDO) has stated concern over the reliability of UT sizing, as expressed in SECY-83-267, dated July 1, 1983. (3, 24)

Staff Response

Magnaflux was contracted by the licensee to perform UT inspection at Vermont Yankee. Magnaflux used the procedures and methods required by the ASME Code Section XI to detect and size the IGSCC indications in the Vermont Yankee recirculation and RHR piping systems. The overall quality of UT inspection at Vermont Yankee was carefully reevaluated by an NRC ad hoc task force, consisting of NRC staff from the Office of Nuclear Reactor Regulation (NRR), I&E, Region I and their consultants and the recently established NRC Piping Review Committee. Both groups found the quality to be acceptable. The bases of the task force conclusions and the staff's responses to this category of contentions are summarized below:

- Magnaflux's UT procedures, equipment, calibration standards and personnel had satisfactorily demonstrated the required performance capability on the IGSCC cracked samples at EPRI's NDE Center in accordance with I&E Bulletin 83-02.
- The licensee conservatively reported the depth of UT indications by doubling the crack depth measured by UT and then used this value in the fracture mechanics evaluation. This additional margin compensates partially for the possible sizing errors.

- The licensee took the position that, unless absolutely certain that it was a geometric reflector, the indication was classified as IGSCC.
- Decontamination of piping probably enhanced the UT detection capability of IGSCC.
- Joints with extensive construction weld repair were determined and inspected.
- The quality of UT inspection cannot be judged solely by the failure to identify an axial indication. Because of its orientation, an axial indication is very easy to miss. If an axial indication is very close to the weld crown and the weld is not ground flush, the axial indication is more easily missed. Further, the axial cracks are generally limited in length, *i.e.*, confined by the width of the HAZ. The consequence of a throughwall penetration of axial cracks is to leak, not to rupture; therefore, it is not a significant factor in the pipe integrity consideration.*
- The Magnaflux UT procedure for crack depth sizing, like other procedures currently in use, is a state-of-the-art procedure; as such, it would be difficult to assess how well Magnaflux, using its UT procedures can size the IGSCC indications because the preliminary sizing round robin conducted by EPRI/NDE Center was the first of its kind. This situation may serve to explain why the ACRS felt that “there is no consistent experimental evidence or body of expert opinion indicating that the measured crack depths bear any direct relationship to the actual crack depths . . .” While the staff shares ACRS’ concern as quoted, the staff does not necessarily agree with ACRS’ conclusion regarding the crack characterization because such a concern may be applicable only to the depth sizing. The field capability to size the crack length, which is at least as important in assessing the integrity of piping welds containing cracks, is considered much better than that for depth sizing.

In the December 19, 1983 letter, from J.J. Ray to Chairman Palladino, the ACRS recommends that “the uncertainty in crack depth be compensated for by the repair of any weld joint with effectively continuous crack indications over greater than 120 degrees circumferential extent.” Interpreting this proposed criterion literally, the staff identified four unrepaired welds at

*A small throughwall axial crack was found during weld overlay repair of each of the 12-inch riser welds (No. 35 and No. 40)

Vermont Yankee that would not meet this criterion. Subsequently, the staff made an assessment of these four welds (two of which had 360° intermittent indications) and concluded that continued operation of the Vermont Yankee plant is justified because the measured crack depths of these welds were shallow, *i.e.*, they did not exceed 15% of the wall thickness. Even if the crack depths were a factor of two larger than measured, growth to the Code acceptance limits during the present operating cycle (scheduled to end mid-June 1984) would be unlikely. Further, on the basis of evidence previously obtained at other BWRs, these shallow indications reported at Vermont Yankee, including the so-called "360°-intermittent" indications, are most likely metallurgical reflectors. This conclusion tends to be confirmed by the results of recent examinations of some sample welds at another BWR, using advanced techniques that have been developed under NRC sponsorship.

- The first EPRI sizing round robin results illustrate that the amplitude-based UT sizing method currently endorsed by the Code is inadequate in sizing IGSCC. In addition, it also shows that the best state-of-the-art sizing procedures, which utilize more than one technique (including crack tip diffraction but not limited to this technique alone) need to be developed for field use in the near future. It should also be emphasized that even with the best state-of-the-art sizing procedures, an intensive program of training and field application will be needed before a consistent and reliable UT sizing of IGSCC indications can be achieved. The staff, therefore, concludes that Vermont Yankee could not have used the UT procedure relying solely on the crack tip diffraction principle during this 1983 inspection.
- As demonstrated in the Performance Capability Demonstration and EPRI UT sizing round robin, not only under-call (calling a crack a non-crack or calling crack depth shallower than the actual depth) but the possible over-call (calling a non-crack a crack or calling crack depth deeper than the actual crack) of UT sizing should also be factored into the consideration of how much margin should be added to the reported crack depth to obtain a realistic crack depth for evaluation.
- While the memorandum sent by the Executive Director for Operations to the Commission (SECY-83-267, July 1, 1983) did indicate the staff's concern over the efficacy of current UT sizing procedures, the primary concern is directed more at the

generic aspects of UT inspection and to point out the need for further improvement in the overall UT inspection process, rather than the specific quality of UT inspection at Vermont Yankee.

- Having recognized the limitation of the current state-of-the-art UT sizing procedures, the staff has not accepted the reported crack depths on the basis of “faith” nor has it taken the unrealistic approach of categorically assuming the crack was throughwall. Rather, the staff followed the traditional practical, yet conservative regulatory approach and considered all aspects of UT sizing uncertainties to arrive at an incremental depth to be added to the reported crack depth for flaw evaluations.

For the reasons discussed above, the inspection that was performed was sufficient for the staff to assess the condition of the plant in order to determine the safety of continued operation.

Issue 2

The scope and extent of UT inspections are insufficient to ensure continuous safe operation of the plant (17, 52, 57) because:

- a. The inspection results indicated that Vermont Yankee has the highest percentage of IGSCC indications in the recirculation and residual heat removal systems when compared with all of the BWRs in the U.S. which were inspected before September 1, 1983. (50)
- b. Current NRC policy requires that reactor water clean-up (RWCU) and core spray systems be inspected. Such inspection has not been performed at Vermont Yankee. (16, 19)

Staff Response

Although neither 100% inspection of the recirculation and RHR systems piping welds nor inspections of core spray and RWCU systems piping welds were performed during the spring 1983 outage, the NRC Ad Hoc Task Force and Piping Review Committee, after a careful evaluation of the inspection results, inspection resources, and inspector exposure, concluded that reinspections of piping welds in these piping systems before the next refueling outage are not warranted. The bases for this conclusion are summarized below:

- One of the main inspection objectives is to gauge how widespread the problem of IGSCC is in the recirculation and RHR piping systems. Within the constraints of inspection resources

and inspection exposure, this objective can best be accomplished through a sampling scheme plus sample expansion if cracking is found, as specified in I&E Bulletin 83-02.

- The licensee inspected approximately 60% of the high susceptibility welds in the recirculation and RHR systems piping. It found approximately 60% of those inspected to have the relevant IGSCC indications, which was, in fact, the highest percentage of such indications found in any of the BWRs in the U.S. which were inspected before September 1, 1983. All indications were reported to be parallel to the weld in the HAZ. The deepest indication reported in the 12-inch-diameter riser welds, all of which were inspected, was 50% throughwall. The reported indications in the pipe welds larger than 12 inches in diameter were relatively shallow and did not exceed 15% of wall thickness. It was, therefore, concluded that the uninspected large-diameter pipe welds probably will have IGSCC. However, on the basis of the results from the sampled welds, none of these circumferential cracks should be expected to exceed much beyond 15% of wall thickness. Consequently, they should not be deep enough to jeopardize the safe operation of the plant until the next scheduled refueling outage.
- The Class 1 portions of the core spray and RWCU systems piping were replaced with corrosion-resistant material of Type 316L (low carbon), austenitic stainless steel, a conforming, corrosion-resistant material, accepted by the staff (NUREG-0313, Rev. 1) in 1977 and 1980, respectively. Therefore, they are unlikely to have suffered IGSCC, and augmented inservice inspection is not necessary. (As discussed in some detail on p. 1105, *infra*.)

Issue 3

Weld overlay repairs performed at Vermont Yankee are insufficient to ensure that adequate safety margins exist in the piping for safe operation under normal and faulted conditions (52, 56) because:

- a. Of ACRS concern over the efficacy of UT sizing. (3, 46)
- b. Overlay thickness was determined by the UT sizing method which is unreliable. (47)

Staff Response

Although the staff does not necessarily agree with the residual stress distribution and crack growth rate curve used by NUTECH in its flaw evaluation for the licensee, we do concur with its conclusions, because the staff's own independent calculations, using more conservative stress distributions and growth rate curves, have also confirmed that all repairs will provide adequate assurance of safe operation during the present fuel cycle. The bases for this conclusion and our general responses to this area of the petitioners' concerns are summarized below:

- A more realistic fracture mechanics model, with a cracked cylinder and an operating pressure of 1000 psi, rather than a single-edged flat plate and a design pressure of 1250 psi as used by NUTECH, were employed in the staff's calculation.
- The flaw evaluation was based on a conservative yet realistic crack depth rather than adopting the crack depth exactly as reported. This conservative and realistic crack depth was obtained by adding an increment to the reported crack depth to cover the sizing uncertainties.
- The crack growth is governed only by the steady-state stresses. Although the seismic stress was not explicitly included in the crack growth evaluation, it was found that the contribution to the crack growth calculation due to seismic or other transient stresses is insignificant.
- Although the overlay itself may make the underlying IGSCC uninspectable, no growth of IGSCC is expected because of the favorable, compressive residual stress pattern developed by the weld overlay repair operation. Further, the overlay itself can be inspected by UT to see whether the crack has grown into the overlay.

Issue 4

The failure to perform an adequate inspection at Vermont Yankee violates Quality Assurance Criterion X of Appendix B to Part 50. The inadequate inspection process, testing procedures and repair designs also raise the question of whether Vermont Yankee continues to satisfy certain General Design Criteria of Appendix A to Part 50. (20, 51, 54, 55, 58-73)

Staff Response

VPIRG and VYDA allege that, for the various reasons they asserted in their petition, the inspection performed at Vermont Yankee was inadequate and, therefore, violated Criterion X of Appendix B to Part 50 of the Commission's regulations. The part of the criterion which they assert was violated in this case states, "[e]xaminations, measurements, or tests of material or products processed shall be performed for each work operation where necessary to assure quality." We have concluded that Vermont Yankee has satisfactorily complied with Appendix B requirements.

The quality of each pipe weld in a piping system is assured through a periodic inservice inspection. However, this does not necessarily mean that each weld in a given piping system performing the same functions and under the same environment needs to be inspected every time. The quality of each weld may be indirectly ensured through the inspection results of a representative sample of welds in the same piping system. This is one of the principles of inservice inspection of ASME Code Section XI. In the previous sections of this decision, we have concluded that the quality and scope of the UT inspections performed at Vermont Yankee were adequate. Consequently, the staff has concluded that no violation of Appendix B has occurred.

Similarly, the staff has concluded that General Design Criteria (GDC) 1, 14, 30, and 31 have been satisfied.* The petitioners assert as the basis for their conclusion that Vermont Yankee fails to satisfy the GDC because of the unreliability of the ultrasonic testing procedure, the inadequate extent of UT inspection and the faulty repair designs.

Each of these assertions has been specifically addressed above. A review of experimental results, the results of inspections and destructive testing, and plant operating experience indicates that:

- (1) the cracking found at the Vermont Yankee facility is consistent with the expected behavior of "leak-before-break" in piping of this material,
- (2) the crack growth rates under BWR operating conditions are low, and
- (3) if a crack were to go undetected and to grow completely through the pipe wall, it would likely leak for a period of time before pipe rupture. Moreover, Vermont Yankee has experienced only a few leakages in the RWCU system piping during

*GDC 1, Quality Standards and Records; GDC 14, Reactor Coolant Pressure Boundary; GDC 30, Quality of Reactor Coolant Pressure Boundary; GDC 31, Fracture Prevention of Reactor Coolant Pressure Boundary.

inspections (the amounts of leakage were so small that they were not detected during operation).

On the basis of the earlier discussions, the staff has also concluded that primary piping systems in Vermont Yankee, even with IGSCC, will behave in a nonbrittle manner and, because of toughness of the material, are unlikely to propagate cracks rapidly. This conclusion is supported by the analyses, experimental results, inspection findings, destructive testing, and plant operating experience with regard to inservice leakage at Vermont Yankee and other BWRs' primary piping systems.

In summary, the staff considers that the Vermont Yankee licensee has performed sufficient inspections at the last outage to reveal the extent of IGSCC in the recirculation and RHR piping systems, has used the state-of-the-art UT procedure to size the cracks, and has adequately performed the weld overlay repairs to ensure safe operation of the plant for at least a 12-month fuel cycle. We, therefore, conclude that the GDC have been satisfied.

Issue 5

Because of the extent of IGSCC there is a possible significant increase in the probability of a loss-of-coolant accident (LOCA) and a decrease in the facility's safety margins such that continued operation of Vermont Yankee will pose undue risk to public health and safety. (2, 44, 48, 49)

Staff Response

The VPIRG and VYDA contend that there is no assurance that the Vermont Yankee plant will perform its safety function under accident conditions because of all of the contentions discussed above and the following additional concerns:

- Possible presence of IGSCC in the core spray system will jeopardize its emergency core cooling system (ECCS) function.
- An unreliable inspection method may result in the increase of the probability of an abnormal leakage, pipe failure and rupture and also may result in the acceptance of a higher probability of a LOCA than has been considered acceptable.

As discussed above, the staff has reviewed the information submitted by the petitioners and has carefully considered (1) the quality of the last inspection and the level of performance demonstrated by the inspectors, (2) the extent of the last inspection, (3) the results of the last inspection, (4) the remedial measures taken when cracking was discovered, (5) past and current limitations on detection and sizing of

cracks, (6) time to the next refueling outage, and (7) the additional monitoring and tighter limits on unidentified leakage. As a result of these considerations and for the reasons discussed above, the staff has concluded that there is reasonable assurance that Vermont Yankee can operate safely and will perform its safety functions under normal and postulated accident conditions. Additional bases for the staff's conclusions are:

- The nonisolable portion of core spray system piping was replaced with Type 316L (low carbon) austenitic stainless steel which has been accepted as conforming, corrosion-resistant material. The Type 316L piping welds have been shown in extensive laboratory studies to be significantly less likely to develop IGSCC in the BWR environment. Therefore, the ECCS function of core spray system will not be compromised.
- As discussed previously, Vermont Yankee had used the state-of-the-art UT procedure in its last inspection. Despite the fact that the procedure has been shown to be not very accurate in sizing the crack depth, when the seven factors mentioned above are considered, the staff has nevertheless concluded that the overall UT inspection performed at Vermont Yankee was adequate. Based on the conservatively reported UT results, the welds with crack indications were evaluated in accordance with the ASME Section XI Code, IWB-3600 criteria and were either accepted without repair, or repaired with weld overlay. Each weld overlay design was shown to meet the ASME Section III requirements including fatigue considerations. All of the above considerations of adequacy and acceptability have taken into account LOCA probability. Based on the above discussions and extensive staff review of IGSCC problems with respect to the continued operation of Vermont Yankee, the staff concludes that there is not a significant increase in the probability of a LOCA.

IV.

In summary, the staff concludes that inspections at Vermont Yankee were performed in accordance with I&E Bulletin 83-02, that repairs performed are acceptable, and that the Vermont Yankee plant can be safely operated at least through the current refueling cycle of 12 months without undue risk to public health and safety. The results of experimental work, plant operating experience, and the results of inspections and

destructive testing all contribute to this conclusion. A review of experimental results indicates that crack growth rates under BWR operating conditions are low. The history of operating BWR plants also tends to support these experimental results. If a crack were to grow completely through the pipe wall, analyses and experience indicate that the pipe would likely leak for a period of time before pipe rupture.

The inspection findings to date have also generally shown cracking patterns that would be expected for these pipe sizes in ASME Class 1 BWR recirculation and residual heat removal piping. The cracks are consistent with the expected behavior of "leak-before-break" in piping of this material which is designed to accommodate normal operational and dynamic loads.

Therefore, I have determined that the actions requested by VPIRG/VYDA are not warranted. The Vermont Yankee plant can be safely operated without undue risk to the public health and safety until the next refueling outage. Consequently, VPIRG/VYDA's request for issuance of a show-cause order to shut down the Vermont Yankee Nuclear Power Station and suspend the operating license is *denied*.

A copy of this decision will be filed with the Secretary of the Commission for review by the Commission in accordance with 10 C.F.R. § 2.206(c) of the Commission's regulations. As provided in 10 C.F.R. § 2.206(c), this decision will constitute final action of the Commission twenty-five (25) days after the date of issuance, unless the Commission on its own motion institutes review of this decision within that time.

Harold R. Denton, Director
Office of Nuclear Reactor
Regulation

Dated at Bethesda, Maryland,
this 16th day of April 1984.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of

Docket No. 50-341
(10 C.F.R. § 2.206)

THE DETROIT EDISON COMPANY
(Enrico Fermi Atomic Power
Plant, Unit 2)

April 20, 1984

The Director of the Office of Nuclear Reactor Regulation concludes that the concerns raised by Monroe County, Michigan, as supplemented by information submitted by Joan Mumaw and Michael Barrett, and by John Minock on behalf of Citizens for Employment and Energy, regarding the County's expertise and resources to carry out its responsibilities under the emergency plan for the Enrico Fermi Atomic Power Plant, Unit 2 have been satisfactorily resolved and adequately addressed in the emergency plans for the facility, and that no further action is required to resolve the County's concerns.

TECHNICAL ISSUE DISCUSSED: EMERGENCY PLANNING

The Federal Emergency Management Agency (FEMA) takes the lead in offsite emergency planning and reviews, assesses State and local emergency plans for adequacy and makes decisions with regard to the overall state of emergency preparedness.

It is the experience of FEMA and the NRC in evaluating well over 100 full-scale emergency preparedness exercises at nuclear power plants that volunteer emergency workers willingly participate in and respond to simulated radiological emergencies as they do to actual emergencies involving toxic and hazardous materials.

TECHNICAL ISSUE DISCUSSED: DECLARATION OF EMERGENCY

NRC regulations and guidance emphasize declaring an emergency based on plant conditions before there is a release of radioactive material. NRC regulations also include a design objective for offsite authorities to have the capability to promptly alert and notify the public following the occurrence of an emergency requiring offsite protective measures.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

Introduction

Monroe County, Michigan (hereinafter referred to as the County), filed a petition to intervene and reopen the record in the operating license proceeding for the Enrico Fermi Atomic Power Plant, Unit 2 (hereinafter referred to as Fermi-2). Fermi-2 is located on the western shore of Lake Erie in Frenchtown Township in Monroe County. The County, through its Board of Commissioners, sought to intervene in the proceeding to obtain appropriate resolution of certain specific issues, each of which was deemed to be beyond the power of the County Commissioners to resolve, in order to carry out the statutory responsibility to prepare an adequate emergency plan for Monroe County for the Fermi-2 plant. The County filed its petition on August 27, 1982, nearly 4 years after the opportunity for timely intervention had expired and after the close of the evidentiary hearings. The Atomic Safety and Licensing Board denied the County's petition in a decision dated October 29, 1982.¹ The County appealed the decision to the Atomic Safety and Licensing Appeal Board which, in a decision dated December 21, 1982, affirmed the denial. However, the Appeal Board noted in its decision that Monroe County's emergency planning concerns were real and should be addressed. The Appeal Board forwarded the petition, together with the transcript of a June 16, 1982 public meeting, to the Nuclear

¹ *Detroit Edison Co. (Enrico Fermi Atomic Power Plant, Unit 2)*, LPB-82-96, 16 NRC 1408, 1437 (1982).

Regulatory Commission (NRC) staff with the request that the papers be treated under 10 C.F.R. § 2.206 of the Commission's regulations.²

Notice of the NRC's intent to treat the County's concerns as a petition under 10 C.F.R. § 2.206 of the Commission's regulations was published in the *Federal Register* on February 1, 1983 (48 Fed. Reg. 4589). Following that notice, two groups expressed an interest in submitting information in support of the issues raised by Monroe County. By letter dated February 10, 1983, Ms. Joan Mumaw and Mr. Michael Barrett, and by letter dated April 1, 1983, Mr. John Minock on behalf of Citizens for Employment and Energy, a group from Michigan, submitted additional information in support of the County's petition.³ Because of the division of responsibilities for evaluation of emergency preparedness for nuclear power plants described more fully below, the NRC requested the assistance of the Federal Emergency Management Agency (FEMA) in responding to the County's concerns. In addition, Detroit Edison submitted comments on the issues in the County's petition by letter dated July 27, 1983.

For the reasons set forth below, I have determined that the concerns of Monroe County have been satisfactorily resolved and are adequately addressed in the emergency plans for the Fermi-2 facility. Therefore, no further action is required to resolve the County's concerns.

Background

As summarized by the Appeal Board, the County asserted that it (1) lacks the bus capacity to evacuate people who are without transportation, (2) doubts the willingness and training of volunteer emergency workers to carry out all of their tasks, (3) lacks sufficient funds or expertise to undertake recovery and reentry operations, (4) questions whether an evacuation can be successfully accomplished,

² *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC 1760 (1982). The County's petition does not fit squarely within the class of requests for relief provided for under 10 C.F.R. § 2.206. The County raises matters pertaining to the initial licensing of the plant, rather than a request for enforcement action. Nonetheless, the staff has treated this request in accordance with § 2.206.

³ Both groups submitted documents which had been prepared for other purposes and which encompassed a broader range of subjects concerning offsite emergency preparedness than those raised by Monroe County. In our request to the Federal Emergency Management Agency for assistance, we requested that to the extent any issues raised by the two groups went beyond the scope of those raised by Monroe County, those issues be considered by FEMA in its overall assessment of the State and local emergency plans for the Fermi-2 facility. Both FEMA and the NRC considered this additional information in their evaluation of the Monroe County Petition. See Memorandum for Richard W. Krimm from Edward L. Jordan, dated June 16, 1983.

given the length of time needed to mobilize command officials, the inadequacy of existing roads and the frequent impassability of the roads in winter, (5) lacks sufficient personnel to staff decontamination/reception centers, (6) questions whether potassium iodide supplies can be made available quickly, (7) believes the monitoring systems now in place to detect radiological releases are inadequate, and (8) doubts that the method chosen for decontamination of cars and trucks is adequate. With the exception of issue number 7 concerning monitoring systems to detect radiological releases, all of the County's concerns involve offsite emergency planning issues. Accordingly, the NRC requested the assistance of the Federal Emergency Management Agency (FEMA) in responding to the County's concerns.

FEMA, by Presidential directive, has been assigned the responsibility for assessing the adequacy of offsite emergency preparedness for nuclear power plants. The cooperative relationship between NRC and FEMA is described in a "Memorandum of Understanding Between NRC and FEMA Relating to Radiological Emergency Planning and Preparedness" dated November 4, 1980. Under the Memorandum of Understanding, FEMA takes the lead in offsite emergency planning and reviews and assesses State and local emergency plans for adequacy. The NRC assesses onsite emergency plans for adequacy and makes decisions with regard to the overall state of emergency preparedness.

In accordance with the respective requirements of the agencies, onsite and offsite emergency preparedness for the Fermi-2 facility has been under active review by the NRC and FEMA. The NRC final rule on emergency planning (45 Fed. Reg. 55,402) became effective on November 3, 1980. The FEMA final rule on the review and approval of State and local radiological emergency plans and preparedness became effective on October 28, 1983 (48 Fed. Reg. 44,332).⁴ FEMA and the NRC have jointly developed criteria for implementing these regulations. Specifically, the agencies have developed a guidance document entitled, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0654/FEMA-REP-1, Revision 1, dated November 1980.

The findings of the ongoing review of the applicant's emergency plan⁵ by the NRC staff were documented in NUREG-0798, Supplement 3, "Safety Evaluation Report Related to the Operation of Enrico Fermi

⁴ The FEMA rule was promulgated in proposed form on June 24, 1980 (45 Fed. Reg. 42,321) and August 19, 1982 (47 Fed. Reg. 36,386) for public comment and interim use.

⁵ Enrico Fermi Atomic Power Plant, Unit 2, Radiological Emergency Response Preparedness Plan, Revision 2, September 1983.

Atomic Power Plant Unit No. 2," January 1983. Another supplement to the safety evaluation report will be published reporting on the status of the completion of the unresolved issues regarding onsite emergency planning identified in Supplement 3. A special preoperational appraisal of the applicant's capability to implement the emergency plan was conducted at the Fermi-2 site by the NRC during the period October 11-21, 1983. The findings of this appraisal are contained in Inspection Report No. 50-341/83-24 dated November 28, 1983. The NRC along with FEMA also observed the full-scale exercise conducted at Fermi-2 on February 1-3, 1982. The results of this phase of the emergency preparedness program are presented in Inspection Report No. 50-341/82-02 dated March 3, 1982.

FEMA has been actively involved in the development and review of offsite emergency plans for Fermi-2. FEMA's findings and determinations have been provided to the NRC by letters dated January 26, 1982, "Interim Findings on the Offsite Emergency Preparedness for Fermi-2"; March 22, 1982, "Supplemental Finding on Fermi-2"; April 30, 1982, "Interim Finding on Fermi-2"; February 28, 1983, "Supplemental Interim Finding on the Status of Offsite Radiological Plans and Preparedness at Fermi-2"; and July 18, 1983, "Supplemental Interim Finding on Offsite Radiological Emergency Planning and Preparedness at Fermi-2." FEMA's responses to the specific concerns raised in the Monroe County petition were provided in a letter to the NRC dated July 18, 1983. The FEMA review of the petition issues included the minutes of the transcript of the June 16, 1982 public meeting (which were forwarded along with the County petition to the NRC staff by the Atomic Safety and Licensing Appeal Board), the two documents submitted as supplemental information for staff consideration in support of the County petition (*see* note 3, *supra*) and other information developed by FEMA in the course of its review of offsite preparedness for Fermi-2.

Role of Monroe County in Emergency Preparedness

In 1980 Monroe County embarked on a planning process in a cooperative effort with Detroit Edison (the applicant) and with the knowledge of the Emergency Management Division of the Michigan State Police, the lead agency for emergency preparedness in the State of Michigan.⁶ A committee was established representing the various agencies and units

⁶ Background information on the development of the Monroe County radiological emergency plan is included in a letter to H.R. Denton, Director, NRR from A.T. Westover, Sr., Chairman, Monroe County Board of Commissioners, dated March 2, 1983.

of local government. One of the objectives of the committee was to obtain local input into the planning process. In October 1981, representatives of the Michigan Emergency Management Division came to Monroe County and held an emergency plan writing workshop which included the County department heads. Out of this effort, the Monroe County emergency plan entitled "Appendix 1, Nuclear Facility Procedures to the Monroe County Emergency Operations Plan" dated November 1981, was developed. Four drills and a full-scale exercise on February 2, 1981, were conducted to test the Monroe County plan. A public meeting was held on February 3, 1982, to critique the exercise and additional public meetings were held on April 28 and June 16, 1982. In the interim, the State formally initiated a request to FEMA in March 1982 to review the Monroe County plan. Notice of receipt of this plan was published in the *Federal Register* on October 25, 1982 (47 Fed. Reg. 47,321). Monroe County contends that the County emergency plan was not approved by the Board of Commissioners and the County was unaware of its formal submittal to FEMA by the State.

Monroe County was concerned that the plan committed the County to certain responsibilities which were beyond the expertise and resources of the County. This, in addition to other emergency planning concerns raised by the County and its citizens, prompted the County Commissioners to petition the NRC to intervene and reopen the record in order to resolve the issues. At about the same time, as noted in a letter to FEMA Region V from Monroe County dated January 11, 1983, the County solicited the applicant's assistance in addressing the County's concerns and upgrading its response capabilities. In December 1983, a draft "Appendix 1, Nuclear Facility Procedures to the Monroe County Emergency Operations Plan" which, as stated in the draft plan, was substantially revised and expanded to reflect the specific needs of Monroe County and to define the use of the County's resources, was completed under the guidance of the Monroe City-County Office of Civil Preparedness. The plan has been reviewed by the Michigan Emergency Management Division and the applicant. It is anticipated that following consideration of the comments from these two organizations, the plan will be submitted through the State to FEMA for review.⁷ Upon completion of this process, the plan is expected to be presented to the County Board of Commissioners for acceptance. It is clear that since the time

⁷ The NRC in accordance with the Memorandum of Understanding between the two agencies has formally requested FEMA to provide findings and determinations to the NRC on the revised Monroe County plan including their assessment of the revised plan regarding the previously provided FEMA findings on the adequacy of offsite preparedness and the specific concerns raised in the Monroe County petition.

the Monroe County petition was submitted to the NRC, positive steps have been taken to revise the County emergency plan to clarify responsibilities for emergency response actions and to resolve the concerns of the County Commissioners. I believe the emergency planning process for Fermi-2 has evolved sufficiently at this time to allow for a comprehensive response to the emergency planning concerns raised in the Monroe County petition.

A discussion of the emergency planning concerns identified in the Monroe County petition based on an NRC staff review of the responses from FEMA and the applicant's comments is presented below.

Discussion of Issues Raised by Monroe County

I. BUS AVAILABILITY

The County is concerned that there is inadequate bus and other capacity to transport persons without automobiles out of the Emergency Planning Zone (EPZ)⁸ and that to transport schoolchildren and others without automobiles out of the EPZ would take three runs over a 6-hour period, a period of time the County contends does not provide assurance of safe evacuation. The County cites in its petition that the available bus capacity is 9,685 persons.

The County's concern appears to be predicated on the assumption that the entire 10-mile-radius EPZ would be evacuated at the same time. It would be an extremely unlikely event for the simultaneous evacuation of the entire EPZ to be ordered as a protective measure. Emergency planning guidance stresses a graduated response within the EPZ in the event of a severe accident requiring evacuation. As stated in NUREG-0654 (Section I.D, Planning Basis), "[w]hen evacuation is chosen as the preferred protective measure, initial evacuation of a 360° area around the facility is desirable out to a distance of about two to five miles although initial efforts would, of course, be in the general downwind direction." This approach is known as the "key-hole" concept.

FEMA has evaluated the available bus capacity for Monroe County school districts based on information obtained from the Michigan Emergency Management Division (EMD) and the Monroe County

⁸ The Emergency Planning Zone referred to in the County's petition is known as the plume exposure pathway Emergency Planning Zone (EPZ) and encompasses the area surrounding the plant out to a radius of about 10 miles. For Fermi-2, approximately 50% of the EPZ extends over Lake Erie while approximately 6% of the EPZ lies in Wayne County, Michigan. Monroe County makes up the remainder of the EPZ.

emergency plan dated November 1981. These data indicate that 297 public and 8 private school buses with a total capacity of 18,685 are available. FEMA notes that this capacity represents approximately 29% of the total Monroe County EPZ population of 64,546 (Monroe County emergency plan, November 1981, at BP-1-23). FEMA also notes that fifteen of the public school buses, with a total capacity of 650, are equipped with lifts and that additional transportation resources are available from the Monroe Rapid Transit System. Based on information in the County plan which indicates that the transportation-dependent population is less than 29% of the total County EPZ population, FEMA concludes that there appears to be sufficient bus capacity to accommodate all transportation-dependent individuals within the Monroe County EPZ. Information provided by the applicant in its submittal dated July 27, 1983, supports the conclusion of FEMA. The applicant's data indicate that there are 335 school buses with a capacity of 20,600 in the Monroe County school districts plus an additional 25 public transit buses with a capacity of 1,200 available for evacuation of the Monroe County EPZ.⁹ This represents a total bus capacity of 21,800. The applicant has developed estimates of the population without automobile transportation for the maximum population area within the 10-mile radius (the west-southwest, west and west-northwest sectors) and the entire Monroe County EPZ. These data show that the transportation-dependent population in the maximum population area is 3,280 within 5 miles and 16,930 within 10 miles. Within the entire Monroe County EPZ, the applicant estimates there is a total population of 25,200 without automobiles.

These figures include school students, population in institutions, residents of non-auto-owning households, and residents of auto-owning households where automobiles are not available. Using postulated combinations of bus availability and numbers of persons without automobile transportation, the applicant developed a range of evacuation time estimates for evacuating areas up to and including the entire portion of the EPZ within Monroe County. The maximum evacuation times for the more extensive evacuation scenarios were determined to be 2 hours 55 minutes to transport the school population and 3 hours 25 minutes to transport the non-school transportation-dependent population out of the EPZ. These evacuation time estimates are reasonable in comparison to

⁹ The applicant states that the information concerning bus availability, bus capacity and population without auto transportation is current as of August 1981. The population data are based on the 1980 Census. The applicant has developed an evacuation time estimate study for Fermi-2 titled, "Estimate of Evacuation Times, Enrico Fermi Atomic Power Plant Unit 2 Evacuation Analysis," prepared by PRC Voorhees, dated October 1980, Revised March 1982.

the estimates developed for other nuclear power plant sites which have been reviewed by the NRC staff.

Based on information provided by FEMA and the applicant, the NRC staff concludes that sufficient bus capacity is available to accommodate the Monroe County transportation-dependent population within a reasonable period of time even assuming the unlikely event that the entire 10-mile-radius EPZ within Monroe County would be simultaneously involved in an evacuation.

II. DEPENDENCE ON VOLUNTEER FIREFIGHTERS; INADEQUATE PERSONNEL TRAINING AND COORDINATION; CONFLICTING PRIORITIES OF EMERGENCY PERSONNEL

The County is concerned that volunteer firefighters may not be willing or able to perform their emergency duties and that local emergency response personnel including the firefighters have not been adequately trained in radiological response functions. The County is also concerned that an evacuation of the EPZ will be impeded because a mobilization of several thousand emergency personnel will be required to carry out a successful evacuation and many of these personnel have families residing within the affected area whose safety would be their first priority.

The County's statements regarding the unwillingness of volunteer firefighters in Monroe County to perform their emergency tasks are unsupported. While a survey of emergency workers in Monroe County has not been conducted, it is the experience of FEMA and the NRC in evaluating well over 100 full-scale emergency preparedness exercises at nuclear power plants across the country, that volunteer emergency workers willingly participate in and respond to simulated radiological emergencies, as they do to actual emergencies involving toxic and hazardous materials.

An essential element in the participation and effectiveness of emergency workers is the adequacy of the training they have received. FEMA reports that the training of emergency workers has been a concern of the Michigan Emergency Management Division (EMD) and that as a result the EMD has developed a comprehensive radiological emergency preparedness training program. The program is described in more detail in a letter from the Michigan EMD to the Monroe City-County Office of Civil Preparedness dated January 31, 1984. The training program has been developed in accordance with the guidance provided in NUREG-0654. A key aspect of the program is the joint participation of the State, the applicant and Monroe County. The training pro-

gram provides general training in basic nuclear physics, plant operations, biological effects of radiation, radiological emergency preparedness at the State and local levels, and the responsibilities and procedures of the support organizations. In addition, specialized training is provided to certain groups of emergency workers in specific areas such as radiological monitoring and decontamination procedures.

The training program is directed toward all of the emergency workers who would be involved in a response to an incident at Fermi-2. These workers fall into two general categories: those who would be within the plume exposure EPZ or who would be assigned to decontamination/reception facilities; and those who would have responsibilities outside the plume exposure EPZ. The Michigan EMD states that most emergency workers know what to do in an emergency be it nuclear or non-nuclear as their functions in either case do not vary greatly. It has been the experience of the Michigan EMD that the differences in functions and procedures for emergency workers between their daily duties and their emergency duties are minimal and that once these differences are covered, most emergency workers feel comfortable with radiological emergency response. The most common concerns of emergency workers are notification procedures, response functions, and radiation dosimetry and exposure control, all subjects which are included in the radiological emergency training program. The training program will be given on an annual basis and will include participation in drills and exercises. The Michigan EMD has found that its radiological emergency training program has been successful in other parts of the State where operating nuclear power plants are located. FEMA concludes that implementation of the Michigan EMD training program will alleviate the concerns of the County regarding the participation of local emergency response personnel.

The applicant has stated in its July 27, 1983 response that all emergency workers, volunteers as well as full-time personnel, will be instructed in their emergency response duties. The NRC staff has requested that the applicant continue to coordinate planning efforts with State and local officials with the objective of ensuring that offsite emergency workers receive appropriate training prior to operation of the Fermi-2 plant. The training program for Fermi-2 was initiated on March 15, 1984.

A radiological exposure control program under the direction of the County Radiological Defense Officer will be in effect to protect local emergency workers in the event of a radiation incident. Emergency workers will be provided with appropriate dosimetry, and exposure records will be maintained. (Monroe County emergency plan, Annex G, Radiological Defense, draft dated December 1983.)

Information provided by the applicant in its July 27, 1983 response indicates that the majority of local emergency workers have assignment locations outside of the EPZ. Of 1,120 emergency workers, only 344 (or 31%) have full-time emergency assignments inside the EPZ and most of these are public safety workers. Firefighters, police officers and radiological defense personnel account for 85% of all emergency workers assigned full time within the EPZ. A review of the literature by the NRC staff indicates that conflicting priorities regarding family safety has not been an inhibiting factor in the response of emergency personnel to actual emergencies, including the Three Mile Island accident.¹⁰ Public safety officers, in particular those whose normal duties involve emergency response, typically have advance arrangements made for the welfare of their families in an emergency.

Based on the information provided by FEMA and the applicant on the joint Michigan EMD radiological emergency preparedness training program, the NRC staff concludes that offsite emergency workers for Fermi-2 will receive appropriate training. Further, based on experience in emergency preparedness gained at other operating nuclear power plants, the staff concludes that the willingness and ability of local offsite emergency workers to participate in an emergency is not a significant factor which would adversely affect the development of the County emergency plan.

III. COUNTY RESPONSIBILITIES FOR RECOVERY AND REENTRY

The County expressed the concern that it did not have the expertise, equipment, sophistication or funds to carry out its responsibilities for the recovery and reentry period. These responsibilities, according to the County emergency plan dated November 1981, included decontaminating people, property and food; providing health and medical services; providing mass care and welfare for evacuees; and disposing of radioactive waste. The County's concern derived from a statement in the County plan which stated that "[l]ocal government is responsible for the recovery of and reentry into areas evacuated and/or contaminated due to an offsite release. They will receive advice and assistance from the Michigan Department of Public Health."

¹⁰ See, for example, R.R. Dynes, "Organized Behavior in Disaster," Disaster Research Center, Department of Sociology, Ohio State University, 1974.

FEMA's response of July 18, 1983 to the NRC identified this issue as the subject of a meeting on March 1, 1983, between representatives of Monroe County, the Michigan Emergency Management Division and FEMA Region V. FEMA stated that the County emergency plan, as written, made Monroe County solely responsible for the accomplishment of tasks far beyond the County's financial capability. FEMA reported that the State representatives agreed that the County plan should be revised to better define the extent of the County's responsibilities, identify assistance available from and through the State, and generally clarify the role of County, State and Federal governments. FEMA reported that the County, State and FEMA representatives mutually agreed that additional clarification and definition of responsibilities during recovery and reentry must be included in the Monroe County plan. FEMA stated that action was being taken by Monroe County and the State of Michigan to accomplish the revision to the County emergency plan. Subsequent to this meeting, a revised County emergency plan, dated December 1983, was developed.

A preliminary review of the draft revised County emergency plan indicates that the responsibilities of State and County governments for recovery and reentry operations have been clarified. The revised County plan states that when it is determined by the Chairperson, Monroe County Board of Commissioners that County resources (personnel and equipment) are inadequate for reentry/recovery activities, the State and/or Federal governments are responsible for providing assistance in certain specific areas including decontamination, long-term health and medical services, and extended social services. The revised County plan also states that offsite radioactive waste disposal and long-term monitoring are the responsibilities of the Michigan Department of Public Health (Basic Plan, Section VII.O, at BP-31, -32.)

Based on a review of the information provided by FEMA, and a preliminary review of the draft revised County plan, the NRC staff concludes that the County's concern regarding recovery and reentry responsibilities has been satisfactorily resolved in that State and Federal governments are identified as being responsible to assist the County in certain specific recovery and reentry areas which are beyond the resources and capabilities of the County.

IV. MOBILIZATION TIME; GEOGRAPHY OF BEACH AREAS

The County is concerned that there are no provisions available for the timely response to an immediate threat of a radiological emergency and questions whether an evacuation can be successfully accomplished given

the length of time needed to mobilize command officials to an Emergency Operations Center (EOC), the inadequacy of existing roads in the beach areas in the vicinity of the site, and the frequent impassability of the roads due to adverse weather conditions. The County is also concerned that the proximity of the Davis-Besse plant in Ohio will increase the probability of an evacuation occurring in the Fermi-2 area. If a nuclear incident occurs at Fermi-2, the plant operator is required by NRC regulations (10 C.F.R. Part 50, Appendix E, Section IV.D.3) to promptly notify (within 15 minutes after declaring an emergency) responsible State and local governmental agencies. Dedicated communication links exist between the plant and the Michigan State Police post at Flat Rock and the Monroe City/County Joint Communications Center, all of which are operational 24 hours per day. NRC regulations and guidance (*see* NUREG-0654, Appendix 1) emphasize declaring an emergency based on plant conditions *before* there is a release of radioactive material. The NRC regulations also include a design objective for offsite authorities to have the capability to promptly alert and notify the public following the occurrence of an emergency requiring offsite protective measures.

The County emergency plan, FEMA reports, provides for the mobilization of the County's Emergency Operations Center (EOC) at the Alert¹¹ level. Thus, the EOC should be staffed and operational before any protective action decision needs to be made (*i.e.*, at the Site Area or General Emergency level) for the most probable type of severe accident sequences (*i.e.*, an accident which develops over a period of one to several hours). In this situation, protective action decisions would be made by the Governor based on recommendations from the plant operator and the Michigan Department of Public Health and the Department of State Police. The Chairperson of the Monroe County Board of Commissioners would be responsible for implementing the protective actions and coordinating the County's response organizations.

In the event of a rapidly escalating accident situation requiring urgent action before the State or County emergency organizations are fully activated, the Monroe County Chairperson, upon being contacted by the Monroe City/County Joint Communications Center, can declare a state of emergency thereby activating the County emergency plan. This action would be similar to the response taken for other types of rapidly occurring emergencies such as tornadoes or hazardous material spills. Based

¹¹ Nuclear power plant emergencies are classified according to a graduated severity scale into one of four emergency classes: Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency. 10 C.F.R. Part 50, Appendix E.IV.C. *See also* NUREG-0654, Rev. 1, Appendix 1.

upon recommendations from the plant operator, the Chairperson in consultation with the Director, Monroe City-County Office of Civil Preparedness, can recommend (only the Governor can order) protective measures for the public including evacuation. As noted by FEMA, the protective action decisionmaking process is a separate function which, if necessary, could be accomplished without the Monroe County EOC being operational. Thus, provisions exist within the offsite emergency plans to notify the public and initiate protective actions without the need to wait for State action or until the County EOC is fully mobilized (County Plan, Section V.A, at BP-11-14). Evacuation, if recommended, would be expected to involve, at least initially, only a part of the EPZ such as out to a radius of 2 miles in all sectors and perhaps to a radius of 5 miles in the downwind direction (*i.e.*, the "key-hole" concept). This protective action could be initiated with only a minimal number of emergency response personnel.

The applicant has evaluated the road network, population distribution, and transportation resources within the EPZ and developed evacuation time estimates for various scenarios including the effects of adverse weather.¹² While adverse weather may require longer evacuation times, there is no indication that the times are unreasonable to the extent that evacuation would be ineffective as a protective measure.

The adequacy of beach roads, *e.g.*, Point Aux Peaux Road, as evacuation routes was the subject of hearings before the Atomic Safety & Licensing Board (ASLB) in early 1982. Point Aux Peaux Road is the evacuation route from Stony Point, the beach area community just south of the Fermi-2 site. After hearing evidence from the concerned parties, including the potential impact of severe winter weather and flooding, the ASLB found in its initial decision dated October 29, 1982, "that the evidence of record shows that Point Aux Peaux Road is feasible for evacuating persons from Stony Point . . ."¹³

Regarding the alleged frequent impassability of the roads in winter, FEMA states in their response that this situation may occur as a result of normal scheduling and utilization of snow removal equipment serving the County. However, priorities for snow removal during normal times would not be applicable in an emergency situation. The Monroe County plan provides for keeping evacuation routes open to be a top priority of the County Road Commission and local police agencies. The Law Enforcement Annex to the County plan provides for removal of traffic im-

¹² See note 9, *supra*.

¹³ *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), LBP-82-96, 16 NRC 1408, 1437 (1982), *aff'd*, ALAB-730, 17 NRC 1057 (1983).

pediments on the evacuation routes during an emergency. The same annex provides for manning of traffic control points to expedite the exiting of traffic. FEMA believes that the present evacuation routes in the Monroe County EPZ are adequate.

The Davis-Besse plant is located approximately 25 miles south-southeast of the Fermi-2 plant. While Fermi-2 lies within the 50-mile-radius ingestion exposure pathway EPZ of Davis-Besse, it is considered extremely unlikely that protective actions such as sheltering or evacuation would be required in the vicinity of Fermi-2 due to an emergency at Davis-Besse considering the distance between the sites and the prevailing wind patterns in the region.

FEMA finds that the concerns regarding the length of time to mobilize command officials, the adequacy of evacuation routes, and the effects of adverse weather have been recognized in the planning process and that adequate responses have been developed. The NRC staff supports FEMA's conclusion.

V. DECONTAMINATION/RECEPTION CENTERS

The County is concerned that there is an inadequate number of employees to staff the five decontamination/reception centers and, as a substantial number of employees reside outside the County, they may be delayed by the necessity of passing through numerous checkpoints. In addition, the County asserts that some employees may not be willing to drive into an area affected by high radiation levels.

FEMA reports that the Monroe County Department of Social Services is the lead agency for the staffing of the reception centers. The County Health Department is responsible for the decontamination function at each of the centers. The County plan also indicates that personnel from the police, fire and school departments have assigned functions in the reception centers. The County plan identifies five schools that may be used for decontamination/reception centers; selection of the centers to be activated would be dependent upon the situation. In addition, five other schools have been identified for potential use as congregate care shelters. FEMA notes that none of these facilities would be activated unless evacuation is directed to the southwest of the Fermi-2 plant. An evacuation to the north would be provided for in the Wayne County emergency plan, the other County within the plume exposure EPZ.

During the public meeting of June 16, 1982, FEMA reports that the Monroe County Director of Social Services stated that his staff consists of 120 full-time professionals who have received training in operating reception centers during radiological incidents. The Director further noted

that his staff would be augmented by volunteers from the American Red Cross and referred to the experience obtained in manning the reception centers during natural disasters. The Director expressed his belief that the Department of Social Services could carry out its assigned responsibilities.

The County decontamination/reception centers are all located outside of the 10-mile-radius plume exposure EPZ. These centers should be well removed from any radiation areas and, to serve their purpose, would not be utilized if they were within an evacuation zone. Thus, there should be no need for the center staff to pass through numerous checkpoints or drive into an area affected by radiation when reporting to a center.

FEMA concludes that based on documentation in the Monroe County plan and in the minutes of the June 16, 1982 public meeting, the County can staff the decontamination/reception centers at least during the initial period following a nuclear incident. FEMA notes that in a continuing situation, if County resources become taxed, additional manpower resources would be provided through coordination with the State. The NRC staff concurs with the FEMA assessment.

VI. POTASSIUM IODIDE DISTRIBUTION

The County questions whether supplies of potassium iodide (KI) can be made available in a timely and effective manner for EPZ residents and emergency workers. The County's petition states that supplies of KI are to be warehoused at a central location under the control of the Michigan Department of Public Health (DPH) and would be distributed only after a radiological emergency was under way.

In its July 18, 1983 response, FEMA reported that the procedures for KI distribution in the Michigan and Monroe County emergency plans were confusing and potentially in conflict. Decisions regarding the distribution and stockpiling of KI are a State responsibility. FEMA noted that in an earlier review of the offsite plans by the Regional Assistance Committee, the recommendation was made that if KI is to be distributed to the public, supplies should be stored locally. FEMA indicated that the State plan was being revised regarding the distribution of KI. Subsequent to the FEMA response, both the State of Michigan and Monroe County emergency plans were revised.

The Michigan Emergency Preparedness Plan dated September 1983 states that "[l]ocal health departments that have a nuclear power plant in their service area have a supply (of KI) for distribution to local

emergency workers and others.” (Department of Public Health, Annex S, at S9.) The plan further states that, “[l]ocal health officers and medical directors are responsible to develop and implement plans for the storage, distribution and record keeping of potassium iodide to emergency workers and the general public based upon guidance from the department (of Public Health).” The revised Monroe County emergency plan, draft dated December 1983, states (at J-1-7) that “[t]he Monroe County Department of Health maintains a quantity of potassium iodide at a secure location within the County for emergency workers. The MDPH (Michigan Department of Public Health) also has additional supplies and contacts from which additional radioprotective drugs can be obtained for distribution to the general public. The Director of the Monroe County Health Department will coordinate distribution.” Based upon a preliminary review of the information in the revised State and County emergency plans, the NRC staff finds that the State and County plans are compatible regarding the storage of a supply of KI in the local area, and that this issue has been satisfactorily resolved. This information will be confirmed by FEMA as part of its review of the revised emergency plan for Monroe County.

VII. EMERGENCY DETECTION

The County is concerned that the mechanisms in place are inadequate to detect unusual releases of radiation into the environment, the applicant's detection system is backed up only by that of the State DPH which is monitored too infrequently to provide adequate warning of serious problems, and no provision is made for any ambient water or air testing or for a backup alarm system.

The applicant's radiation and environmental monitoring systems have been established in accordance with NRC requirements (10 C.F.R. Part 20 and 10 C.F.R. Part 50, Appendix I). During normal operations, gaseous and liquid effluents from the vents and discharge points are continuously monitored by radiation detectors installed in the plant to measure the radioactive content of the effluent streams. As a backup to the plant effluent monitors, an environmental monitoring program has been established to monitor the levels of radiation and radioactive materials in the air and water environment outside of the plant boundaries. The program includes a number of thermoluminescent dosimeters and continuously recording dose rate meters, air samplers, and continuous water samplers located at the Fermi potable water intake on Lake Erie and at the water intake for the City of Monroe. Any increases in radiation levels in the plant monitoring systems above predetermined trip points,

which are set at very low levels, would alert plant operators to a potential problem situation and may result in a declaration of an emergency. The applicant is required to notify offsite authorities within 15 minutes following the declaration of an emergency (10 C.F.R. Part 50, Appendix E, Section IV.D.3).

In addition to the effluent and environmental monitoring systems, radiation instrumentation is installed to monitor radiation levels within the plant. The plant also conducts an in-plant sampling program to monitor for excess radiation levels within plant systems and processes. Specific high-range instrumentation and sampling systems have been installed in the plant to assess the radiation levels in the event of an accident. Trained field monitoring teams are also available to be dispatched both onsite and offsite in the event of a radioactive release. Predetermined values from the radiation monitors and other plant system indicators are used as emergency action levels in the plant's emergency classification scheme to classify emergencies. Emphasis is placed in the applicant's emergency plan and procedures on classifying emergencies and initiating protective actions, if required, based on plant system indicators *before* there is a release of radiation.

The NRC staff has reviewed the radiation monitoring systems and sampling program provided for the Fermi-2 plant and has found that they meet regulatory criteria and guidance. We conclude that the radiation monitoring systems are adequate to detect any unusual releases to the site environs, that acceptable provisions have been made for environmental monitoring and sampling, and that the applicant's emergency plan is appropriately integrated with offsite plans so that offsite authorities would be notified in a timely manner of any radiological incident.

VIII. VEHICLE DECONTAMINATION

On the one hand, the County is concerned that no provisions have been made for monitoring vehicles for contamination as they evacuate the EPZ. On the other hand, there is concern that making such provisions would create traffic tie-ups. The County is also concerned that the waterhosing method chosen to decontaminate vehicles is inadequate and that the water runoff would create additional contamination problems.

Radiological monitoring and decontamination of vehicles and people are addressed in the Monroe County emergency plan. Monitoring will take place at the decontamination/reception centers (Annex G, Radiological Defense plan, dated November 1981). As these centers are located outside of the EPZ, the monitoring activities will not impede traffic on the EPZ evacuation routes.

FEMA has reviewed the arrangements made for offsite decontamination in the County plan dated November 1981. The plan states (Annex I, Fire Annex, Appendix 1) that fire personnel will decontaminate vehicles, as necessary, at the decontamination/reception centers under the guidance of public health officials. The plan further states that decontamination of vehicles will be accomplished in a nearby field to allow for the containment of material in one area, and to facilitate removal of it at a later time, if necessary. County Radiological Defense personnel will be present to monitor for decontamination assisted by the Michigan Department of Public Health.

FEMA has provided the following discussion of radiological decontamination in an emergency: Such decontamination involves either fixation in place or removal of the radioactive particles. For vehicles, removal of the particles is the most expeditious and, therefore, preferable method. When the particles are removed, by whatever method, the problem of containment must be addressed. Washing the particles from a vehicle reduces the possibility of the particles become airborne, and through selection of the site at which the washing is accomplished, permits a greater degree of control of the radioactive material. Although sub-freezing weather is a factor, hosing down vehicles is usually the preferred method for decontamination. When this method is used, care must be taken to assure collection and containment of the runoff water. Following the decontamination operation, residual contaminated water can be collected and removed. Radioactive particles remaining on and in the soil could be removed, if necessary, by removing the soil itself. Removal of the soil is an extreme and improbable remedial action; isolation of the area for a period of time is a more likely option.

FEMA concludes that waterhosing is an adequate method for radiological decontamination of vehicles. Although water runoff is a factor for consideration, FEMA notes that the methodology exists for containment and, if necessary, eventual disposal of any collected radioactive materials. The NRC staff is in agreement with FEMA's conclusions. Waterhosing of vehicles for decontamination purposes is an adequate and common emergency planning procedure. It is used at other nuclear power plant sites.

Conclusion

In summary, both onsite and offsite emergency preparedness for the Fermi-2 facility has reached an advanced stage of completion sufficient to permit a comprehensive response to the Monroe County 2.206 petition. Our review indicates that there is reasonable assurance that the

Fermi-2 facility will meet the applicable regulatory requirements and guidance of the NRC and FEMA for emergency preparedness prior to plant operation. With respect to the specific emergency planning concerns of Monroe County which were raised in the petition to the NRC, all of which except one were primarily offsite issues, the findings of FEMA and the NRC, described above, support the conclusion that these concerns have been satisfactorily resolved and are adequately addressed in the emergency plans for the Fermi-2 facility. I, therefore, conclude that none of the concerns regarding emergency planning identified in the Monroe County petition remain an impediment to the Monroe County Board of Commissioners in developing an adequate radiological emergency response plan for Monroe County for the Fermi-2 facility and no further action is required to resolve the County's concerns.

A copy of this decision will be filed with the Secretary of the Commission for review by the Commission in accordance with 10 C.F.R. § 2.206(c). As provided therein, this decision will constitute final action of the Commission twenty-five (25) days after the date of issuance, unless the Commission on its own motion institutes review of this decision within that time.

Harold R. Denton, Director
Office of Nuclear Reactor
Regulation

Dated at Bethesda, Maryland,
this 20th day of April 1984.

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)

April 27, 1984

The Director of the Office of Nuclear Reactor Regulation denies in part a petition dated January 20, 1984, filed by Ellyn R. Weiss and Robert D. Pollard on behalf of the Union of Concerned Scientists requesting that the Commission continue the suspension of the Three Mile Island Nuclear Station, Unit 1 operating license until alleged deficiencies in the plant's Emergency Feedwater System are rectified.

INTERIM DIRECTOR'S DECISION UNDER
10 C.F.R. § 2.206

I. INTRODUCTION

By Petition dated January 20, 1984 (Petition) and filed before the Commission on January 23, 1984, Ellyn R. Weiss and Robert D. Pollard, on behalf of the Union of Concerned Scientists (petitioner) requested that the Commission continue the suspension of the Three Mile Island Nuclear Station, Unit 1 (TMI-1) operating license "unless and until the plant's Emergency Feedwater (EFW) System complies with NRC rules applicable to systems important to safety (including safety-grade, safety-related, and engineered safety feature systems)." In

support of its request, petitioner alleges five basic deficiencies with the EFW system for which petitioner seeks resolution prior to resuming power operation at TMI-1: (1) failure of the EFW system to be environmentally qualified; (2) failure of the EFW system to be seismically qualified; (3) the inability of the EFW system to withstand a single component failure; (4) the inaccuracy of the EFW flow instruments; and (5) the inadequacy of the Main Steam Line Rupture Detection System (MSLRDS). Petitioner recognized that one or more of the identified deficiencies, when viewed individually, would not necessarily pose an "intolerable risk." However, petitioner contended that "[i]n the aggregate . . . [the deficiencies] thoroughly compromise the reliability of one of the most important safety systems in the plant and destroy the fundamental principle of defense-in-depth espoused by the NRC."¹

The Petition was referred to the staff on February 3, 1984 for treatment as a request for action pursuant to section 2.206 of the Commission's regulations. The licensee responded to the Petition pursuant to the staff's request under 10 C.F.R. § 50.54(f) on February 24, 1984, and amended its response on March 26, 1984. The Commission recently instructed the staff to complete its review of the petition with respect to those issues raised by the petitioners for which sufficient information was available to make a determination. Accordingly, the staff expedited its review of four of the issues raised by the petitioners. For the reasons stated herein, the staff does not intend to take the action requested by the petitioner with respect to those issues at this time. However, the staff has not yet reached a decision as to the issues raised by the petitioner concerning environmental qualification of the EFW system, and the aggregate effect of the five deficiencies cited by the petitioner on the reliability of the EFW system. The staff reserves judgment on whether its analysis of the outstanding issues may impact this interim decision. A final Director's Decision will be issued upon completion of the staff's review.

¹ The Petition also implies that there may be deficiencies in emergency procedures and operator training related to the EFW system, but it does so only in passing and provides no specific information for staff consideration. However, by virtue of the restart proceeding and the associated certification activities which specifically required EFW-related procedure revisions and operator training, review activities of NUREG-0737 Action Item I.C.1 (Emergency Operating Procedures), and the verification that specific procedural changes related to seismic events had been implemented (see Section III.A, *infra*), the staff has performed extensive reviews of the TMI-1 emergency procedure and operator training programs. Based on those reviews, the staff concludes that the Petition provides no basis to question the adequacy of those programs.

II. THE RESTART PROCEEDING

The adequacy of TMI-1 EFW system has been extensively litigated as a principal design issue in the TMI-1 restart proceeding. Although testimony was offered as to numerous aspects of the EFW system, the licensing and appeal boards adjudicating the matter restricted their findings, for the most part, to those elements of the EFW system called into question by the accident at the Three Mile Island Nuclear Station, Unit 2, namely small-break, loss-of-coolant accidents and feedwater transients. See *Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1)*, ALAB-724, 17 NRC 559, 559-60 (1983). See also *Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1)*, CLI-83-5, 17 NRC 331, 331-32 (1983). To the extent that the issues raised by the petitioner were litigated in the restart proceeding, the staff would not initiate new enforcement proceedings to consider the same issues. See *Rockford League of Women Voters v. NRC*, 679 F.2d 1218, 1222 (7th Cir. 1982); *Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2)*, CLI-81-6, 13 NRC 443, 446 (1981). In this regard, petitioner raises an issue which was fully explored in the restart proceeding, the accuracy of the emergency feedwater flow instrumentation. Staff testimony on the accuracy requirements for this system was that each flow instrument should have an accuracy of "on the order of $\pm 10\%$."² Licensee testimony was that the accuracy would be "better than or equal to 5%"³ The issue was not pursued any further before the Atomic Safety and Licensing Board. See *Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1)*, LBP-81-59, 14 NRC 1211, 1362 (1981). However, by letter dated May 24, 1983, the licensee advised the staff the system design could not be successfully implemented. By letter dated August 25, 1983, the licensee advised the staff of additional system difficulties and proposed an alternate design. The staff reviewed and subsequently approved the licensee's proposed design.⁴ Upon installation of the alternate design, licensee later advised the staff, by letter dated November 23, 1983, that oscillations had been observed at low flow conditions which exceeded the accuracy criteria established by the staff. The licensee has now taken the position that the present instrumentation is adequate. The petitioner, a party to the restart proceeding, contests this view, and has responded to the licensee's

² See NUREG-0680, *TMI-Restart* (June 1980).

³ See *Recommended Requirements for Restart of Three Mile Island Nuclear Station*, Amendment 22.

⁴ See letter from J.F. Stolz (NRC) to H.D. Hukill (GPUN) (September 22, 1983).

November 23, 1983 letter by filing a response with the Commission.⁵ The licensee responded by filing a reply with the Commission, which was responded to by the petitioner.⁶ By Board Notification 84-088 dated April 24, 1984, the staff advised the Commission, restart proceeding boards and parties, including petitioner, that it considered the existing TMI-1 EFW flow instruments to be acceptable.⁷ The recent filings have placed the issue of EFW flow instrumentation accuracy before the Commission.⁸ To the extent that a full consideration of EFW flow instrumentation accuracy is necessary to evaluate petitioner's concern that the aggregate effect of the EFW deficiencies it raises compromises the reliability of the EFW system, the staff will consider EFW flow instrumentation when a final decision on the petition is issued.

III. CONSIDERATION OF THE ISSUES

A. Seismic Qualification of the Emergency Feedwater System

The Petition alleges that operation of TMI-1 would pose an undue risk to public health and safety because the EFW system is not seismically qualified.⁹ The fundamental contentions in this regard can be characterized as: (1) contrary to NRC regulations, the TMI-1 EFW system is not seismically qualified and the licensee does not intend to make it so

⁵ See Union of Concerned Scientists Response to GPU Letter of December 6, 1983, Regarding Emergency Feedwater Flow Instrumentation (December 9, 1983).

⁶ See Licensee's Reply to UCS Response to GPU Letter of December 23, 1983 (December 23, 1983) and Petitioner Rebuttal to Licensee's Reply Regarding EFW Flow Instrumentation (January 6, 1984).

⁷ The basis for the staff's conclusion is that the accuracy of the flow indications available to the operator at low flows is taken into account by the plant operating procedures and is acceptable, even though the flow indication accuracy at low flows may exceed the criteria established by the staff.

⁸ It should be noted that, by order dated January 27, 1984 (unpublished), the Commission took review of five specific design issues addressed by the Appeal Board in *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-729, 17 NRC 814 (1983), including the Appeal Board's treatment of the Licensing Board's quantitative analysis of the reliability of the EFW system. The staff, licensee, and petitioner have each filed briefs addressing those issues.

The Commission's January 27, 1984 order also took review of whether the issue concerning environmental qualification of electrical equipment had been removed from the restart proceeding by the Commission's generic rulemaking on the subject and offered an opportunity for the parties to comment on the adequacy of the licensee's proposed solution to the MSLRDS problem. The staff, in its March 19, 1984 filing, argued that the environmental qualification issue was removed from the proceeding, that the proposed MSLRDS solution is adequate with respect to the EFW system concerns of the restart proceeding, and further, that the concerns regarding the potential failure of the non-safety-grade MSLRDS to isolate main feedwater leading to the possibility of containment overpressurization are *not* within the scope of the restart proceeding and should properly be addressed during review of this Petition. The UCS filing, dated March 19, 1984, argued that all aspects of both issues should properly be addressed in the restart proceeding.

⁹ Seismic qualification of the TMI-1 EFW system was not addressed in the restart proceeding because such matters are unrelated to the March 1979 accident at TMI-2 and the concerns which led to the restart proceeding. See *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-83-5, 17 NRC 331 (1983).

prior to operating the plant, and (2) the staff's safety evaluation on the seismic capability of the TMI-1 EFW system does not provide an adequate basis for such operation.

When TMI-1 was licensed, the EFW system was not classified as an engineered safety feature system and accordingly was not required to be seismically qualified.¹⁰ In February 1981, the staff issued Generic Letter 81-14 to all operating pressurized water reactors. This generic letter stated the intent to increase the seismic resistance, where necessary, in a timely, systematic manner to ultimately provide reasonable assurance that auxiliary and emergency feedwater systems would be able to function after the occurrence of earthquakes up to and including the safe shutdown earthquake (SSE). In this regard, TMI-1 was treated in a manner consistent with other operating reactors in that the matter was considered resolved when (a) all seismic improvements had been identified and scheduled for implementation in a timely manner, and (b) continued plant operation during the interim period had been justified on an acceptable basis. The licensee has committed to seismic upgrade modifications during the first refueling outage following restart (*i.e.*, prior to Cycle 6 operation) and has provided compensatory measures for Cycle 5 operation. The staff has concluded that there is reasonable assurance that, should restart be authorized, the TMI-1 EFW system would be able to perform its safety function after the occurrence of an SSE and that the system does comply with Commission regulations.

The staff issued a safety evaluation on the seismic capability of the TMI-1 EFW system on August 12, 1983. In light of the arguments set forth in the Petition, the staff has reconsidered its position on this matter and its safety evaluation. In so doing, the staff has reaffirmed the conclusion that, at restart, there is reasonable assurance that the TMI-1 EFW system would be able to perform its safety function following the occurrence of an SSE.¹¹

¹⁰ The staff position that auxiliary/emergency feedwater systems be seismically qualified first became effective for new plants in 1972. See Regulatory Guide 1.29. The requirement was not backfit to include plants for which certain licensing milestones had been reached, which was the case for TMI-1. Thus, TMI-1 and a number of other operating reactors do not, and are not required to have seismically qualified auxiliary/emergency feedwater systems.

¹¹ The Petition provided no information that was not considered during the 1983 staff review of this matter, with one exception. The exception deals with postulated interaction from failures of non-seismic portions of other systems, namely, the vent stacks (discharge paths) for the safety relief valves (MS-V-22A, B) and the atmospheric dump valves (MS-V-4A, B). After review of this question, the staff concludes that there is reasonable assurance that local manual actions will not be precluded by a steam environment during the interim period of Cycle 5 operation. Further details concerning the staff's most recent review of this issue are found in the 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, dated April 27, 1984.

B. Single Failure Capability of the Emergency Feedwater System

The Petition asserts that until the long-term upgrades are complete, the TMI-1 EFW system is vulnerable to single failures which would, for certain accidents, prevent it from providing cooling water for decay heat removal. In this regard, the petitioner is correct in stating that, should restart be authorized, the TMI-1 EFW system will have a single flow control valve in each of the feedwater headers to the two steam generators. The petitioner argues that for those events requiring isolation of one steam generator, such as a main steam line break, steam generator tube rupture (under certain circumstances), or a feedwater line break, failure of the flow control valve to open in the feedwater header to the intact steam generator could result in an inability to deliver emergency feedwater flow for decay heat removal through the steam generator. Further, the Petition points out that 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.

The staff has been aware of these system deficiencies for some time, and the issue has been fully explored during the restart proceeding. The staff considers the system to be acceptable, provided that certain short-term modifications are completed prior to restart.¹² 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.¹³ 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.

An additional single failure vulnerability hypothesized by the Petition is that "each EFW flow path contains only a single block (isolation) valve. Failure of this valve would prevent isolation of EFW flow to the steam generator with the broken main steam line or ruptured tube." See Petition at 20. The petitioner's statement as to the existence of a "single

¹² See NUREG-0680, TMI-1 Restart (June 1980) and Supplement 3 to NUREG-0680 (April 1981).

¹³ 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.

block (isolation) valve" in each EFW flow path is inaccurate.¹⁴ Nevertheless, for those events requiring isolation of a steam generator (main steam or feedwater line break, or steam generator tube rupture), a cavitating venturi has been installed in each EFW supply line to limit EFW flow to the ruptured steam generator and ensure sufficient flow to the intact steam generator. Because of this modification, the main steam line rupture detection system (MSLRDS) signals to the EFW flow control valves have been deleted to prevent inadvertent EFW isolations caused by failures in the MSLRDS. *See* Section III.C, *infra*. Since it may be desirable to eventually isolate EFW to a ruptured steam generator, the operator would close the appropriate EFW flow control valve. If this valve failed to close, EFW flow to the ruptured steam generator could be stopped by closing the appropriate EFW pump discharge cross-tie sectionalizing valve and tripping the respective EFW pump.

C. Main Steam Line Rupture Detection System

One purpose of the main steam line rupture detection system (MSLRDS) is to prevent containment pressure from exceeding its design pressure in the event of a main steam line rupture inside containment. The system does this by isolating feedwater flow to a given steam generator when a relatively low pressure is detected in that steam generator. A concern raised in the restart proceeding was that spurious actuation of the non-safety-grade MSLRDS could inadvertently isolate all feedwater flow to both steam generators. Resolution of this concern is being pursued within the restart proceeding.¹⁵ The petitioner suggests that because the MSLRDS is not safety grade, there can be no assurance that the containment will not be overpressurized following a main steam line rupture inside containment. Therefore, argues petitioner, "operation of TMI-1 would pose an undue risk to public health and safety."

Although the TMI-1 MSLRDS is not safety grade, it is redundant and primarily located outside containment where it would not be exposed to the harsh environment created by a main steam line rupture inside

¹⁴ The staff bases this view on its review of the present EFW system design drawings, the restart proceeding record and a physical inspection of the system by the resident inspector. The only valves in the steam generator flow path which can be readily identified are the flow control valves and check valves. There are, however, motor-operated sectionalizing block valves in the discharge cross-tie header between the EFW pumps. These valves do not serve as steam generator isolation valves since the motor-driven EFW pumps discharge downstream of the valves.

¹⁵ *See* NRC Staff Brief Concerning the Commission's Review of Specific Design Issues in ALAB-729 (March 19, 1984).

containment.¹⁶ By letter dated February 16, 1984, the licensee informed the staff that the MSLRDS pressure switches located inside containment would be environmentally qualified through replacement with qualified equipment by June 1984. All MSLRDS components located inside containment will then be environmentally qualified. Therefore, in the event of a main steam line rupture inside containment, the MSLRDS would be expected to remain functional and isolate main feedwater flow to the affected steam generator, even after a postulated single active failure. For a main steam line break occurring outside containment, the environmental qualification of the MSLRDS is not a concern since the containment would not be affected.

The MSLRDS prevents containment pressure from exceeding its design pressure in the event of a main steam line rupture inside containment. The MSLRDS is not relied on in any direct manner for preventing exposure of the public to any undue risk to health and safety. The two barriers that prevent exposure of the public to the effects of a main steam line rupture are the reactor primary pressure boundary and the containment boundary. These two barriers would remain intact after a postulated main steam line rupture, with or without the MSLRDS isolating the main feedwater flow to the affected steam generator. Based on the staff's review experience with similar plants, if the MSLRDS failed to function, the reactor pressure boundary would be unaffected; and although the containment design pressure may be slightly exceeded, containment integrity would be maintained.

For these reasons, it is the staff's view that the MSLRDS, as designed, and as upgraded with qualified pressure switches inside containment, will isolate feedwater flow to the affected steam generator, even after sustaining a single active failure, and containment integrity would remain intact after a postulated main steam line rupture inside containment.¹⁷

IV. CONCLUSION

Based on the foregoing discussion of the Petition, I find no adequate reason to take the requested action regarding the Three Mile Island

¹⁶ The postulated main steam line break event at TMI-1 was evaluated in conjunction with the staff's review of IE Bulletin 80-04, "Analysis of a PWR Main Steam Line Break with Continued Feedwater Addition."

¹⁷ Nevertheless, licensee has committed to upgrade the MSLRDS to safety-grade status prior to startup from the Cycle 6 refueling outage (next refueling). See letter from H.D. Hukill (GPUN) to J.F. Stolz (NRC) (August 23, 1983).

Nuclear Station, Unit 1, operating license at this time. A final decision with respect to petitioner's request will be issued in the near future upon completion of the staff's review of the remaining issues. A copy of this decision will be filed with the Office of Secretary for the Commission's review.

Harold R. Denton, Director
Office of Nuclear Reactor
Regulation

Dated at Bethesda, Maryland,
this 27th day of April 1984.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of

Docket Nos. 50-352
50-353
(10 C.F.R. § 2.206)

PHILADELPHIA ELECTRIC COMPANY
(Limerick Generating Station,
Units 1 and 2)

April 25, 1984

The Director of Nuclear Reactor Regulation denies a Petition filed by Del-Aware Unlimited, *et al.*, which requested revocation, suspension or modification of the construction permits for the Limerick Station based on (1) alleged inadequacies in the NRC staff's draft environmental statement related to operation of the Limerick Station, (2) alleged changed circumstances regarding the supply of supplemental cooling water for the facility and (3) that certain physical impacts of construction of the Point Pleasant Diversion Project have been allegedly overlooked.

RULES OF PRACTICE: SECTION 2.206 PETITIONS

The Director will not consider issues raised in a Petition pursuant to 10 C.F.R. § 2.206 which are clearly a matter for consideration in the operating license proceeding currently in progress.

RULES OF PRACTICE: SECTION 2.206 PETITIONS

Section 2.206 should not be used by a party to a licensing proceeding to request relief on a matter within the jurisdiction of the presiding officer in that proceeding.

RULES OF PRACTICE: SHOW-CAUSE PROCEEDINGS

Suspension, modification or revocation of permits or licenses may be appropriate based upon substantially changed circumstances. NEPA does not require that a decision based upon environmental impact statements be reconsidered whenever information developed subsequent to the action becomes available, unless the new information will clearly mandate a change in the result.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

INTRODUCTION

By letter dated December 16, 1983, Robin T. Locke, on behalf of Del-Aware Unlimited, *et al.* (Petitioners) filed with the Office of Nuclear Reactor Regulation an "Application of Del-Aware Unlimited Et Al. Under Section 2.206" (Petition). The Petition requested that the NRC staff "reopen" the construction permits heretofore granted to the Philadelphia Electric Company (PECO) authorizing construction of the Limerick Generating Station, Units 1 and 2 (the Facility).¹ Petitioners also sought reopening of the Partial Initial Decision issued by the Atomic Safety and Licensing Board on March 8, 1983 in the operating license proceeding for the Limerick Facility.² That decision discussed supplemental cooling water for the facility.

On January 31, 1984, I acknowledged receipt of the Petition for the Limerick Facility in a letter to the Petitioners and indicated that a formal decision with respect to the Petition would be issued. On December 29, 1983, PECO submitted its comments regarding the Petition. My decision in this matter follows.

Del-Aware Unlimited has once before invoked the provisions of 10 C.F.R. § 2.206 to have the Nuclear Regulatory Commission consider issues related to the Limerick Facility. An earlier petition was filed on July 2, 1982, and my decision with respect to it issued on December 7, 1982.³ That petition raised a wide variety of environmental issues asso-

¹ Construction permits were issued for the Limerick Generating Station Units 1 and 2 on June 19, 1974. There is no current proceeding with respect to these construction permits which may be reopened. Rather the relief sought would appear to be revocation, suspension or modification of the permits by order. See 10 C.F.R. Part 2, Subpart B.

² *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), LBP-83-11, 17 NRC 413 (1983).

³ *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), DD-82-13, 16 NRC 2115 (1982).

ciated with the supply of supplemental cooling water for operation of the Limerick Facility. That decision provided extensive background regarding the various environmental reviews which had been conducted concerning the supply of supplemental cooling water and found no adequate reason to disturb the construction permits issued for the Limerick Facility.

In addition, a proceeding is currently under way regarding the issuance of operating licenses for the Limerick Facility. Hearings have been held before an Atomic Safety and Licensing Board and a Partial Initial Decision has been issued disposing of certain contentions regarding the supplemental cooling water system for the Limerick Facility.⁴ Licensing Board hearings are continuing on other matters.

In their latest Petition, the Petitioners advance three basic reasons for granting the requested relief: (1) the NRC staff's draft environmental statement related to operation of the Limerick Station is inadequate; (2) changed circumstances dictate action to compel PECO to seek an alternative supply of supplemental cooling water; and (3) the physical impacts of construction associated with the Point Pleasant Diversion Project have been overlooked. As discussed below, the first of these reasons is inappropriate for consideration under 10 C.F.R. § 2.206 and the Petitioner's remaining reasons do not provide an adequate basis for relief. Therefore, the Petition has been denied.

It is in this context that the current Petition has come before me.

DISCUSSION

Issues Inappropriate for Consideration Under 10 C.F.R. § 2.206

Petitioners base their Petition in part upon the alleged insufficiency of the NRC staff's draft environmental statement (DES) (NUREG-0974, Draft Environmental Statement related to the operation of Limerick Generating Station Units 1 and 2). The Petitioners allege that the DES failed to deal with information that has been developed recently regarding the adequacy of water in the Delaware River. The sufficiency of the DES is clearly a matter for consideration in the operating license proceeding currently in progress. *See* 10 C.F.R. §§ 51.24(c)(4) and 51.26(c) and (d). Further, the Commission specifically has endorsed the principle that 10 C.F.R. § 2.206 should not be used by a party to a licens-

⁴ LBP-83-11, *supra*.

ing proceeding to request relief on a matter within the jurisdiction of the presiding officer in that proceeding.⁵

Consequently, with respect to this issue, the Petitioners' remedy lies with the appropriate adjudicatory board of the Commission and I will not consider this issue further.⁶

Alleged Changed Circumstances Regarding the Supply of Supplemental Cooling Water for the Limerick Facility

The supplemental cooling water supply system (SCWS System) for the Limerick Facility will draw water from the Delaware River. The water would then be pumped from the Delaware River at Point Pleasant, Pennsylvania, several miles through a combined transmission main to the Bradshaw Reservoir. Approximately one half of the water would be pumped through the Perkiomen transmission main and then flow down the East Branch of the Perkiomen Creek. From the Creek, the water is to be pumped by a transmission main to the Limerick Facility. The remainder of the water would be available to the Neshaminy Water Resources Authority (NWRA) for its use in providing water to Central Bucks and Montgomery Counties, Pennsylvania, for public use.⁷

The particular events to which Petitioners point to support the allegation that there has been a substantial change in circumstances regarding the supply of supplemental cooling water to the Limerick Facility are certain actions taken by the Bucks County Commissioners, including the issuance of an ordinance indicating an intent on the part of Bucks County to acquire the projects of the NWRA with a view to terminating the Point Pleasant Diversion Project. In further support of their claim, Petitioners point to a Complaint in Equity filed by PECO in the Court of Common Pleas of Bucks County, Pennsylvania. The Complaint names Bucks County as a defendant and alleges a series of harms to PECO potentially flowing from the actions of Bucks County seeking to terminate the Point Pleasant Diversion Project. PECO's request for a temporary injunction was denied by the Court and this litigation remains pending.

⁵ *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-6, 13 NRC 443, 444 (1981).

⁶ The Petitioners' precise request was that the NRC staff reopen the Partial Initial Decision of the Licensing Board dated March 8, 1983. The NRC staff was, of course, a party to that proceeding. So long as an adjudicatory board retains jurisdiction over the matters before it, any request to the staff for reopening is clearly misdirected.

⁷ The pumping station at Point Pleasant, the Limerick SCWS System and the Neshaminy project will hereafter be referred to together as the Point Pleasant Diversion Project or PPD Project.

The information provided by Petitioners indicates no lessening of the resolve of PECO to go forward with the Point Pleasant Diversion Project. Indeed, PECO has availed itself of its legal remedies to ensure that the PPD Project will go forward as currently configured. Should the Point Pleasant Diversion Project ultimately fail, and should PECO then identify an alternative proposal to supply supplemental cooling water to the Limerick Facility, action by the NRC would then be appropriate. Such an alternative would have to be reviewed in the same fashion as the Point Pleasant Diversion Project was examined by this agency prior to issuance of a construction permit. However, far from proposing an alternative to the Point Pleasant Diversion Project, PECO's current actions appear clearly directed at ensuring that the PPD Project goes forward. Concerns that the Point Pleasant Diversion Project may not be completed and, consequently, that alternative sources of cooling water may be required for the Limerick Facility are premature and speculative at this time. I decline to commit this agency's resources to examine such questions, given their speculative nature, at this time.

This precise issue has also been considered and rejected by the Licensing Board presiding in the operating license proceeding. On May 25, 1983, Del-Aware filed its "Supplementary Motion to Reopen and/or to Admit New Contentions V-27 and V-28." Contention V-28 read:

In passing upon the operating license, the Commission must consider the feasibility for providing water to Limerick in time for its projected start-up date and in view of the complications, disarray, and apparent legal obstacles to PECO's utilization of Point Pleasant, PECO must pursue alternative water sources in order for the NRC to continue processing of its application, or to grant approval.

Supplementary Motion at 5. The Licensing Board rejected this contention holding:

With respect to Proposed Contention V-28, if and when PECO would materially change its proposal to obtain supplemental cooling water in the event the Point Pleasant Diversion would not be allowed to operate due to "legal obstacles" involving other permitting authorities, the Nuclear Regulatory Commission at such time would have to reconsider its previous assessment of environmental impacts in light of changes proposed by PECO.⁸

In summary, there simply has not been a material change in circumstances warranting action by this agency regarding supplemental cooling water for the Limerick Facility.

⁸ Memorandum and Order Denying Del-Aware's Motion to Reopen the Record, June 1, 1983, slip op. at 9 n.3 (unpublished).

Petitioners also argue that the recent actions taken by Bucks County support claims raised in the previous petition that all the environmental impacts associated with the Point Pleasant Diversion Project, including those attributable to the portion of the PPD Project to be utilized exclusively by NWRA, should be considered as attributable to the Limerick Facility. Petitioners' original claim was that the sole reason for the proposed construction of the PPD Project is operation of the Limerick Facility. Consequently, it was argued that all the primary and secondary impacts associated with the PPD Project should be attributable to the Limerick Facility. The earlier petition suggested that only the incremental size of the Point Pleasant Diversion Project was considered in the application for the construction permits for the Limerick Facility. Consequently, given an alleged change in relationship that makes the PPD Project supposedly attributable only to PECO, it was argued that the environmental review at the construction permit stage was incomplete.

Such was not the case. As was set out in my earlier decision,

The test for determining the scope of the NRC's environmental review for a particular project is not whether one segment of the project would not be built but for the other segment. The scope of environmental review may be limited to one segment of a project so long as (1) that portion has independent utility; and (2) the approval of that segment does not foreclose alternatives to the part of the project not being considered. [Footnote omitted.] The PPD Project in fact consists of two projects each of which has independent utility. One serves to supply cooling water to Limerick; the other supplies water to an area served by the NWRA. Also, approval of the Limerick portion of the PPD Project will not foreclose alternatives to the NWRA portion because this latter portion has already been fixed by the decisions of the DRBC. Thus, the question of foreclosing alternatives is moot. In reaching its decisions, the DRBC reviewed the entire PPD Project in accordance with the requirements of NEPA. Following this review, the Project was added to the DRBC Comprehensive Plan. The PPD Project has recently again been given environmental scrutiny by DRBC, which culminated in a Final Environmental Assessment and Negative Declaration and final approvals for the Project. Thus, contrary to assertions in Petitioners' Supplement that the PPD Project has not received an overall environmental review, DRBC has performed just such a review on at least two occasions.

It is entirely appropriate in these circumstances then for NRC to limit its consideration to the common elements of the Project and those elements attributable solely to the Limerick Facility, and to exclude from consideration impacts associated exclusively with that portion of the PPD Project which has as its purpose supplementing the public water supply capabilities of the NWRA.⁹

Petitioners' arguments that the PPD Project would not be built but for the participation of PECO have no more substance now than they

⁹ DD-82-13, *supra*, 16 NRC at 2119.

did earlier. The NRC's assessment of the PPD Project has been appropriate and in accordance with law.¹⁰

Finally, the Petition makes reference to an affidavit from the Director of the NWRA which was referenced in my earlier decision¹¹ and characterizes the affidavit as representing that the NWRA would build the Point Pleasant Diversion Project without PECO. The Petition suggests that this representation is no longer valid in light of the actions taken by Bucks County.

Without concluding that the NWRA affidavit is no longer valid, the affidavit was not essential to the determination I reached in my earlier decision. The earlier petition alleged that NWRA would not go forward with the PPD Project without PECO. The NWRA affidavit stated to the contrary and was offered to clarify the then-current status of that issue. The Petitioners' argument then and now continues to be that all impacts associated with the PPD Project should have been considered by the NRC because PECO was the sole cause of the PPD Project. But, as discussed above, even if PECO were to be the cause of the PPD Project, the NRC need not consider all of the impacts of the PPD Project and consequently the continuing validity of the NWRA affidavit is not a significant issue.

Alleged Impacts Related to the Construction of the Point Pleasant Diversion Project

The Petition alleges that certain construction impacts associated with the Point Pleasant Diversion Project have been overlooked. Specifically, the Petition alleges that a major rockslide occurred during construction of the PPD Project and threatens to recur and that there will be "substantial physical damage to the area from construction. . . ."¹² With respect to construction of the East Branch of the Perkiomen Creek, the Petition alleges that new effects have been identified in testimony before the Pennsylvania Public Utilities Commission and Environmental Hearing Board.¹³ The Petition urges that the construction permit pro-

¹⁰ The argument raised in the Petition that "the diversion facilities should now be considered as a facility under Section 103 of the Atomic Energy Act, requiring a construction permit" (Petition at 4) was considered in my earlier decision and rejected. See DD-82-13, *supra*, 16 NRC at 2128 n.27. The Petition raises no new information warranting re-examination of this issue.

¹¹ DD-82-13, *supra*, 16 NRC at 2128-29.

¹² Petition at 4.

¹³ Some of the allegations in the Petition are of such a generalized and nonspecific nature that I will not consider them further. Section 2.206(a) requires that petitions "set forth the facts that constitute the basis for the request." Absent such a showing, the Director need take no action on the Petition. Consequently, to the extent that I have not addressed issues raised by the Petition, it is because the re-

(Continued)

ceedings should consequently be reopened. The time for reopening of construction permit proceedings is of course long since past.¹⁴ However, the NRC staff recognizes that standards set by the agency for reopening of proceedings may be appropriate for considering requests under 10 C.F.R. § 2.206:

Although the Director in considering a request for action under 10 C.F.R. 2.206 is not bound by the Appeal Board's standard for reopening a licensing proceeding on the basis of new information, this standard is persuasive in considering requests under 10 C.F.R. 2.206 because, as the Commission has indicated on another occasion, '[P]arties must be prevented from using 10 C.F.R. 2.206 procedures as a vehicle for reconsideration of issues previously decided' *Consolidated Edison Company* (Indian Point, Units 1-3), CLI-75-8, 2 NRC 173, 177 (1975).¹⁵

Suspension, modification or revocation of construction permits may be appropriate based upon substantially changed circumstances. The appropriateness of suspending, modifying or revoking construction permits for nuclear facilities based upon alleged changed circumstances has previously been addressed.¹⁶ NEPA does not require a decision based upon environmental impact statements be reconsidered whenever information developed subsequent to the action becomes available. It is unnecessary for an agency to reopen a NEPA record unless the new information will clearly mandate a change in result.¹⁷ The petition fails substantially to meet this showing.

The NRC staff has examined the record of the environmental assessments of the various approvals and permits for the Point Pleasant Diversion Project. The environmental impacts related to (1) erosion and sedimentation due to the construction of the outlet structure of the PECO water transmission pipeline of the East Branch of the Perkiomen Creek and (2) placement of the NWRA combined transmission main in the hillside adjacent to the Delaware River and under various streams between the river and the proposed Bradshaw Reservoir have been considered by various local, state and Federal agencies.

In the "Final Environmental Impact Statement, Point Pleasant Diversion Plan, Bucks and Montgomery County, Pennsylvania," issued by

requirement of Section 2.206(a) calling for a factual basis for the Petitioners' request has not been met. See *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), DD-79-17, 10 NRC 613, 614-15 (1979); *Duke Power Co.* (Oconee Nuclear Station, Units 1, 2 and 3), DD-79-6, 9 NRC 661, 661-62 (1979); see also *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), CLI-80-10, 11 NRC 438, 443 (1980).

¹⁴ See note 1, *supra*.

¹⁵ *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), DD-79-10, 10 NRC 129, 131 (1979).

¹⁶ *Georgia Power Co.* (Alvin W. Vogtle Nuclear Plant, Units 1 and 2), DD-79-4, 9 NRC 582 (1979).

¹⁷ *Id.* at 584-85.

the Delaware River Basin Commission (DRBC) in February 1973, temporary sedimentation and bank erosion were identified as adverse impacts of the construction of the outlet structure of the Point Pleasant Diversion Project pipeline into the East Branch of the Perkiomen Creek. The DRBC predicted that only the "upper quarter" of the stream would be adversely affected and only during the brief period of construction and the initial phases of operation. It was noted that some stream channel improvements to even out the discharge from the outlet structure were anticipated but that impacts associated with these improvements would be minimized and developed under the control of the Pennsylvania Soil Erosion and Sediment Control Act. The impact of erosion and sedimentation in the East Branch of the Perkiomen Creek due to construction of the Point Pleasant Diversion Project was assessed by the DRBC to be very slight due to its temporary nature.

The DRBC again examined the East Branch of the Perkiomen Creek in its Final Environmental Assessment dated August 1980.¹⁸ There was no revision of the discussion or conclusions of the 1973 DRBC Environmental Impact Statement in this assessment with regard to construction-related stream bank erosion or stream bed sedimentation of the East Branch of the Perkiomen Creek.

On November 5, 1975, the DRBC granted approval for PECO to withdraw surface water and discharge wastewater to be used in the proposed operation of the Limerick Facility. In its decision (Docket No. D-69-210-CP (Final)), construction operations associated with the project including the Point Pleasant Diversion were subject to the following environmental protection conditions related to erosion and sedimentation:

- II.j. The turbidity standards for the Delaware River, as established by the Delaware River Basin Commission, may not be exceeded outside the mixing areas, as described herein: a distance of 100 feet upstream and 500 feet downstream and ½ of the stream width at each discharge and intake structure during their construction.
- II.i. Sound practices of excavation, backfill and reseeded shall be followed to minimize erosion and deposition of sediment in streams.
- II.k. The Executive Director of the Delaware River Basin Commission may direct a suspension of streambed excavation operations whenever in his judgement the operations are not being conducted in accordance with this approval, are adversely affecting water quality or are harmful to the passage of anadromous or catadromous fishes.

¹⁸ "Final Environmental Assessment for the Neshaminy Water Supply Steam Project Sponsored by the Neshaminy Water Resources Authority and the Philadelphia Electric Company."

On February 18, 1981, the DRBC approved specifically the PECO portion of the Point Pleasant Diversion Project in its Decision (Docket No. D-79-52-CP). The installation of the transmission main outlet structure on the East Branch of the Perkiomen Creek was subject to the following environmental conditions related to erosion and sedimentation:

- II.E. Sound practices of excavation, backfill, and reseeded shall be followed to minimize erosion and deposition of sediment in streams.
- II.N. The applicant shall inspect and monitor the portion of East Branch Perkiomen Creek immediately below the discharge, at river mile 92.47-32.3-11.3-23.8, on a regular basis and following any significant period of flood flows. If such inspection discloses significant erosion of the bank or bed of the East Branch Perkiomen Creek below the discharge, the applicant shall promptly correct such erosion, stabilize and revegetate any exposed portion of the streambank. Reports of such monitoring, and any corrective action taken, shall be filed with the Executive Legal Director within two weeks of each inspection or action.

With respect to the construction of the combined transmission main to the Bradshaw Reservoir, on March 17, 1971, the DRBC amended the Neshaminy Creek Watershed Plan, a part of the DRBC Comprehensive Plan, to include the pumping of water to the Northeast Branch Perkiomen Creek to meet the cooling water needs of the Limerick Facility. In this Decision (Docket No. D-65-76-CP(3)), the construction of water pipelines (*i.e.*, the combined transmission main from the Point Pleasant pumping station to the Bradshaw Reservoir and the pipelines from there to the Neshaminy and Perkiomen Creeks) was subject to the following environmental protection condition related to erosion and sedimentation:

- II.d. The pipelines from the Point Pleasant pumping station to the Bradshaw Road pumping station and from there to the Neshaminy and Perkiomen Creeks shall be buried. In excavating and backfilling the trenches for these pipelines, proper soil segregation practices shall be followed to ensure regrowth of vegetation. Provisions, acceptable to the Commission, shall be included in construction specifications to ensure that streambeds are protected from siltation during construction. Appropriate landscaping and planting shall be performed to minimize the effect upon the environment and construction specifications shall include requirements, acceptable to the Commission, for proper seeding and placement of topsoil.

The installation of the outlet structure on the East Branch of the Perkiomen Creek was also assessed by the Pennsylvania Department of En-

vironmental Resources in August 1982.¹⁹ It was noted that the proposed installation procedures and the construction of an energy dissipator as part of the outlet works "were found to be adequate in controlling soil erosion and sedimentation by the Bucks County Conservation District."²⁰ This assessment also concluded that the Point Pleasant Diversion Project incorporates designs, construction practices, and operating procedures to minimize the potential adverse impact of the project upon the environment and to protect the public natural resources of the Commonwealth.

The Commonwealth of Pennsylvania, Department of Environmental Resources, issued Water Obstruction and Encroachment Permit No. ENC: 09-77 on September 2, 1982, to PECO, permitting the construction and maintenance of an outfall structure, energy dissipator and channel stabilization along the left bank of the East Branch Perkiomen Creek. A special condition related to siltation and sedimentation was included in the permit as follows:

Construction:

- E. The Erosion and Sedimentation Control Plan must be properly implemented and closely monitored to minimize erosion and prevent excessive sedimentation into the receiving stream channel.

Finally, on December 17, 1981, the Bucks County Conservation District issued its review of the erosion and sedimentation control measures proposed by PECO for the outlet channel and energy dissipator associated with the Bradshaw Reservoir and pipeline. The County concluded "these measures to be adequate to control accelerated erosion and protect other environmental concerns."²¹

Based on a review of the above-mentioned environmental impact statements and assessments and the subsequently issued decisions and permits, I conclude that the construction phase environmental impacts related to erosion and sedimentation of the East Branch of the Perkiomen Creek and the streams associated with drainages traversed by the combined transmission main have been assessed by the appropriate local, state and Federal agencies. Requirements for monitoring to detect adverse impacts and for implementing mitigative actions if such effects are detected have been incorporated in the various approvals and permits

¹⁹ Commonwealth of Pennsylvania Department of Environmental Resources, "Environmental Assessment Report and Findings, Point Pleasant Water Supply Project," August 1982.

²⁰ *Id.*, ¶ 4.C(1), at 40.

²¹ Lonnie J. Manai, Bucks County Conservation District, letter to D. Marino, Philadelphia Electric Company, dated December 17, 1981.

for the project. In accordance with the provisions of the Council on Environmental Quality's regulations implementing the National Environmental Policy Act regarding duplication of effort and use of existing environmental assessments, further evaluation, assessment and control of these impacts by the NRC is unnecessary and inappropriate. *See* 40 C.F.R. §§ 1506.2 and 1506.3.

With respect to the recent rockslide in the vicinity of Hickory Creek, the NRC staff has contacted the Bucks County Conservation District, the Pennsylvania Bureau of Soil and Water Conservation and the Neshaminy Water Resources Authority and has determined that construction on the combined transmission main was halted following stabilization of the area of the rockslide. Both the Commonwealth and local agencies have reviewed this event and its consequences. In its letter of August 2, 1983, the Pennsylvania Department of Environmental Resources (DER) notified the NWRA engineer that it was considering requiring specific measures to be taken by the Authority and its contractor for erosion and sedimentation control to ensure that a recurrence will be unlikely following resumption of construction.²² This action is authorized by Pennsylvania DER Water Obstruction and Encroachment Permit No. ENC:09-81, issued on September 2, 1982. Subsequently, revised installation details for the permanent Hickory Creek and nearby Swale Crossings by the combined transmission main and the revised Erosion and Sediment Control Plan for the transmission main installation have been submitted to the Pennsylvania DER, Division of Waterways and Storm Water Management and Bureau of Soil and Water Conservation, for approval.²³ Consequently, I conclude that this matter is receiving appropriate attention.

CONCLUSION

With respect to those issues raised in the Petition which are appropriate for my consideration, specifically, the issues related to alleged construction impacts as discussed above, these areas were examined by a number of agencies in reviews associated with issuing various permits and approvals for construction. The rockslide which occurred following commencement of construction is receiving appropriate attention from

²² Eugene E. Council, Pennsylvania DER, Division of Waterways and Storm Water Management, letter to J.J. Powers, Jr., E.H. Bourguard Associates, Inc.

²³ J.J. Powers, Jr., E.H. Bourguard Associates, Inc., letter to Eugene Council, Pennsylvania DER, Division of Waterways and Storm Water Management, January 16, 1984; and J.J. Powers, Jr., E.H. Bourguard Associates, Inc., letter to Allen D. Forshey, Pennsylvania DER, Bureau of Soil and Water Conservation, January 16, 1984.

state and local officials. Certainly, none of the matters raised in the Petition warrants modification of the construction permits for the Limerick Facility. Accordingly, the Petitioners' request for action pursuant to 10 C.F.R. § 2.206 is denied. As provided by 10 C.F.R. § 2.206(c), a copy of this decision will be filed with the Secretary for the Commission's review.

Harold R. Denton, Director
Office of Nuclear Reactor
Regulation

Dated at Bethesda, Maryland,
this 25th day of April 1984.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

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

In the Matter of

Docket No. 50-289-SP
(Restart)

METROPOLITAN EDISON COMPANY,
et al.

(Three Mile Island Nuclear
Station, Unit 1)

May 4, 1984

In this special proceeding pertaining to the restart of Three Mile Island, Unit 1, the Commission denies an intervenor's motion requesting that the Commission mandate completion prior to restart of certain previously ordered long-term actions that supplement a set of short-term actions required to provide assurance that the facility can be operated without endangering the health and safety of the public. The Commission, however, reviews *sua sponte* the licensee's schedule for completion of the long-term actions and finds it reasonable. It rules that the long-term actions need not be completed prior to start-up but notes that they must be completed as promptly as possible.

ORDER

On October 18, 1983 the Union of Concerned Scientists (UCS) moved the Commission to order that all long-term items required in

this proceeding be completed prior to restart because of the length of time which has elapsed since this proceeding began. Both the licensee and the NRC staff opposed the UCS motion.

In the order establishing the restart proceeding, the Commission stated that it had "determined that satisfactory completion of certain short-term actions and resolution of various concerns . . . are required to provide reasonable assurance that the facility can be operated without endangering the health and safety of the public." The Commission further "determined that certain additional long-term actions are . . . required to be completed as promptly as practicable, and that reasonable progress on the completion of such items prior to restart is required . . ." CLI-79-8, 10 NRC 141, 142 (1979).

The Commission has stated that "reasonable progress" is to be determined "at the time of the Licensing Board's decision." CLI-82-32, 16 NRC 1243, 1244 (1982). The issue of whether licensee has made reasonable progress toward completion of long-term items was litigated in the restart proceeding in accord with the procedures established for that proceeding. No party appealed from the Licensing Board's findings regarding licensee's progress on long-term requirements, either to the Appeal Board or to the Commission. UCS by filing this motion with the Commission almost 5 months after the Appeal Board issued its decision on the hardware issues, ALAB-729, 17 NRC 814 (1983), is apparently attempting to reopen a closed issue solely on the basis of the passage of time.

The Commission disagrees with UCS' underlying assertion that the passage of time by itself controls whether reasonable progress is being made toward completion of long-term items. Such a determination must be based on all the circumstances surrounding each individual item, including the evolution of the requirement, any technical disagreements regarding the requirement, efforts to date, and the current implementation schedule both at TMI-1 and other similar reactors.¹ The UCS motion requesting the Commission to require completion of all long-term items before restart simply because of the lapse of time since this proceeding began is accordingly denied.

However, the Commission recognizes that over 2 years have passed since the Licensing Board issued its decision on the hardware issues, and the Commission did envision only a short lapse of time between the Licensing Board's decision and a decision on restart. The Commission has therefore *sua sponte* considered the circumstances surrounding the

¹ The Commission has stated, unless the record dictates otherwise, that TMI-1 is to be grouped with reactors which have received their operating licenses. CLI-81-3, 13 NRC 291, 295 (1981).

implementation schedule for the seven long-term items which staff indicated in its response to the UCS motion were not scheduled for completion prior to restart in order to determine whether licensee should be required to complete any of those items prior to restart. No party is now arguing that any of these items are necessary for safe operation in the short term, and the Commission has determined from its review of each of these items that the current schedule for completion is reasonable in view of the technical issues involved and, as indicated in staff's response to the UCS motion, because completion of required items at TMI-1 at restart will be comparable to the schedule of completion at other B&W reactors. The Commission has therefore decided not to require completion of any of these items prior to restart at this time. The Commission notes, however, that this decision does not modify the original 1979 order which required that long-term items be completed "as promptly as practicable."

Commissioner Gilinsky dissents from this decision.
It is so ORDERED.

For the Commission*

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 4th day of May 1984.

*Commissioners Asselstine and Bernthal were not present when this order was affirmed but had previously indicated their approval.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

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

In the Matter of

Docket No. 50-322-OL-4
(Low Power)

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

May 16, 1984

The Commission determines that General Design Criterion 17, 10 C.F.R. Part 50, Appendix A, pertaining to the availability of onsite and offsite electric power systems for nuclear power plants, is applicable to low-power operation under 10 C.F.R. § 50.57(c), and vacates a Licensing Board's order to the extent it is contrary. The Commission provides guidance for the conduct of a hearing in the event of the applicant's submission of a modified application seeking an exemption under 10 C.F.R. § 50.12(a) from regulatory requirements for a low-power license including General Design Criterion 17.

**OPERATING LICENSE PROCEEDINGS: ROLE OF
COMMISSION**

Absent special circumstances, the Commission is reluctant to assume the functions of an existing licensing board of compiling and analyzing a factual record and making an initial determination based on the record. *Washington Public Power Supply System (WPPSS Nuclear Project Nos. 3 and 5), CLI-77-11, 5 NRC 719, 722 (1977).*

REGULATIONS: EXEMPTION

The use of exemption authority under 10 C.F.R. § 50.12 is extraordinary and is based upon a finding of exceptional circumstances, considering the equities of the situation.

ORDER

Pursuant to the Commission's unpublished Order of April 30, 1984, in the Shoreham proceeding, Docket No. 50-322-OL-4 (Low Power), oral argument was held before the Commission on May 7, 1984, on the applicability of the General Design Criteria (particularly GDC 17) to the proposal of the Long Island Lighting Company (applicant) to operate the Shoreham facility at low power. Oral argument was preceded by written filings and followed by supplemental filings.

After reviewing the oral arguments and written submissions of the parties, the Commission has determined that 10 C.F.R. § 50.57(c) should not be read to make General Design Criterion 17 inapplicable to low-power operation. Accordingly, the Licensing Board's Memorandum and Order of April 6, 1984 (unpublished) is vacated to the extent that it is inconsistent with this Order.

However, the applicant made clear at the May 7 oral argument its intent to seek an exemption under 10 C.F.R. § 50.12(a). If it intends to follow that course, the applicant should modify its application for low-power operation to address the determinations to be made under 10 C.F.R. § 50.12(a).¹ The modified application should be submitted to the Atomic Safety and Licensing Board.²

In addressing the determinations to be made under 10 C.F.R. § 50.12(a), the applicant should include a discussion of the following:

1. The "exigent circumstances" that favor the granting of an exemption under 10 C.F.R. § 50.12(a) should it be able to dem-

¹ Section 50.12(a) specific exemptions:

(a) The Commission may, upon application by any interested person or upon its own initiative, grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest.

² As the Commission has previously noted, absent special circumstances not readily apparent here, it would be extremely reluctant to assume the functions of an existing Licensing Board of compiling a factual record, analyzing it and making the initial determination based on the record. *Washington Public Power Supply System* (WPPSS Nuclear Project Nos. 3 and 5), CLI-77-11, 5 NRC 719, 722 (1977).

onstrate that, in spite of its noncompliance with GDC 17, the health and safety of the public would be protected.³

2. Its basis for concluding that, at the power levels for which it seeks authorization to operate, operation would be as safe under the conditions proposed by it, as operation would have been with a fully qualified onsite A/C power source.

The Licensing Board shall conduct the proceeding on the modified application in accordance with the Commission's rules. The Licensing Board shall make findings and issue an initial decision. Any initial decision authorizing the grant of an exemption shall not become effective until the Commission has conducted an immediate effectiveness review.

The following schedule is provided to the Licensing Board as guidance in resuming the hearing:

- Day 1 - Filing and same-day service to all parties of applicant's request for exemption pursuant to 10 C.F.R. § 50.12(a)
- Day 2 - Discovery commences
- Day 32 - Discovery ends
- Day 45 - Testimony filed
- Day 55 - Hearing begins

Separate views of Chairman Palladino and Commissioner Gilinsky and the additional views of Commissioners Asselstine and Roberts are attached.

³ The Commission regards the use of the exemption authority under 10 C.F.R. § 50.12 as extraordinary. This method of relief has previously been made available by the Commission only in the presence of exceptional circumstances. See *United States Department of Energy* (Clinch River Breeder Reactor Plant), CLI-83-1, 17 NRC 1, 4-6 (1983) and cases cited therein. A finding of exceptional circumstances is a discretionary administrative finding which governs the availability of an exemption. A reasoned exercise of such discretion should take into account the equities of each situation. These equities include the stage of the facility's life, any financial or economic hardships, any internal inconsistencies in the regulation, the applicant's good-faith effort to comply with the regulation from which an exemption is sought, the public interest in adherence to the Commission's regulations, and the safety significance of the issues involved.

Of course, these equities do not apply to the requisite findings on public health and safety and common defense and security.

It is so ORDERED.

For the Commission⁴

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 16th day of May 1984.

SEPARATE VIEWS OF CHAIRMAN PALLADINO

Both Commissioner Asselstine and Commissioner Gilinsky speak of procedural irregularities associated with certain actions by the Chairman of the Commission which are related to this case.

What I believe Commissioners Asselstine and Gilinsky are complaining about is that I, as Chairman, undertook to ask why the licensing process for this and other plants has to take so long. Unquestionably, I tried to bring some measure of efficiency and expedition to this protracted licensing proceeding, as I have attempted to bring greater efficiency and expedition to the agency as a whole. I would be failing in my duty to the public if I did not, in my capacity as Chairman of the agency, do just that.

By claiming that such action constitutes irregularities, they dispute the Chairman's authority and responsibility to monitor the status of particular cases, collect the facts surrounding the status, and bring them to the attention of the Commission.

I cannot respond to the charges of impropriety in the separate views of Commissioner Asselstine because they are unspecified. However, I can say that I have not prejudged the merits of this case nor have I committed any irregularities or improprieties of which I am aware. On the contrary, I believe that my efforts reflect my determination to discharge my duties to the public, the Congress, and the Commission with competence and integrity.

⁴ Commissioner Roberts was not present for the affirmation of this Order. Had he been present, he would have approved.

Commissioner Asselstine's statement could be read to imply that these alleged procedural irregularities on my part were part of the basis of the temporary restraining order (TRO) entered by the U.S. District Court on April 25. Any such implication would be a distortion. Judge Johnson's memorandum opinion, while it discussed the variety of arguments raised by the plaintiffs, was expressly grounded on her view that the schedule adopted by the Board was too restrictive to meet the requirements of due process.

I disagree with Commissioner Gilinsky's statement that the NRC Staff played a partisan role inconsistent with the Staff's health and safety responsibilities. The Staff has not abdicated its health and safety responsibilities in this case, but rather it tried to sharpen the issues raised by the lack of clarity in the relationship among some of our regulations.

Commissioner Gilinsky also states that NRC Staff formally embraced its ideas after senior Staff members and the Chairman of the Atomic Safety and Licensing Board panel met privately with the Chairman of the Commission. This statement is inaccurate and highly misleading. I believe the Staff made it clear in the May 7 oral presentations that its ideas were raised in its February 14, 1984 brief (Transcript of Oral Argument on Shoreham, 100-101, 125-126 (May 7, 1984)); furthermore, the Shoreham Licensing Board referred to them in its February 22 ruling on the record. The notion that I have directed the Staff's ideas on this or any other issue in this case is out of touch with the facts.

Furthermore, it is inaccurate to imply that the Commission was not kept fully and currently informed about the March 16, 1984 meeting. The Commission received the EDO's March 9, 1984 memo when I did. A memo on the March 16 meeting was circulated within two working days on March 20, and followup documents on scheduling were distributed on April 4, 1984. Prior to receiving Commissioner Gilinsky's views on May 14, 1984, I had heard no Commissioner complain that he had not been kept informed on this matter.

I believe Commissioner Gilinsky's opposition to the Chairman's role under the Reorganization Plan of 1980 is well known. However, I disagree with his position. The checks and balances embodied in the Plan have worked in this case because the Commission has had the opportunity to approve or disapprove all of the actions taken.

Finally, Commissioner Asselstine says that procedural questions have created an appearance of impropriety on the part of the Licensing Board which calls for replacement of the Board. Yet, when the Commission issued its April 30 order and did not designate the matter of the Board as an issue for review, Commissioner Asselstine raised no objection.

SEPARATE VIEWS OF COMMISSIONER GILINSKY

5/16/84

I support the Commission's Order as far as it goes. However, I also agree emphatically with Commissioner Asselstine that the case should be heard by a new hearing Board for the reasons he cites.

I have an additional comment about the partisan role in this proceeding of the NRC Staff — a role inconsistent with the Staff's health and safety responsibilities.

Instead of defending the Commission's safety regulations, as it should have been doing, the Staff has been trying to run legal interference for the Company. In its legal submissions to the Board, the Staff pointed out what it thought was a hole in the regulations through which Shoreham could slip without even asking for an exemption. Is it any wonder that the Company then put its head down and made a run for it? The Staff also proposed a safety standard for decision, which a special Board adopted, but which was so weak that even the Company would not defend it.

What is more disturbing is that the special Board came into being, and the Staff formally embraced these ideas, after the Chairman of the Atomic Safety and Licensing Board Panel and senior Staff members met privately with the NRC Chairman. At this meeting, he apparently impressed on them the need to accelerate the Shoreham decision and to explore ways to authorize low-power operation. There are several things wrong with this: The Company had not yet applied for low-power authorization. The Chairman did not inform the Commission about this meeting until several days later, and did not provide the Commission with important information about it until two weeks later. One is left wondering whether this meeting could have stood the light of day.

The Staff is a party in the hearing; the Chairman is one of the ultimate judges. The Staff Directors should have told the Chairman politely that it is not their job to carry the ball for the Company. It is understandable that they did not say this under the circumstances. The Chairman is, by law, the Staff's direct supervisor. He controls annual bonuses worth many thousands of dollars to senior Staff members. What we have is a situation in which one member of the ultimate NRC adjudicatory tribunal appears to be directing the actions of a key party in the case.

Although the potential for this state of affairs has been inherent in the NRC hearing process since the Reorganization Plan of 1980 put the Chairman directly in charge of the Staff, I cannot believe that is how Congress intended our hearings to function. The progress of this case

further underlines the necessity of removing the NRC Staff from its partisan role in the hearing process.

ADDITIONAL VIEWS OF COMMISSIONER ASSELSTINE

I support the Commission's Order as far as it goes. I strongly agree with the Commission's decision, as set forth in this order, that 10 C.F.R. § 50.57(c) cannot be used as a basis to permit the issuance of a license authorizing low-power operation of the Shoreham plant without a qualified onsite electric power system, as is required by General Design Criterion 17. However, I believe the Commission's Order is deficient because it fails to address a series of procedural questions associated with the conduct of this proceeding. These questions involve procedural irregularities associated with certain actions by the Chairman of the Commission which are related to this case, and the conduct of the Licensing Board Chairman, including his decision to institute disciplinary action against an attorney for one of the parties to the proceeding. Taken together, these procedural questions create the appearance of impropriety in the conduct of this proceeding, and call for prompt and effective corrective action by the Commission.

The Commission should have directed the establishment of a new Licensing Board to consider any modified motion submitted by the applicant under 10 C.F.R. § 50.12. The establishment of a new Licensing Board would have done much to restore the appearance of objectivity and fairness to this proceeding. Moreover, it would have eliminated many of the procedural deficiencies that could call into question the validity of any subsequent decision of the Licensing Board and the Commission on the issuance of an exemption under 10 C.F.R. § 50.12. By now, it should be clear to everyone involved with this proceeding that procedural shortcuts and irregularities serve no one's interests. The perception of procedural unfairness in this proceeding has already led one United States District Court judge to take the unprecedented step of issuing a temporary restraining order halting the Licensing Board's hearing on the applicant's previous low-power motion. And it is certain that any future Commission decision in this case will be closely scrutinized. The establishment of a new Licensing Board would do much to reduce remaining uncertainties regarding the procedural adequacy of this proceeding.

But there is a more fundamental principle involved in this proceeding that transcends the outcome in this particular case. That principle is the

Commission's commitment to fairness and objectivity in its licensing proceedings. For a second time now in this proceeding, a majority of the Commission has refused to take actions that would have demonstrated to the participants in all of the Commission's licensing proceedings, and to the public at large, that the Commission is committed to assuring that its licensing proceedings are conducted in a fair and impartial manner. The consequences of the majority's inaction are enormous and far-reaching. By its inaction, the majority undermines the credibility of our licensing hearings and the integrity of our entire regulatory program.

I also agree with Commissioner Gilinsky's comments regarding the role of the NRC Staff in this proceeding.

ADDITIONAL VIEWS OF COMMISSIONER ROBERTS

Two of my colleagues have expressed the view that the Licensing Board recently established to conduct the low-power hearing should be replaced. I disagree.

No proper motion for disqualification has been filed as required by 10 C.F.R. § 2.704(c) of our regulations, and in my view the provisions of the Administrative Procedure Act applicable to the relationship between our Administrative Judges and ourselves should be read to preclude *sua sponte* action by us to replace the Board in the circumstances presently obtaining in this case.

Finally, there are policy reasons for not taking the action urged by the minority. Any errors that the Board may have made are subject to review and, if necessary, correction in the appellate process. More important, however, if the Commission were to make it a practice to take *sua sponte* action to remove judges because of its disagreement with their judicial conduct, it could become very difficult for judges to carry out their judicial duties and for the agency to recruit competent judges.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Dr. Reginald L. Gotchy
Howard A. Wilber

In the Matter of

Docket Nos. STN 50-454
STN 50-455

COMMONWEALTH EDISON COMPANY
(Byron Nuclear Power Station,
Units 1 and 2)

May 7, 1984

Retaining jurisdiction over the proceeding and the applicant's appeal from the Licensing Board's initial decision, LBP-84-2, 19 NRC 36 (1984), denying an operating license for Byron, the Appeal Board remands the record in this operating license proceeding to the Licensing Board for further evidentiary hearing on the issue of quality assurance and the rendering of a supplemental initial decision which is to include: (1) its findings based upon the additional evidence adduced; and (2) any necessary changes in the ultimate findings and conclusions reached earlier by the Board as a result of that additional evidence.

APPEAL BOARD: JURISDICTION (REMAND OF RECORD)

An appeal board acting upon an appeal from a licensing board decision may remand the record to the board for further hearing while retaining jurisdiction over the proceeding. In such circumstances, there is no necessity for a party to file a new notice of appeal after completion of further proceedings by the licensing board. *See generally Ford Motor Co. v.*

NLRB, 305 U.S. 364, 373 (1939); Local Rule 13(d) of the Court of Appeals for the District of Columbia Circuit; *Quincy Cable TV, Inc. v. Federal Communications Commission*, 730 F.2d 1549 (D.C. Cir. 1984).

OPERATING LICENSE HEARING: RESPONSIBILITY OF LICENSING BOARD

So long as legitimate uncertainty remains respecting whether a nuclear facility has been properly built, a licensing board is obliged to withhold authorization for an operating license.

OPERATING LICENSE HEARING: HEALTH AND SAFETY ISSUES (QUALITY ASSURANCE PROGRAM)

Under Commission regulations, owners of a nuclear power facility are responsible for establishing and carrying out an effective quality assurance program. See Criterion I of Appendix B to 10 C.F.R. Part 50.

LICENSING BOARD: RESOLUTION OF ISSUES

The Commission has long held that as a general proposition issues should be dealt with in the hearings and not left for later (possibly more informal) resolution. The post-hearing approach should be employed sparingly and only in clear cases — for example, where minor procedural deficiencies exist. *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1103 (1983), citing *Consolidated Edison Co. of New York* (Indian Point Station, Unit No. 2), CLI-74-23, 7 AEC 947, 951 & n.8, 952 (1974). See also *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-461, 7 NRC 313, 318 (1978).

TECHNICAL ISSUE DISCUSSED

Quality Assurance.

APPEARANCES

Michael I. Miller, Chicago, Illinois, for the applicant, Commonwealth Edison Company.

Jane M. Whicher, Chicago, Illinois (with whom **Douglass W. Cassel, Jr.**, Chicago, Illinois, was on the brief), for the intervenors, Rockford League of Women Voters and Dekalb Area Alliance for Responsible Energy/Sinnissippi Alliance for the Environment.

Richard J. Rawson (with whom **Mitzi A. Young** was on the brief) for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

I. INTRODUCTION AND SUMMARY

A. Before us is the appeal of the Commonwealth Edison Company (applicant) from the Licensing Board's January 13, 1984 initial decision in this proceeding involving its two-unit Byron Nuclear Power Station in Illinois.¹ In that decision, the Board denied the operating license application for Byron. The basis of the denial was the Board's conclusion that the applicant had not demonstrated — in the words of Contention 1A of the intervenor Rockford, Illinois, League of Women Voters — its

“ability or willingness to comply with 10 C.F.R. Part 50, Appendix B, to maintain a quality assurance and quality control program, and to observe on a continuing and adequate basis the applicable quality control and quality assurance criteria and plans”²

This conclusion rested in turn upon detailed subsidiary findings respecting the inadequacy of both the quality assurance endeavors of numerous contractors engaged in the construction of the Byron facility and the control of those endeavors exercised by the applicant itself.³

Despite its adoption of the substance of Contention 1A, the Board went on to disclaim agreement with what it took to be the “implications” of the contention: *viz.*, that the applicant “is institutionally incapable or unwilling to maintain an adequate quality assurance program.”⁴ By way of elaboration, the Board went on to state:

¹ LBP-84-2, 19 NRC 36.

² *Id.* at 213.

³ *Id.* at 112-212.

⁴ *Id.* at 218.

Although the underlying reasons for Applicant's failures with respect to the contractors' quality assurance programs were not litigated during the hearing, we believe that the record as a whole indicates that the very large quality assurance task at Byron simply got ahead of Applicant's quality assurance organizations. It may be a matter of timing. As the evidence unfolded at the hearing, Applicant was catching up.⁵

Additionally, the Board took pains at the end of its opinion to explain the "rationale, scope and significance" of its decision, including the reasons why, despite the denial of the operating license application on quality assurance grounds, it had considered and decided (essentially in the applicant's favor) all of the other issues placed in controversy by the intervenors' contentions.⁶ As the Board saw the matter, its findings and conclusions on the quality assurance issue left it with two choices. It could deny the application outright and thus relinquish jurisdiction over the proceeding. Or, instead, it could follow the course of "informing the parties now of the substance of [its] views on the quality assurance issues, retaining jurisdiction over them, and providing for further proceedings before [it] when the various inspections, investigations and remedial actions become ripe for consideration."⁷ Given the fact that it lacked the authority "to foreclose further proceedings on the application" and that "an operating license for Byron may subsequently be granted,"⁸ the Board considered adoption of the second alternative. It determined, however, that

the remedy most responsive to the circumstances of this case, and the remedy least harsh to the Applicant yet still appropriate, is to decide the issue now. This, we say, is the least harsh appropriate remedy, as compared to the traditional practice of reserving jurisdiction, because it permits the parties to test immediately on appeal the quality of our decision. To reserve jurisdiction and to postpone final decision, in face of the impending completion of construction at Byron, would impose unilaterally upon the parties, particularly the Applicant, our own view of the facts, law and appropriate remedy. Unless Applicant could mount a difficult interlocutory appeal

⁵ *Ibid.* The Board also reiterated its earlier conclusion that the various quality assurance organizations within Applicant's corporate structure were suitably designed to carry out their functions; that they possess sufficient independence from costs and scheduling considerations, and that Applicant prevailed on that aspect of the quality assurance contention charging insufficient independence of the quality assurance function.

Ibid.

⁶ In addition to the Rockford League of Women Voters, the Dekalb Area Alliance for Responsible Energy (DAARE) and the Sinnissippi Alliance for the Environment (SAFE) jointly intervened in the proceeding. All three organizations are represented by the same counsel on appeal and will be collectively referred to as the "intervenors."

⁷ *Id.* at 279.

⁸ *Id.* at 278. It was for this reason that the Board addressed the non-quality assurance issues.

from such a determination (to postpone our decision), it would have been denied due process.⁹

On that score, it added:

In describing the reach of our order, we have avoided describing it as *res judicata* or collateral estoppel with respect to the quality assurance issues because neither concept, as ordinarily understood, captures our intent. Neither concept neatly fits the unusual situation to be found in the continuum of a licensing proceeding with many aspects. We do not foreclose future proceedings on the quality assurance issue and have no jurisdiction to do so. Recognizing that each party has proposed a final decision to the Board, albeit in differing directions, we have simply decided the issue on the record before us.¹⁰

It is against this background that the applicant's appeal comes to us. We are told by the applicant that the Licensing Board's result rested on a flawed legal and factual analysis and that the preponderance of the evidence before that Board is to the effect that the applicant fulfilled its quality assurance obligations. Thus, according to the applicant, the initial decision should be reversed insofar as it denied the operating license application and the NRC Director of Nuclear Reactor Regulation should be authorized to issue the license. If, however, we should find the existing record insufficient to justify that result, the applicant would have us vacate the denial of the application and order a reopening of the record to receive further evidence. In this connection, the applicant asks that we conduct the reopened hearing ourselves or, if disinclined to do so, direct that a new licensing board be created for that purpose.

The intervenors insist that the Licensing Board applied the correct legal standard and, on the record at hand, was compelled to find that the applicant had failed to demonstrate the existence of reasonable assurance that, as built, the Byron plant can be operated safely. Accordingly, the intervenors would have us affirm the initial decision. In any event, intervenors' argument proceeds, no operating license could issue at this juncture because of errors on the part of the Licensing Board in both (1) denying intervenors' attempt to raise issues respecting applicant's financial qualifications, the need for the power to be generated at Byron and the availability of alternative energy sources; and (2) determining intervenors' seismology contention in the applicant's favor. Insofar as applicant's alternative motion to reopen the record is concerned, the interve-

⁹ *Id.* at 279.

¹⁰ *Id.* at 279-80.

nors unconditionally oppose all but the portion of it relating to the applicant's recently completed reinspection program (discussed *infra*).

The NRC staff's appellate position is between that of the applicant and the intervenors. On the one hand, the staff joins in the claim of the applicant that the Licensing Board erred in denying the application. On the other hand, it disagrees with the applicant that the record is now sufficient to permit the authorization of operating license issuance. Rather, in the staff's view, there is a plain need to take further evidence focused on the applicant's reinspection program.

B. On full consideration of the Licensing Board's decision, the evidentiary record and the assertions of the respective parties, we have concluded that the public interest will best be served by the remand of that record to the existing Licensing Board for the receipt of further evidence on the quality assurance issue.¹¹ And, taking a cue from the Court of Appeals for the District of Columbia Circuit, we shall retain jurisdiction over the proceeding.¹² This means that, once the Licensing Board has completed the hearing on remand and rendered its supplemental decision,¹³ there will be no necessity for any party to file a new notice of appeal.¹⁴ Rather, upon receipt of the supplemental decision, we will establish the procedures governing the submission of the parties' views on that decision.

In subsequent portions of this opinion, we explain (1) why the existing record calls for neither a reversal nor an affirmance of the result below; (2) what at minimum needs further evidentiary exploration; and (3) why it is appropriate for the existing Licensing Board to take the additional evidence. At the threshold, a few general observations are in order.

As the Licensing Board at least implicitly acknowledged in its initial decision, and the intervenors explicitly conceded at oral argument,¹⁵ the record is devoid of anything establishing the actual existence of uncorrected construction deficiencies of potential safety significance. Rather, as both the Board and the intervenors see it, operating license denial is justified because the ascertained quality assurance shortcomings precluded a finding of reasonable assurance that any and all serious construction infirmities have been detected and rectified.

¹¹ See generally *Ford Motor Co. v. NLRB*, 305 U.S. 364, 373 (1939).

¹² See Local Rule 13(d) of that court and *Quincy Cable TV, Inc. v. Federal Communications Commission*, 730 F.2d 1549 (D.C. Cir. 1984).

¹³ As will be seen, for the time being we are leaving the findings in the initial decision undisturbed. It may be, of course, that the Licensing Board will see fit to alter some of those findings in light of the further record development.

¹⁴ See Local Rule 13(d) of the District of Columbia Circuit.

¹⁵ App. Tr. 44.

Obviously, so long as legitimate uncertainty remained respecting whether the Byron facility has been properly built, the Licensing Board was obliged to withhold the green light for an operating license. Thus, assuming the Licensing Board justifiably concluded that such uncertainty existed, it necessarily follows that it rightly declined to authorize license issuance. But it does not perforce follow from the same assumption that the Board was also warranted in denying the application outright.

To the contrary, such a result would depend for its validity upon a supported finding that it is not possible for the ascertained quality assurance failings either to be cured or to be overcome to the extent necessary to reach an informed judgment that the facility has been properly constructed. In this case, the Licensing Board did not make a finding to that effect. Indeed, as has been seen, the Board did not merely disavow any suggestion that the applicant was “institutionally incapable or unwilling to maintain an adequate quality assurance program,” but also noted that the applicant was “catching up” with its quality assurance problems as “the evidence unfolded at the hearing.”¹⁶ Further, as will be seen, at the time the initial decision issued the applicant’s final report on its massive reinspection program was about to surface.

In this regard, we do not agree with the rationale undergirding the Licensing Board’s determination not to await further developments before denying the application and terminating its jurisdiction.¹⁷ It seems to us that that remedy was not responsive to the circumstances of the case. True, as the Board pointed out, had it “reserve[d] jurisdiction and postpone[d] final decision” an immediate appeal as a matter of right would have been foreclosed. But, in our view, that consideration cannot serve to justify the rendition of final judgment in the face of unfolding developments having a decided bearing — and conceivably a crucial effect — upon the issue that shaped that judgment.

In short, in the situation confronting it, we think that the Board should have adopted the alternative of “informing the parties now of the substance of [its] views on the quality assurance issues, retaining jurisdiction over them, and providing for further proceedings before [it] when the various inspections, investigations and remedial actions become ripe for consideration.”¹⁸ Had it done so, the applicant could still have sought discretionary appellate review of the Board’s appraisal

¹⁶ LBP-84-2, *supra*, 19 NRC at 218.

¹⁷ *Id.* at 279.

¹⁸ *Ibid.*

of the existing quality assurance record.¹⁹ True, it is unlikely that we would have undertaken such review. We cannot, however, subscribe to the Board's belief that, unless it obtained our consideration of the quality assurance issue at this juncture, the applicant would be denied due process.²⁰ Indeed, it is the general rule that, irrespective of how detrimental to its interests an interlocutory order might be, a party must abide the event of final action on the matter before pressing for appellate relief.

II. DISCUSSION

A. Commission regulations vest in the owner(s) of a nuclear power facility the duty of establishing and carrying out an effective quality assurance program.²¹ This means that, although the facility owner may delegate to others (such as contractors) part or all of the quality assurance function, the ultimate responsibility for ensuring compliance with each Commission requirement remains with that owner.²²

At the hearing below, the intervenors disputed the adequacy of the quality assurance program of both the applicant and its contractors. On the basis of the record, the Licensing Board found serious deficiencies to exist with respect to the quality assurance activities of several of the contractors, including the Hatfield Electric Company and the Hunter Corporation.²³ In the case of Hatfield, the deficiencies were found to be so serious that, standing alone, they necessitated a ruling against the applicant on the intervenors' quality assurance contention.²⁴ By way of explanation, the Board noted that it

does not have confidence that the quality of the work at Byron by Hatfield Electric Company is adequate to provide reasonable assurance that the Byron facility can be

¹⁹ See 10 C.F.R. 2.718(i); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 482-83 (1975).

²⁰ LBP-84-2, *supra*, 19 NRC at 279.

²¹ See Criterion I of Appendix B to 10 C.F.R. Part 50 (hereafter Appendix B). As employed in the discussion in this opinion, the term "quality assurance" encompasses quality control as well. See Introduction to Appendix B.

²² Criterion I of Appendix B. The quality assurance requirements are detailed in Criteria I through XVIII of that Appendix.

²³ Hatfield is the electrical contractor for Byron, and Hunter was given the responsibility for the installation and inspection of the piping and pipe support systems. The quality assurance programs of three other contractors, Blount Brothers Corporation, Reliable Sheet Metal and Systems Control Corporation, were also examined below. Blount's program was found adequate. The deficiencies discerned in the Reliable Sheet Metal and Systems Control programs, the Board determined, are remediable. LBP-84-2, *supra*, 19 NRC at 217.

²⁴ *Id.* at 215-16.

operated without undue risk to the public health and safety. The long and bad quality assurance history of Hatfield at Byron persuades the Board that the Applicant has not discharged its responsibility to assure that Hatfield's quality assurance program is effective. Applicant seems to have begun to meet its quality assurance responsibilities with respect to its Byron contractors very late. With respect to Hatfield, at least, we do not have assurance that even today Applicant has met those responsibilities.²⁵

1. Hatfield Electric Company

Although the evidence established numerous deficiencies in Hatfield's quality assurance program, the Board regarded the most significant ones to be those in two areas: quality assurance inspector capability and document control. We consider them in turn.

a. Qualification, Training and Certification of Inspection Personnel

Byron is within the jurisdiction of the inspectors in NRC Region III. As long ago as August 1978, Region III officials issued a notice of violation to the applicant because Hatfield had not received the required approval by the applicant of its proposed procedure for obtaining compliance with one of the standards of the American National Standards Institute (ANSI).²⁶ In response to the notice, the applicant began a "review [of] all site contractors to verify that their training and qualification procedures compl[ie]d with the requirements of" that standard.²⁷

In the Spring of 1982, Region III conducted a Construction Assessment Team (CAT) inspection of the Byron units for the purpose of assessing portions of the quality assurance program governing the construction of the facility. One of the conclusions reached was:

Based on a review of training qualification and certification records of a minimum of ten percent of the QA/QC [quality assurance/quality control] personnel working for contractors performing safety-related work it is apparent that an effective program does not exist to ensure that a suitable evaluation of initial capabilities is performed, that written certification is provided in an appropriate form, and that qualification criteria is [sic] established.

Certain contractor QA/QC supervisors and inspectors were not adequately qualified and/or trained to perform safety-related inspection functions.²⁸

²⁵ *Id.* at 214.

²⁶ See ANSI N45.2.6 - 1973, *Qualifications of Inspection, Examination, and Testing Personnel for the Construction Phase of Nuclear Power Plants*, which addresses, among other things, the qualifications, levels of capability and physical capabilities of quality assurance inspectors.

²⁷ Joint Interveners' Exhibit 3.

²⁸ Applicant's Exhibit 8 at 67.

Insofar as the conclusion applied to Hatfield, it rested on these CAT findings:

- (1) The certification records for three (3) of the nine (9) inspector qualifications reviewed did not contain a Certification Evaluation Sheet.
- (2) The certification record for one (1) of the nine (9) QC inspector qualifications reviewed did not have records of examinations or work samples.
- (3) The certification records for two (2) of the nine (9) QC inspector qualifications reviewed did not provide complete evaluation and justification for certification to perform the level of inspection identified.²⁹

In light of these disclosures, Region III issued another notice of violation to the applicant. In the notice, the applicant's attention was drawn to the requirement that quality assurance programs

shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained.³⁰

b. Document Control

Another quality assurance requirement is that:

Measures shall be established to control the issuance of documents, such as instructions, procedures, and drawings, including changes thereto, which prescribe all activities affecting quality. These measures shall assure that documents, including changes, are reviewed for adequacy and approved for release by authorized personnel and are distributed to and used at the location where the prescribed activity is performed. Changes to documents shall be reviewed and approved by the same organizations that performed the original review and approval unless the applicant designates another responsible organization.³¹

In 1979, Region III cited this requirement when it found that Hatfield had identified concrete expansion anchors as nonconforming³² but had

²⁹ *Id.* at 69. There were a total of eight companies identified that had various types of deficiencies in the area of inspector certification. The applicant's response was to initiate remedial programs that would recertify all inspectors on site at the time of the report and would reinspect enough of the work that had been completed since the beginning of Byron construction to demonstrate that the earlier quality assurance program was effective. These programs are described below. See pp. 1176-77, *infra*.

³⁰ Appendix to Applicant's Exhibit 8. The quoted requirement is found in Criterion II of Appendix B.

³¹ Criterion VI of Appendix B.

³² "Nonconformance" is defined as "[a] deficiency in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable or indeterminate." ANSI/ASME NQA-1 (1983 Ed.) *Quality Assurance Program Requirements for Nuclear Facilities* at 6.

not documented this fact in the manner prescribed by the established document control system.³³

The Licensing Board observed that this was the first “of six such episodes indicating a continuing weakness in Hatfield’s ability to maintain a reliable document control system.”³⁴ The most recent episode described in the evidence related to the discovery by the applicant of Hatfield’s use in mid-1983 of “field problem sheets” to correct nonconforming work, rather than the issuance of discrepancy reports.³⁵ According to the Board, this practice precluded generation of the appropriate records to identify defective inspections and, additionally, might prevent achievement of the objectives of applicant’s remedial programs (*see* note 29, *supra*).³⁶ The Board found this most troublesome:

As we have noted throughout this decision, a system of maintaining documentation of nonconforming conditions is essential to the reliable tracking and trending of nonconforming conditions. The need for reliable reports on deficiencies and nonconforming conditions pervades the QA criteria of Appendix B.³⁷

2. Hunter Corporation

While the Licensing Board did not view Hunter’s quality assurance program with the same degree of concern, the deficiencies encountered at that company appear to be similar in kind to those uncovered at Hatfield in that they are related to the certification of quality assurance inspectors and the maintenance of proper document control.

a. Qualification, Training and Certification of Inspection Personnel

Hunter was identified in the CAT inspection report as having a single deficiency in the certification of inspectors:

The certification records for two (2) of the seven (7) QC inspector qualifications reviewed did not provide determination of equivalent inspection experience to support the level of certification.³⁸

³³ Joint Intervenors’ Exhibit 4, Appendix A.

³⁴ LBP-84-2, *supra*, 19 NRC at 181.

³⁵ *Id.* at 200.

³⁶ *Ibid.*

³⁷ *Id.* at 183.

³⁸ Applicant’s Exhibit 8 at 69.

b. *Document Control*

Michael Smith testified for intervenors that, during the period between 1978 and 1980 when he was employed by Hunter as a quality assurance inspector, that company engaged in "tabling."³⁹ More specifically, after having identified a discrepancy between the specified position for pipe supports and the actual location of those supports, an inspector in the field would be instructed by his or her supervisors to ignore the discrepancy and to make no mention of it in his or her documentation. According to Mr. Smith, the inspector would be told that the discrepancy would be identified after construction of the system was complete and would be corrected by a "hanger field problem" system. He went on to testify, however, that he had no evidence that the discrepancies he identified were ever placed into the "hanger field problem" system. As the Licensing Board saw it, there should have been a formal documented method to assure the inspectors that their identified nonconformances were properly addressed.⁴⁰

Additionally, in mid-1983, the applicant found that Hunter was using "field problem sheets" in a manner similar to Hatfield in that discrepancy reports were not being initiated to document nonconformances.⁴¹

B. The applicant disputes the validity of the Board's findings of inadequacy of the quality assurance programs of Hatfield and Hunter, and the outright rejection of its operating license application. It argues that the Board erred in its appraisal of the evidence on the quality assurance programs of those contractors, essentially in failing to look at the evidence in its totality and in ignoring the principles of our *Callaway* decision in assessing that evidence.⁴² Although conceding that there were quality assurance deficiencies, the applicant maintains, on the strength of *Callaway*, that a license denial was not warranted inasmuch as (1) there was no "widespread breakdown" in quality assurance procedures on the part of either itself or its contractors; and (2) the Licensing Board did not find any actual uncorrected construction defects of potential safety significance. In this regard, the applicant tells us that each Hatfield deficiency identified by the Board is of no safety significance, has been resolved to the staff's satisfaction, or will be rectified.⁴³ Further, the applicant dismisses at least one of the deficiencies on the additional ground that it was an "isolated incident" and, as such, cannot undergird

³⁹ Smith, fol. Tr. 3243, at 22-23.

⁴⁰ LBP-84-2, *supra*, 19 NRC at 143.

⁴¹ Joint Intervenors' Exhibit 29 at A1.

⁴² *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343 (1983).

⁴³ Applicant's Brief (February 13, 1984) at 36-46.

an expansive finding that the applicant's quality assurance program was inadequate.⁴⁴

The fatal difficulty with this line of argument is that it ignores the fact that one of the principal deficiencies with regard to both Hatfield and Hunter related to the absence of adequate certification procedures for quality assurance personnel. Given that absence, a legitimate question arose respecting whether the quality assurance inspectors examining safety-related structures, systems and components were, in actuality, competent to perform their assigned function. And, so long as that doubt lingered, there also remained an uncertainty as to whether construction defects of potential safety significance had gone undetected.

We find nothing in *Callaway* that suggests, let alone holds, that an operating license can issue despite the presence of a cloud overhanging the adequacy of safety-related facility construction. Further, we are totally satisfied that the record before the Licensing Board was insufficient to disperse the cloud here. To be sure, as will be discussed in the next section, before the record closed the applicant had embarked upon programs designed to remove the concern engendered by the faulty inspector certification procedures. But neither the validity nor the results of those programs were (or, as a practical matter, could have been) explored in any depth at the hearing last summer. Although the applicant insists that it can and should now be left to the staff to undertake that exploration outside of the adjudicatory arena, we think otherwise. Because the efficacy and outcome of the remedial programs are central to a finding of reasonable assurance of proper facility construction, the intervenors are plainly entitled to have their day in court prior to a possible resolution of the quality assurance matter in the applicant's favor.⁴⁵

C.1. As we have just seen, the requisite finding of reasonable assurance that the facility has been properly constructed cannot be made on the existing evidentiary record because of the uncertainty respecting the capabilities of quality assurance inspectors who examined safety-related structures, systems and components. In recognition of this uncertainty, the applicant initiated recertification and reinspection programs for the

⁴⁴ *Id.* at 39, 45. As to the identified Hunter deficiencies, the applicant insists that the Board's findings are not supported by the record. *Id.* at 26-32.

⁴⁵ As we recently observed:

The Commission . . . has long held that, "[a]s a general proposition, issues should be dealt with in the hearings and not left over for later (and possibly more informal) resolution." *Consolidated Edison Co. of New York* (Indian Point Station, Unit No. 2), CLI-74-23, 7 AEC 947, 951 (1974).

"[T]he 'post-hearing' approach should be employed sparingly and only in clear cases" — for example, where "minor procedural deficiencies" are involved. *Id.* at 952, 951 n.8.

Louisiana Power and Light Co. (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1103 (1983). See also *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-461, 7 NRC 313, 318 (1978).

purpose of establishing that, notwithstanding the disclosure during the CAT inspection of deficiencies in the certification records of quality assurance inspectors, those inspectors were in fact capable of performing their assigned tasks.

The recertification program was carried out between mid-1982 and early 1983.⁴⁶ It involved the establishment of revised criteria for quality assurance personnel and the development of procedures to ensure, among other things, that the individuals participating in the reinspection program satisfied these new criteria.⁴⁷

For its part, the reinspection program was initiated in March 1983 to review the work performed by the inspectors of various contractors prior to the time the recertification program went into effect.⁴⁸ Under this program, a random sample of the inspector population was obtained by selecting every fifth inspector from a chronological listing (based on the date of certification) of each individual certified during the period between the start of Byron construction and September 1982.⁴⁹ Additionally, a minimum of three other inspectors in the employ of each contractor was selected by the NRC senior resident inspector at Byron.⁵⁰ To the extent possible, the structures, systems and components that had been examined by the selected inspectors during their first three months of certified status were reexamined to determine whether each inspector had done his or her job properly.⁵¹ If the reexamination reflected an unacceptably high error rate in a particular area of inspection (e.g., weld length), the inspector's work in that area over the next three

⁴⁶ Tr. 7559; NRC Region III Testimony (Forney), fol. Tr. 7801, at 8.

⁴⁷ Stanish, fol. Tr. 7549, at 2-5; Tr. 7985. If necessary, inspectors were retrained and retested. Tr. 7580-82.

⁴⁸ Tuetken, fol. Tr. 7760, at 3-4; NRC Region III Testimony, fol. Tr. 7801, Attachment B, IE Report 50-454/83-15, 50-455/83-13, at 3. The eight contractors included in the reinspection program were Blount Brothers Corporation, Johnson Controls Incorporated, Hunter Corporation, Nuclear Installation Services Company, Hatfield Electric Company, Powers-Azco-Pope, Pittsburgh Testing Laboratory and Peabody Testing Laboratory. NRC Region III Testimony, fol. Tr. 7801, Attachment B, IE Report 50-454/83-26, 50-455/83-19, at 4. Other contractors who performed safety-related work were not included because their work (1) is now inaccessible, (2) was inspected by another contractor such as Pittsburgh Testing Laboratory or the Authorized Nuclear Inspector, (3) involved nondestructive examinations by inspectors certified to the appropriate industry standard, or (4) could not be recreated. NRC Region III Testimony (Forney), fol. Tr. 7801, at 6.

The contractors not included in the reinspection program performed only 6.3 percent of the total safety-related work at the Byron site. See letter from Alan P. Bielawski to Appeal Board (February 27, 1984), Enclosure at Figure ES-3.

⁴⁹ Tuetken, fol. Tr. 7760, at 4. This method of selection of the inspector sample was used for six contractors in the reinspection program. For the other two contractors, Powers-Azco-Pope and Johnson Controls, each quality assurance inspector certified during the period between the beginning of Byron construction and September 1982 was selected. *Ibid.* These two contractors were reinspected on this basis because of particular concern about their certification procedures used prior to the recertification program. *Id.* at 5.

⁵⁰ *Id.* at 4.

⁵¹ *Ibid.*

months would be examined to determine whether there had been satisfactory improvement.⁵² If not, all of his or her work in the area was reinspected and, for that area, the number of inspectors whose work was subject to reexamination increased by 50 percent.⁵³

Some evidence was presented in August 1983 on the methodology and then-current status of the recertification and reinspection programs.⁵⁴ But when the evidentiary record was finally closed later that month, the reinspection program was still in progress. In this regard, the Board was informed that the program should be completed shortly and that Region III hoped to finish its evaluation of it by the end of the calendar year.⁵⁵ The Region further advised the Board that it would not recommend the issuance of an operating license until such time as it had conducted the evaluation and concluded that the program results were satisfactory.⁵⁶

As of the end of December, the staff (and the Licensing Board) had in hand only a preliminary report on the results of the reinspection program.⁵⁷ (The final report did not surface until this February.)⁵⁸ Although the Board might have elected to await further developments before deciding whether the program removed all significant quality assurance concerns, as previously seen it chose instead to issue its initial decision. In it, the Board expressed several reservations regarding the adequacy of the program — none of which the Board thought had been eliminated at the hearing last August.⁵⁹ These reservations, coupled with the fact that the staff had not then found the reinspection program

⁵² *Id.* at 6.

⁵³ *Ibid.* The reinspection program just described is to be distinguished from another program involving the reinspection of 100 percent of the construction activities of certain contractors such as Reliable Sheet Metal and Systems Control Corporation (but not Hatfield or Hunter). Shewski, fol. Tr. 2364, at 19-20; Tr. 2514, 2579; Tr. 2664. The Licensing Board found the 100 percent reinspection program (coupled with the correction of any discerned construction deficiencies) to be an acceptable means of resolving quality assurance concerns and was prepared to leave the oversight of the program to the staff. LBP-84-2, *supra*, 19 NRC at 216. As will be seen, however, there is a question respecting the application of the program to Systems Control that requires resolution on an adjudicatory record. *See* pp. 1179-80, *infra*.

⁵⁴ *See, e.g.*, Stanish, fol. Tr. 7549, and Tuetken, fol. Tr. 7760.

⁵⁵ Tuetken, fol. Tr. 7760, at 7; Tr. 7858-59; Tr. 7979.

⁵⁶ Tr. 7859.

⁵⁷ *See* letter from Bruce D. Becker to Licensing Board (November 3, 1983) with enclosure.

⁵⁸ *See* letter from Alan P. Bielawski to Appeal Board (February 27, 1984) with enclosure.

⁵⁹ For example, the Board observed that it was not known if the program was using a statistically significant and reliable sample. LBP-84-2, *supra*, 19 NRC at 214. The Board was also concerned about the discovery of documentation deficiencies (*e.g.*, use of "field problem sheets" rather than discrepancy reports) during an audit of the reinspection program by the applicant. *See* pp. 1173, 1174, *supra*. These concerns might have been resolved had the Board received further evidence. For example, the applicant complains that the Board showed no interest in the sampling size during the August hearing. Applicant's Brief at 57-58. We note that applicant's counsel claimed at oral argument that his client could have responded to this concern if known. App. Tr. 128-29.

"sufficient to assure that Hatfield's work is good enough,"⁶⁰ heavily influenced the outright denial of the operating license application.

As matters now stand, not only is the applicant's final report on the reinspection program on file but, in addition, the staff has concluded an appraisal of the program and its results.⁶¹ In the totality of circumstances, the appropriate course is a further hearing to permit a full exploration of the significance of the program in terms of whether there is currently reasonable assurance that the Byron facility has been properly constructed.⁶² Stated otherwise, the focus of the inquiry should be upon whether, as formulated and executed, the reinspection program has now provided the requisite degree of confidence that the Hatfield and Hunter quality assurance inspectors were competent and, thus, can be presumed to have uncovered any construction defects of possible safety consequence.⁶³

At minimum, the following questions must be addressed in deciding whether the methodology, implementation and results of the reinspection program were adequate to resolve the concerns about (1) the capability of the Hatfield and Hunter quality assurance inspectors, and (2) the quality of the work performed by these two contractors: Has the integrity of the reinspection program been established even though the reinspections were conducted by Hatfield and Hunter personnel, rather than by an independent organization?⁶⁴ Have the deficiencies identified during the reinspections been properly included in the statistics of the program regardless of the particular documentation (e.g., "field problem sheets") used to record such deficiencies? Has the sampling methodology provided adequate confidence in the capability of the Hatfield and Hunter quality assurance inspectors whose work was not reinspected and the overall quality of the work of those two contractors? Inasmuch as

⁶⁰ LBP-84-2, *supra*, 19 NRC at 214.

⁶¹ See letters from Richard J. Rawson to Appeal Board (April 2 and April 18, 1984) with which were enclosed W.S. Little affidavit and IE Report 50-454/84-13, 50-455/84-09, respectively.

⁶² To avoid any possible misunderstanding, we stress that this conclusion rests entirely upon the particular circumstances of this case as discussed in the text. In sum, it seems to us that the public interest would be ill-served were final judgment to be passed on the operating license application without a full evidentiary consideration of the reinspection program and its results.

⁶³ With regard to the identified deficiencies in Hatfield and Hunter document control, a finding as a result of the reinspection program that the quality of the work performed by those contractors is acceptable would indicate that these deficiencies did not adversely affect the final product.

⁶⁴ In this regard, we note that the Board below raised concerns on this issue in its hearing in August 1983. Applicant's witness Tuetken assured the Board that administrative controls precluded any inspector from reinspecting his or her own work. Tr. 7783-84. But, it is clear that at least some of the same inspectors whose work was being reinspected did participate in the reinspection program and, more importantly, knew whose work they were reinspecting. *Ibid*. There thus remains the question whether the potential for inspectors protecting each other from criticism has significantly flawed the reinspection program and its results.

the reinspection program only covered inspectors certified up to September 1982 and the recertification program was not completed until early 1983,⁶⁵ has the applicant ensured that inspectors certified between these dates are capable of performing their tasks? Have all identified discrepant conditions, such as poor welding, been properly resolved?

2. Since the issuance of the Licensing Board's initial decision, we have received new information that suggests that the Board may have made an incorrect assumption regarding the extent of a reinspection of equipment supplied by one of the applicant's contractors, Systems Control Corporation. This equipment included cable trays and supports, instrument racks and main and local control boards.

Serious quality assurance failures at Systems Control led to the establishment in February 1980 of an independent inspection program.⁶⁶ In discussing this matter, the Board below indicated that the program called for (1) 100 percent inspection and acceptance by Pittsburgh Testing Laboratory prior to the shipment of further material by Systems Control to the Byron site; and (2) a 100 percent reinspection of Systems Control instrument panels already shipped to Byron by February 1980.⁶⁷ But, in resolving its concerns regarding the quality assurance program of this contractor, the Board apparently proceeded on the assumption (possibly erroneous) that all Systems Control material (not just instrument panels) already shipped to Byron were to be reinspected. This is seen from the Board's statement:

We concluded that the Systems Control Corporation quality assurance program broke down, was unreliable and fraudulent and that Applicant defaulted in its respective oversight responsibility. The inquiry by the Department of Justice into alleged fraud at Systems Control was pending at the close of the record. Problems with Systems Control were still open items with Region III. The Board noted that the 100 percent reinspection of Systems Control work may remove the matter from a direct safety concern. This factor, the reinspection of all of Systems Control's work, which by its nature is accessible for reinspection, points to a somewhat different conclusion than the Hatfield situation. The results of the reinspection can be evaluated by the Staff as a matter of routine procedure as a delegable function. There is nothing left to adjudicate with respect to Systems Control.⁶⁸

By letter of March 14, 1984, applicant's counsel informed us that onsite inspectors had identified deficient welds on cable pan hangers supplied by Systems Control. We received further information in Board

⁶⁵ See p. 1176, *supra*.

⁶⁶ Tr. 2579.

⁶⁷ LBP-84-2, *supra*, 19 NRC at 133.

⁶⁸ *Id.* at 216.

Notification 84-074 (April 17, 1984). We were not told precisely when those hangers were shipped to Byron; all that we do know is that the applicant believes the welds were made prior to December 23, 1980. There is at least the possibility that the hangers were still at Systems Control's plant in February 1980; if so, it would appear that either Pittsburgh Testing Laboratory did not perform a 100 percent inspection or the inspection was not carefully performed. If, instead, the hangers were already on the Byron site in February 1980, the question arises: why were not the defects uncovered long ago? This matter also warrants exploration on the evidentiary record.

D. What remains for determination is whether we should undertake the conduct of the further hearing ourselves and, if not, whether the remand should be to this Licensing Board or a differently constituted one. As earlier noted, the applicant would prefer any additional evidence to be taken by us; alternatively, it asks that a new licensing board be established. On the other hand, given the taking of additional evidence, the intervenors urge a remand to the existing Board. For its part, the staff maintains that we should preside over the further hearing. If, however, there is a remand, the staff agrees with the intervenors that the existing Licensing Board should not be replaced.

For the following reasons, we have chosen the course recommended by the intervenors.

1. We reject summarily the applicant's suggestion that any remand be directed to a new licensing board. That suggestion appears to rest exclusively on the applicant's insistence that the existing Licensing Board "has apparently been improperly influenced" by the information it received at an *ex parte, in camera* hearing.⁶⁹ With respect to that hearing, the Board had this to say in its initial decision:

On August 9 and 10, 1983 the Board heard from representatives of the Office of Inspection and Enforcement, Region III, and the Office of Investigations, *in camera* and *ex parte*, to learn the status of pending inspections and investigations. We determined that some of the inspections are of no further interest and all of the inspections and the investigations were in stages too early to produce reliable results. Memorandum and Order, LBP-83-51, 18 NRC 253 (1983). Subsequently, and prior to August 26, we again reviewed the transcript of the *in camera, ex parte* session in connection with disclosing nonconfidential portions. The Board has not since reviewed that transcript and we do not use that information in this decision.⁷⁰

⁶⁹ Applicant's Motion in the Alternative to Reopen the Record (February 13, 1984) at 6.

⁷⁰ LBP-84-2, *supra*, 19 NRC at 215 n.75.

The applicant has given us no cause to doubt the accuracy of the Board's representation that its decision was not influenced by the testimony presented at the hearing. Nor have we been provided with a credible basis for concluding that that testimony might affect the Board's appraisal of the evidence adduced on remand. In the circumstances, the disqualification of the Board would (1) be without legal or factual foundation; (2) cast unwarranted aspersions on its members; and (3) undoubtedly retard the completion of the remand inasmuch as the members of the new licensing board assuredly would require time to familiarize themselves with the issues and existing record.⁷¹

2. The choice then is between the existing Licensing Board and this Board. The only consideration possibly favoring our conducting the further hearing is that one tier of appellate review would be eliminated. On the other side of the scale are factors of at least equal weight. For one thing, the Licensing Board has acquired some familiarity with the reinspection program as a result of having taken evidence over several days on the subject. For another, given the extensive hearings held by it on the various aspects of the issue of the adequacy of the applicant's quality assurance program, that Board is in a better position to evaluate *ab initio* the relative significance of any new evidence. (It is for this reason that we are calling upon that Board not merely to make additional findings based on the further evidence, but also to reexamine the ultimate findings in its initial decision to determine whether they might require alteration.) In light of these factors, there simply is insufficient cause for us to undertake the record development function that, absent extraordinary circumstances, should not be assumed by this appellate body but, rather, left in the hands of the duly constituted trial tribunal — the Licensing Board.

This is not to say, of course, that we are insensitive to the fact that the public interest (as well as that of all parties to the proceeding) will be served by an expeditious ultimate resolution of the controversy. Indeed, our retention of jurisdiction over the proceeding to await the completion of the remand was prompted by a recognition of that fact.

⁷¹ We need not, and do not, now pass upon applicant's claim, renewed in its April 27, 1984 post-argument supplemental memorandum, that the *ex parte, in camera* hearing violated constitutional and statutory hearing rights. Even if there were a constitutional violation, no basis exists for not returning the case to the same Licensing Board. In this connection, the applicant has not suggested that the members of the Board are biased against it.

III. CONCLUSION

For the foregoing reasons, the *record* is *remanded* to the Licensing Board for a further evidentiary hearing on the quality assurance issue.⁷² Following the conclusion of that hearing, the Board shall render a supplemental initial decision which is to include (1) its findings based upon the additional evidence adduced; and (2) the modification or withdrawal of any ultimate findings and conclusions in the Board's January 13, 1984 initial decision that might require such treatment as a result of that additional evidence. Pending the rendition of the supplemental initial decision, this Board will retain jurisdiction over the proceeding and the applicant's appeal from the initial decision.⁷³

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

⁷² Although the hearing must address those specific questions alluded to in Part II.C. of this opinion, the Licensing Board is free to include any other question (related to the reinspection program or otherwise) that it deems relevant to the ultimate issue of whether, notwithstanding quality assurance deficiencies, reasonable assurance exists that the Byron facility has been properly constructed.

⁷³ With a single exception, our consideration of all non-quality assurance issues raised by the intervenors will abide the event of the rendition of the supplemental initial decision. The exception is the financial qualifications issue. The Licensing Board precluded the intervenors from pressing a contention that the applicant was not financially qualified to operate the facility. It did so because, effective March 31, 1982, the Commission had amended its regulations to remove financial qualifications issues from, *inter alia*, licensing proceedings such as this one. 47 Fed. Reg. 13,750 (1982). Last February, however, the Court of Appeals for the District of Columbia Circuit held the amended rule was not supported by its accompanying statement of basis and purpose, as required by the Administrative Procedure Act. Accordingly, the court remanded the rule to the Commission for further proceedings consistent with its opinion. *New England Coalition on Nuclear Pollution v. NRC*, 727 F.2d 1127 (D.C. Cir. 1984).

The court's mandate having been issued, we solicited the views of the parties respecting the course that now should be followed on the financial qualification question in this case. In addition, we expect generic Commission guidance to be forthcoming shortly. Once it has been received and considered, we will issue a further order on the matter.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

**Gary J. Edles, Chairman
Dr. W. Reed Johnson
Dr. Reginald L. Gotchy**

In the Matter of

Docket No. 50-460-CPA

**WASHINGTON PUBLIC POWER
SUPPLY SYSTEM
(WPPSS Nuclear Project No. 1)**

May 15, 1984

The Appeal Board affirms the Licensing Board's decision, LBP-84-9, 19 NRC 497 (1984), granting summary disposition to the applicant on the single admitted contention challenging the good cause for obtaining a construction permit extension.

**CONSTRUCTION PERMITS: EXPIRATION OF
COMPLETION DATE**

Under Commission regulations, if construction of a nuclear power plant is not complete by the latest date specified in the construction permit, the permit expires and all rights thereunder are forfeited. 10 C.F.R. § 50.55(b); Atomic Energy Act of 1954, § 185, 42 U.S.C. § 2235.

**CONSTRUCTION PERMITS: EXTENSION OF COMPLETION
DATE (GOOD CAUSE)**

"Upon good cause shown, the Commission will extend the completion date for a reasonable period of time." 10 C.F.R. § 50.55(b).

CONSTRUCTION PERMITS: EXTENSION OF COMPLETION DATE (EFFECT OF APPLICATION)

A timely filed application for extension of an existing construction permit automatically extends the permit until the extension application is determined. 10 C.F.R. § 2.109.

CONSTRUCTION PERMITS: EXTENSION OF COMPLETION DATE (HEARING ON APPLICATION)

Hearings are mandated for applications for initial construction permits and, therefore, such applications may not be disposed of summarily, even if uncontested. See section 189 of the Atomic Energy Act, 42 U.S.C. § 2239; 10 C.F.R. §§ 2.749(d), 2.104(b)(2), (3). Permit amendment cases, however, are not subject to the mandatory hearing requirement and summary disposition limitation. See *Washington Public Power Supply System* (WPPSS Nuclear Project, Nos. 1 & 2), CLI-82-29, 16 NRC 1221, 1231 (1982) (hearing on extension request to be held only if petitioner can satisfy requirements of 10 C.F.R. § 2.714); *Georgia Power Co.* (Alvin W. Vogtle Nuclear Plant, Units 1 and 2), ALAB-291, 2 NRC 404, 407 n.5 (1975). Cf. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-82-41, 15 NRC 1295 (1982).

RULES OF PRACTICE: SUMMARY DISPOSITION

Summary disposition of a contention may be granted based on pleadings alone, or pleadings accompanied by affidavits or other documentary information, where there is no genuine issue as to any material fact that warrants a hearing.

CONSTRUCTION PERMITS: EXTENSION OF COMPLETION DATE (SCOPE OF PROCEEDING)

To be admissible, a contention in a construction permit extension case must either challenge the applicant's reasons for delay or seek to show that other reasons, not constituting good cause, are the principal basis for delay. CLI-82-29, *supra*, 16 NRC at 1230.

CONSTRUCTION PERMITS: EXTENSION OF COMPLETION DATE (SCOPE OF PROCEEDING)

Permit extension proceedings are not intended to permit periodic relitigation of health, safety, or environmental questions between the

time a construction permit is granted and the time the facility is authorized to operate. *Id.* at 1228.

CONSTRUCTION PERMITS: EXTENSION OF COMPLETION DATE (SCOPE OF PROCEEDING)

A two-pronged test for determining whether a contention is within the scope of a permit extension proceeding is: (1) the construction delays at issue have to be traceable to the applicant and (2) the delays must be "dilatatory," *i.e.*, the intentional delay of construction without a valid purpose. *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), ALAB-722, 17 NRC 546, 551, 552 (1983), *cited with approval in Public Service Co. of New Hampshire* (Seabrook Station, Unit 2), CLI-84-6, 19 NRC 975, 978 (1984).

CONSTRUCTION PERMIT PROCEEDINGS: EXTENSION OF COMPLETION DATE (SCOPE OF PROCEEDING)

Intentional delay of construction by a construction permit holder for financial reasons constitutes a valid business purpose and is not dilatatory for the purpose of determining a contention within the scope of a permit extension proceeding. Similarly, questions about the need for power, cost of completion and financial consequences are not admissible contentions. CLI-84-6, *supra*, 19 NRC at 978-79 & n.2.

ADJUDICATORY BOARDS: ROLE

It is not the mission of the adjudicatory boards to superintend utility management when it makes business judgments. *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit No. 2), ALAB-475, 7 NRC 752, 757-58 (1978).

CONSTRUCTION PERMITS: EXTENSION OF COMPLETION DATE (REASONABLE PERIOD)

Under 10 C.F.R. § 50.55(b) of the Commission's regulations, the completion date specified in a construction permit may be extended for a reasonable period of time. The purpose behind this "reasonable period of time" requirement is to ensure that the applicant does not select a completion date that frustrates the NRC's regulatory oversight. Selection of a date that permits examination of a new extension request in a timely fashion is consistent with 10 C.F.R. § 50.55.

APPEARANCES

Nina Bell, Washington, D.C., for the intervenor Coalition for Safe Power.

Nicholas S. Reynolds and **Sanford L. Hartman**, Washington, D.C., for the applicant Washington Public Power Supply System.

Mitzi A. Young and **Mary E. Wagner** for the Nuclear Regulatory Commission staff.

DECISION

The Nuclear Regulatory Commission's regulations provide that if construction of a nuclear power plant is not complete by the latest date specified in the permit, "the [construction] permit shall expire and all rights thereunder shall be forfeited."¹ Nevertheless, "upon good cause shown the Commission will extend the completion date for a reasonable period of time."²

The outstanding permit held by the Washington Public Power Supply System (WPPSS) for Unit 1 contains a completion date of January 1, 1982. WPPSS timely filed an application for a permit amendment extending that date to June 1, 1986.³ The facility is slightly more than 60 percent complete. The Coalition for Safe Power (Coalition) requested a hearing on the application.

The Commission reviewed the Coalition's request and determined that only one of several contentions the Coalition sought to raise — *i.e.*, one dealing with whether delays in construction were under the full control of WPPSS management — was potentially pertinent to an extension proceeding.⁴ The Commission ruled that, under section 185 of the Atomic Energy Act and 10 C.F.R. § 50.55(b), "the scope of a construction permit extension proceeding is limited to direct challenges to the permit holder's asserted reasons that show 'good cause' justification for

¹ 10 C.F.R. § 50.55(b). The Commission promulgated these regulations pursuant to section 185 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2235.

² 10 C.F.R. § 50.55(b).

³ A timely filed application for extension of an existing permit automatically extends the permit until the extension application is determined. 10 C.F.R. § 2.109.

⁴ *Washington Public Power Supply System* (WPPSS Nuclear Project Nos. 1 & 2), CLI-82-29, 16 NRC 1221, 1230-31 (1982).

the delay.”⁵ The Commission observed generally that the availability of a subsequent operating license proceeding, and the opportunity of any person in the interim to ask the NRC staff to institute a show cause proceeding, are sufficient to assure an available forum in which to raise health, safety, or environmental questions.⁶ It referred the Coalition’s hearing request to the Licensing Board to determine whether the Coalition satisfied the balance of the hearing requirements contained in 10 C.F.R. § 2.714 and, if so, to conduct any necessary hearing.⁷

WPPSS thereafter filed an amendment to its application seeking a further extension from 1986 to June 1, 1991. In light of the amendment, the Board permitted the Coalition to propose additional contentions. Subsequently the Board rejected contentions relating to the 1986 extension but admitted a single contention with regard to the 1991 extension, as follows:

Petitioner contends that the Permittee’s decision in April 1982 to “defer” construction for two to five years, and the subsequent cessation of construction at WNP-1, was dilatory. Such action was without “good cause” as required by 10 C.F.R. 50.55(b). Moreover, the modified request for extension of completion date to 1991 does not constitute a “reasonable period of time” provided for in 10 C.F.R. 50.55(b).⁸

In response to motions by the applicant and the NRC staff, the Licensing Board thereafter granted summary disposition on the one admitted contention.⁹ The Board found, based on what it believed to be uncontested facts, that the deferral and cessation of construction of Unit 1 stemmed from a lack of financial resources to complete both Units 1 and 3 and a forecast of no demand for Unit 1’s electric power until at least 1986. These factors, in the Board’s view, constituted “good cause” for the delay and justified a grant of the extension application. In reaching its decision, the Board accepted the Coalition’s assertion that other alternatives, such as cancellation of Unit 1 entirely, might be more prudent, as well as the Coalition’s appraisal that the economic situation would eventually cause abandonment of the facility. Nevertheless, the Board declined to substitute its judgment for that of the company in selecting among options currently available. It thus determined that

⁵ *Id.* at 1229.

⁶ *Ibid.*

⁷ *Id.* at 1231.

⁸ Memorandum and Order (Admitting Intervenor and Contention) (March 25, 1983) at 4-5 (unpublished).

⁹ LBP-84-9, 19 NRC 497 (1984).

WPPSS's action constituted good cause for the extension, even if there were preferable options and the deferral ultimately proves unavailing.

The Coalition appeals. It attacks the Board's decision essentially from two directions. First, it asserts that the use of summary disposition contravenes certain procedural requirements in 10 C.F.R. §§ 2.749(d) and 2.760.¹⁰ Second, it charges that the Board misapplied the criteria for summary disposition and erroneously found that there are no material facts in issue.¹¹ WPPSS and the NRC staff support the Board's result. We affirm.

I.

The Coalition argues that the Board's dismissal of the entire proceeding violates section 2.749(d) because that provision restricts the use of summary disposition *in construction permit proceedings* to a "determination of specific subordinate issues" not including "the ultimate issue as to whether the permit shall be issued." The Coalition misreads the regulation.

Construction permit proceedings are only those involving applications for issuance of the initial permit. The instant case, in contrast, is a permit *amendment* proceeding. Because the Commission is required by section 189 of the Atomic Energy Act to hold a hearing with respect to applications for initial construction permits even if an application is uncontested, a licensing board may not in such cases dispose summarily (*i.e.*, without the required hearing) of the ultimate question of whether a permit shall issue.¹² Section 2.749(d) is intended to implement that statutory requirement by prohibiting summary disposition in proceedings "involving a construction permit where a hearing is required by law."¹³ Permit amendment cases, however, are not subject to the mandatory hearing requirement so the limitation contained in section 2.749(d) is inapplicable.¹⁴

¹⁰ Appeal by Coalition for Safe Power of Licensing Board Order Dated February 2 [sic], 1984 Granting Applicant and NRC Staff Motions for Summary Disposition (March 19, 1984) at 1-4.

¹¹ *Id.* at 4-13.

¹² See 10 C.F.R. §§ 2.104(b)(2), (3). Hearings were held in this case for the initial construction permit. See LBP-75-41, 2 NRC 131 (1975) and LBP-75-72, 2 NRC 922 (1975), *aff'd*, ALAB-309, 3 NRC 31 (1976).

¹³ 37 Fed. Reg. 15,127, 15,129 (1972).

¹⁴ CLI-82-29, *supra*, 16 NRC at 1231 (hearing on extension request to be held only if petitioner can satisfy requirements of 10 C.F.R. § 2.714); *Georgia Power Co.* (Alvin W. Vogtle Nuclear Plant, Units 1 and 2), ALAB-291, 2 NRC 404, 407 n.5 (1975). *Cf. Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-82-41, 15 NRC 1295 (1982).

(Continued)

The Coalition also contends that the Board's decision contravenes section 2.760 because its opinion was not supported by reliable, probative and substantial evidence. We disagree. Summary disposition may be granted based on pleadings alone, or pleadings accompanied by affidavits or other documentary information, where there is no genuine issue as to any material fact that warrants a hearing and the moving party is entitled to a decision in its favor as a matter of law.¹⁵ As discussed in more detail below, we believe the Board's decision is amply documented.

II.

In three opinions over the past eighteen months the Commission and this Board enunciated the criteria to be followed by licensing boards in examining permit extension requests.¹⁶ In an opinion involving the instant permit extension request and a companion request for extension of the permit for WPPSS Unit 2, the Commission ruled that, under the Atomic Energy Act and its regulations, the focus of a permit extension case is on the "reasons that have contributed to the delay in construction and whether those reasons constitute 'good cause' for the extension."¹⁷ Stated differently, to be admissible a contention must either "challenge the [applicant's] reasons for delay [or] seek to show that other reasons, not constituting good cause, are the principal basis for the delay."¹⁸ Permit extension proceedings are not intended to permit "periodic relitigation of health, safety, or environmental questions . . . between the time a construction permit is granted and the time the facility is authorized to operate."¹⁹

We refined the Commission's guidance into a two-pronged test for determining whether a contention is within the scope of a permit extension proceeding. "First, the construction delays at issue have to be traceable to the applicant. Second, the delays must be 'dilatatory.'"²⁰ We

The Coalition asserts, additionally, that the limitation in 10 C.F.R. § 2.749(d) is applicable because, by challenging the need for power, the Coalition called into question the "fundamental basis upon which the original construction permit was issued." Appeal by Coalition at 2. Neither the fact that an intervenor seeks to raise in an extension case issues previously decided in the original permit proceeding, nor the fact that an amendment application, if granted, extends the effectiveness of the original permit serves to transform the application into one for an initial permit or to reopen the original proceeding.

¹⁵ 10 C.F.R. § 2.749(d).

¹⁶ *Public Service Co. of New Hampshire* (Seabrook Station, Unit 2), CLI-84-6, 19 NRC 975 (1984); CLI-82-29, *supra*; *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), ALAB-722, 17 NRC 546 (1983).

¹⁷ CLI-82-29, *supra*, 16 NRC at 1228.

¹⁸ *Id.* at 1230.

¹⁹ *Id.* at 1228.

²⁰ ALAB-722, *supra*, 17 NRC at 551.

defined “dilatory” for such purposes as “the intentional delay of construction without a valid purpose.”²¹ The Commission endorsed our promulgation of this test in its *Seabrook* opinion.²² In doing so, it noted that delay for financial reasons constitutes a valid business purpose.²³ Applying the test, the Commission ruled out “questions about the need for power, cost of completion and financial consequences to both the utility and to the ratepayers.”²⁴

The Coalition raises three issues for litigation in this case. First, it proposes to demonstrate that the reasons for the delay in construction are no present or future need for WPPSS 1 power, a permanent lack of funds, and the negative effect on rates of completing the plant — not a temporary slowing of demand and a temporary lack of funds, as alleged by the applicant. Second, it would assertedly show that the applicant’s action is imprudent given other available alternatives. Third, it seeks to prove that the deferral period is demonstrably too short. It claims, in this latter regard, that acceptance of the 1991 date by the Board essentially renders 10 C.F.R. § 50.55(b) meaningless. We believe the Licensing Board properly applied the summary disposition criteria and correctly found that there were no material facts in dispute when it granted the motions filed by WPPSS and the staff.

A. There is no dispute that the forecast of no demand for the electric power to be generated at Unit 1 by 1986 and the lack of financial resources to complete the project prompted the deferral decision. The only facts controverted are whether such conditions are temporary or permanent, and whether the effect of completion on utility rates also played a role. The Board found that the resolution of these disputes was immaterial to its decision,²⁵ and we agree. To justify denial of a permit extension, we must find that the delay is “dilatory.” Delay genuinely and primarily attributable to lower expected demand for power or financial circumstances, whether of limited or indefinite duration, represents a valid business purpose and is perforce not dilatory.

B. We believe that the Licensing Board correctly concluded that it should not substitute its judgment for that of the applicant in selecting one among a number of reasonable business alternatives.²⁶ It is not our mission to superintend utility management when it makes business judg-

²¹ *Id.* at 552.

²² CLI-84-6, *supra*, 19 NRC at 978.

²³ *Id.* at 979 n.2.

²⁴ *Id.* at 978-79.

²⁵ LBP-84-9, *supra*, 19 NRC at 503-05.

²⁶ *Id.* at 505.

ments for which it is ultimately responsible.²⁷ The Coalition does not claim that the extension has genuine and immediate health, safety, or environmental implications. That being so, we find that there were no facts appropriate for hearing.

C. Section 185 of the Atomic Energy Act authorizes the Commission, for good cause shown, to extend the completion date contained in the permit. In section 50.55(b) of the regulations, the Commission added the regulatory requirement that such extension be “for a reasonable period of time.” The application before us would extend the permit to no later than 1991. The Coalition challenges the reasonableness of the period by asserting that the plant cannot be completed by that time and argues that prolonged delay might well lead to a deterioration of equipment. The Board declined to allow litigation of the issue. It concluded, in the first place, that nothing in the Atomic Energy Act or the regulations suggests that one may challenge an extension request as insufficient. In the Board’s judgment, the effect of any error in the time estimate would, at worst, require the applicant to apply for another extension and demonstrate anew that good cause exists for the further extension.²⁸ Moreover, it found that the health, safety and environmental effects of construction delays are better left to the operating license proceeding.²⁹

While not necessarily in agreement with everything the Board said, we decline to upset its determination. Like the Board, we accept for present purposes the Coalition’s factual assertion that the plant cannot be completed by 1991. Although the applicant is required by statute and our regulations to fix a date certain for completion of the plant when making its extension request, what seems plain is that current circumstances prevent the selection of a completion date with total confidence. We agree with the Licensing Board, however, that the purpose behind the “reasonable period of time” requirement contained in section 50.55(b) is to ensure that the applicant not select a completion date that frustrates our regulatory oversight.³⁰ Obviously, in most cases the

²⁷ *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit No. 2), ALAB-475, 7 NRC 752, 757-58 (1978).

²⁸ LBP-84-9, *supra*, 19 NRC at 506.

²⁹ *Id.* at 506-07. The Board noted that a contention regarding unnamed construction defects that might result from the applicant’s method of preserving the construction during the period of deferral has been admitted in the operating license proceeding. *Id.* at 506.

³⁰ The Board noted that it might view the matter differently if the Coalition alleged that the applicant had decided to abandon the plant. *Id.* at 505. On brief to us the Coalition asserts that the lack of need for power and lack of financing “were more or less permanent” but does not offer to prove that the WPPSS management has decided on abandonment. Appeal by Coalition at 6. Thus, we need not reach the issue of whether abandonment would raise a material factual question.

“reasonable period of time” will coincide with the most likely completion date. But, in the absence of a showing that the applicant’s selection of the proposed completion date will compromise the Commission’s oversight responsibilities, we believe that the selection of a date that permits examination of a new extension request in a timely fashion is consistent with 10 C.F.R. § 50.55. We also assume, for the purposes of summary disposition, that some equipment deterioration may occur as a result of the delay. We concur in the Licensing Board’s judgment, though, that such matter is better evaluated empirically in the operating license case.

The Licensing Board’s decision is *affirmed*.
It is so ORDERED.

FOR THE APPEAL BOARD

Barbara A. Tompkins
Secretary to the
Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

**Gary J. Edles, Chairman
Dr. John H. Buck
Christine N. Kohl**

In the Matter of

**Docket No. 50-289-SP
(Management Phase)**

**METROPOLITAN EDISON COMPANY,
*et al.***

**(Three Mile Island Nuclear
Station, Unit 1)**

May 24, 1984

Acting on the appeals of three intervenor groups from the Licensing Board decisions concluding that the licensee has demonstrated its managerial capability and technical resources to operate Unit 1 of the Three Mile Island reactor in a safe manner, the Appeal Board remands the proceeding to the Licensing Board for further hearing on, *inter alia*, the adequacy of licensee's training program. In addition, the Appeal Board grants an intervenor group's motion to reopen the record for a hearing on allegations of improper leak rate practices at TMI-1.

RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES

Parties in NRC adjudicatory proceedings have an obligation to apprise the boards of significant new information. *See Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 & 2), ALAB-143, 6 AEC 623, 625-26 (1973).

ATOMIC ENERGY ACT: DUTY OF LICENSEES

Under the Atomic Energy Act, licensees are required to comply with Commission requirements for the protection of the public health and safety. *See* section 103b of the Atomic Energy Act, 42 U.S.C. § 2133b.

ATOMIC ENERGY ACT: LICENSEE'S CHARACTER

Under the Atomic Energy Act, the Commission is authorized to consider a licensee's character or integrity in deciding whether to continue or revoke its operating license. *See* section 182a of the Atomic Energy Act, 42 U.S.C. § 2232a; *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), CLI-80-32, 12 NRC 281, 291 (1980). *See also Consumers Power Co.* (Midland Plant, Units 1 and 2), CLI-83-2, 17 NRC 69, 70 (1983); *id.*, ALAB-106, 6 AEC 182, 184 (1973).

ATOMIC ENERGY ACT: DUTY OF LICENSEES

A licensee of a nuclear power plant has a great responsibility to the public, one that is increased by the Commission's heavy dependence on the licensee for accurate and timely information about the facility and its operation. *Hamlin Testing Laboratories, Inc. v. AEC*, 357 F.2d 632, 638 (6th Cir. 1966); *Petition for Emergency and Remedial Action*, CLI-78-6, 7 NRC 400, 418-19 (1978).

EVIDENCE: TESTIMONY BY CONSULTANTS

The value of testimony by a witness at NRC proceedings is not undermined merely by the fact that the witness is a hired consultant of a licensee. *See Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1091 (1983).

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

Parties who fail to file proposed findings of fact and conclusions of law on a matter may be deemed to be in default and to have waived any further right to pursue the issue. 10 C.F.R. § 2.754. *See Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-709, 17 NRC 17, 23 (1983).

EVIDENCE: CREDIBILITY (DEMEANOR OF WITNESS)

Where credibility of evidence turns on the demeanor of a witness, the appeal board gives the judgment of the trial board which saw and heard the testimony particularly great deference. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 404 (1976).

EVIDENCE: CREDIBILITY (DEMEANOR OF WITNESS)

Demeanor evidence is of little value where other testimony, documentary evidence, and common sense suggest a contrary result. *See Millar v. FCC*, 707 F.2d 1530, 1539-40 (D.C. Cir. 1983); *Local 441, IBEW v. NLRB*, 510 F.2d 1274, 1276 (D.C. Cir. 1975).

ATOMIC ENERGY ACT: LICENSING STANDARDS (LICENSEE'S MANAGEMENT COMPETENCE)

Ethics and technical proficiency are both legitimate areas of inquiry in the consideration of a licensee's overall management competence.

ATOMIC ENERGY ACT: LICENSEE TRAINING PROGRAMS (ROLE OF STAFF)

An active role in reviewing and auditing licensee training programs and examinations is contemplated for the NRC staff under Commission regulations. *See generally* 10 C.F.R. §§ 55.10(a)(6), 55.33(a)(4). *See also* 10 C.F.R. Part 55, Appendix A; NUREG-0660 (May 1980), Task I.A.2; Reg. Guide 1.8, "Personnel Qualification and Training," 2d proposed rev. 2 (1980), §§ 2.2.2, 2.2.7.

REGULATIONS: EFFECT (CONFLICT WITH LICENSING BOARD REQUIREMENTS)

The promulgation of more stringent regulations, applicable to all licensees, supersedes less stringent requirements imposed by a licensing board in a particular proceeding.

LICENSING BOARDS: AUTHORITY TO REGULATE PROCEEDINGS

A licensing board may alter the usual order of presentation of evidence and require an intervenor that would normally follow a licensee to pro-

ceed with its case first. This course of action is appropriate where, for example, the intervenor has failed to comply with discovery requests and orders. *See Northern States Power Co. (Minnesota)* (Tyrone Energy Park, Unit 1), LBP-77-37, 5 NRC 1298, 1300-01 (1977), *cited with approval in Pennsylvania Power and Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-613, 12 NRC 317, 338 (1980); *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-459, 7 NRC 179, 188 (1978); 10 C.F.R. § 2.731; 10 C.F.R. Part 2, Appendix A, § V(d)(4); 5 U.S.C. § 556. The burden of proof on licensee, however, remains unchanged in these circumstances. *See Consumers Power Co.* (Midland Plant, Units 1 & 2), ALAB-315, 3 NRC 101, 105 (1976).

RULES OF PRACTICE: BURDEN OF GOING FORWARD

Where an intervenor raises a particular contention challenging a licensee's ability to operate a nuclear power plant in a safe manner, the intervenor necessarily assumes the burden of going forward with the evidence to support that contention. *See Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-123, 6 AEC 331, 345 (1973).

RULES OF PRACTICE: REPRESENTATION (CHANGE IN REPRESENTATIVE)

When a party is permitted to enter a case late, it is expected to take the case as it finds it. It follows that when a party that has participated in a case all along simply changes *representatives* in midstream, knowledge of the matters already heard and received into evidence is imputed to it.

RULES OF PRACTICE: REPRESENTATION (NON-ATTORNEY REPRESENTATIVE)

The NRC's Rules of Practice permit non-attorneys to appear and represent their organizations in agency proceedings. *See* 10 C.F.R. § 2.713(b). *Compare* 49 C.F.R. §§ 1103.2, 1103.3 (Interstate Commerce Commission); 2d Cir. § 46(d); 3d Cir. R. 9; Fed. Cir. R. 7(a).

RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES

Although the NRC adjudicatory boards do not hold lay representatives to as high a standard as they do lawyers, all representatives have a responsibility to comply with and be bound by the same agency procedures

as all other parties, even where a party is hampered by limited resources. *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 454 (1981). See, e.g., *Pennsylvania Power and Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-693, 16 NRC 952, 956-57 (1982).

LICENSING BOARDS: DISCRETION IN MANAGING PROCEEDINGS (CALLING OF EXPERT WITNESSES)

An adjudicatory board should call upon independent experts to assist the board itself only in the most extraordinary circumstances — *i.e.*, when a board simply cannot otherwise reach an informed decision on the issue involved. *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-663, 14 NRC 1140, 1146 (1981).

OPERATING LICENSE: TECHNICAL SPECIFICATIONS (STATUS)

Technical specifications for a nuclear facility are part of the operating license for the facility and are legally binding. See *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-531, 9 NRC 263, 272-73 (1979).

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

In order to prevail on a motion to reopen the record, the proponent of the motion must show that the motion is timely, that it addresses a significant issue, and that it may alter the outcome. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980).

EVIDENCE: ADMISSIBILITY (ACCIDENT REPORTS)

Documents such as a Congressional report on an accident generally must be proffered in a timely manner and sponsored by a witness in order to be admitted into evidence. See *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 477 (1982).

LICENSING BOARDS: RESPONSIBILITIES (RESOLUTION OF ISSUES IN SPECIAL PROCEEDINGS)

In a special proceeding, where the Commission has specified the issues for hearing, a licensing board is obliged to resolve all such issues, even in the absence of active participation by intervenors.

ADJUDICATORY BOARDS: DELEGATED AUTHORITY (RELATION TO NRC STAFF)

NRC adjudicatory boards lack the authority to direct the staff in the performance of its duties. *See Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant, Units 1, 2, 3, and 4), CLI-80-12, 11 NRC 514, 516 (1980).

LICENSING BOARDS: DISCRETION IN MANAGING PROCEEDINGS (CALLING OF NON-EXPERT WITNESSES)

In the proper circumstances, an adjudicatory board is empowered to call and examine witnesses of whom the board is aware and who are likely to have (factual) information necessary for the proper resolution of the issues before it. *See generally* 10 C.F.R. § 2.718. *Compare* Summer, *supra*, 14 NRC at 1152-57.

ENFORCEMENT ACTIONS: EFFECT ON LICENSING ACTIONS

Because the independence of adjudicatory boards is essential to preserve the integrity of the hearing process, the board in an operating license adjudication is not bound by a decision of the Director of Inspection and Enforcement in an enforcement action. *South Texas, supra*, 12 NRC at 289.

ATOMIC ENERGY ACT: LICENSEE CHARACTER (CORPORATE PHILOSOPHY AND MANAGEMENT)

Replacing corporate *managers* can result in a change in overall corporate philosophy and *management*.

ADJUDICATORY PROCEEDINGS: FINANCIAL ASSISTANCE TO INTERVENORS

Under appropriations legislation for the NRC for fiscal years 1980 and 1981, the Commission is precluded from providing financial assistance to intervenors. See *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-625, 13 NRC 13, 14-15 (1981).

TECHNICAL ISSUES DISCUSSED

Training and testing of licensed and non-licensed personnel;
Staffing and work hours;
Maintenance (deferral, record keeping, priorities, overtime);
Corporate Organization (command and administrative structure, financial/technical relationship).

APPEARANCES

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Ernest L. Blake, Jr. (with whom **George F. Trowbridge, Bonnie S. Gottlieb, and Deborah B. Bauser** were on the brief), Washington, D.C., for licensee Metropolitan Edison Company.

Jack R. Goldberg for the Nuclear Regulatory Commission staff.

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DECISION

In several previous decisions, we addressed the emergency planning, environmental, and design issues raised in this special proceeding. See ALAB-697, 16 NRC 1265 (1982); ALAB-698, 16 NRC 1290 (1982), *modified*, CLI-83-7, 17 NRC 336, and *rev'd in part*, CLI-83-22, 18 NRC 299 (1983); ALAB-705, 16 NRC 1733 (1982), *petition for review pending sub nom. Union of Concerned Scientists v. NRC*, No. 83-1503 (D.C. Cir. filed May 9, 1983); ALAB-729, 17 NRC 814 (1983), *review pending*, Commission Order of January 27, 1984 (unpublished). We now turn to the only matter remaining for this Appeal Board's consideration, the ability of licensee's management to operate Unit 1 of the Three Mile Island facility (TMI-1) in a competent, responsible, and safe manner.

Three intervenor groups — Marjorie and Norman Aamodt, Three Mile Island Alert, Inc. (TMIA), and the Union of Concerned Scientists (UCS)¹ — appeal the Licensing Board's decisions concluding that licen-

¹ UCS, although an active litigant in other phases of this proceeding, participated to only a limited extent in the management phase. No party, however, has objected to its appeal and thus we have given full consideration to the essentially legal arguments advanced in its brief.

² The Commonwealth of Pennsylvania originally appealed from the Licensing Board's decisions but later withdrew after entering a stipulation with licensee. In an unpublished order issued December 22, 1983, we approved this action.

see has demonstrated its managerial capability and technical resources to operate TMI-1 in a safe manner. See LBP-81-32, 14 NRC 381 (1981), and LBP-82-56, 16 NRC 281 (1982). Each argues, though on somewhat different grounds, that the Board erred in authorizing restart. Licensee and the NRC staff support affirmance of the Licensing Board's decisions. As we explain below, the present state of the record in several areas does not permit us to make an ultimate judgment on the licensee's competence. Accordingly, we remand this proceeding to the Licensing Board for further hearing, primarily on the adequacy of licensee's training program. In addition, we grant the Aamodts' motion to reopen the record for a hearing on the allegations of falsification of leak rate records at TMI-1.

I. BACKGROUND

This proceeding began approximately five years ago when, in response to the March 1979 accident at Unit 2 of the TMI facility, the Commission ordered a hearing to be conducted prior to restart of TMI-1.² The Commission found that "the unique circumstances at TMI require that [certain] safety concerns . . . be resolved prior to restart." CLI-79-8, 10 NRC 141, 143 (1979). Among them were "questions about the management capabilities and technical resources of [licensee], including the impact of the Unit 2 accident on these." *Ibid.* The Commission also identified specific short-term actions that licensee was to be required to complete before it could safely resume operation. Two are relevant to this phase of the proceeding:

- 1.(e) [The licensee shall] [a]ugment the retraining of all Reactor Operators and Senior Reactor Operators assigned to the control room including training in the areas of natural circulation and small break loss of coolant accidents including revised procedures and the TMI-2 accident. All operators will also receive training at the B&W [Babcock & Wilcox] simulator on the TMI-2 accident and the licensee will conduct a 100 percent reexamination of all operators in these areas. NRC will administer complete examinations to all licensed personnel in accordance with 10 CFR 55.20-23.

* * *

² At the time of the accident, TMI-1 had been shut down for refueling. It has remained in cold shutdown ever since. Although the Commission has delegated to us the initial responsibility for disposing of appeals on the merits, it has retained authority to decide if and when the plant should actually be permitted to restart. CLI-81-19, 14 NRC 304, 305-06 (1981). That determination is now scheduled for June 1984. Memorandum for the Parties from S.J. Chilk, Secretary to the Commission, "Tentative Commission Views and Plan for Resolution of Management Integrity Issues Prior to Restart" (January 27, 1984), at 3.

6. The licensee shall demonstrate [its] managerial capability and resources to operate Unit 1 while maintaining Unit 2 in a safe configuration and carrying out planned decontamination and/or restoration activities. Issues to be addressed include the adequacy of groups providing safety review and operational advice, the management and technical capability and training of operations staff, the adequacy of the operational Quality Assurance program and the facility procedures, and the capability of important support organizations such as Health Physics and Plant Maintenance.

Id. at 144-45. *See id.* at 146, 149. The Licensing Board presiding over the hearing was to consider, among other things, whether these short-term actions “are necessary and sufficient to provide reasonable assurance that [TMI-1] can be operated without endangering the health and safety of the public, and should be required before resumption of operation should be permitted.” *Id.* at 148.

The Commission later provided more guidance to the Board concerning the hearing on these “management competence” issues. It directed the Board to examine the following broad issues:

- (1) whether Metropolitan Edison’s management is sufficiently staffed, has sufficient resources and is appropriately organized to operate Unit 1 safely; (2) whether facts revealed by the accident at Three Mile Island Unit 2 present questions concerning management competence which must be resolved before Metropolitan Edison can be found competent to operate Unit 1 safely; and (3) whether Metropolitan Edison is capable of operating Unit 1 safely while simultaneously conducting the clean-up operation at Unit 2.

CLI-80-5, 11 NRC 408, 408 (1980).³ The Commission also refined these into 13 “specific issues” warranting the Board’s attention. (These include issues that relate to corporate structure, maintenance, safety review, and in-house technical resources; all 13 are set forth in Appendix A to this opinion.) *Id.* at 408-09.

Numerous parties intervened and participated in the extensive hearings on management issues before the Licensing Board. Shortly before the Board was to issue its partial initial decision on this subject, however, the NRC staff notified it of cheating and other irregularities in connection with the April 1981 reactor operator examinations that the Commission had ordered. Consequently, the Board issued its decision in August 1981 but retained jurisdiction to consider how the outcome of

³ In CLI-81-17, 14 NRC 299 (1981), the Commission authorized the formal transfer of the operating license for TMI-1 from Metropolitan Edison Company to the newly formed General Public Utilities subsidiary, GPU Nuclear Corporation (GPUN). It also instructed the Licensing Board to consider the management competence of GPUN, rather than that of Metropolitan Edison.

the then-pending cheating investigation might affect its conclusions on management competence. The Board explained:

The issues of Licensee's management integrity, the quality of its operating personnel, its ability to staff the facility adequately, its training and testing program, and the NRC process by which the operators would be tested and licensed, are all important issues considered in this partial decision. We will consider carefully the effect on such issues of the anticipated NRC Staff report, any further action by the Licensee and Staff in light of the report, including whether there will be a reexamination of individuals who took the April examination, and the advice of the parties, to determine whether further actions by this Board appear warranted.

LBP-81-32, *supra*, 14 NRC at 403 (¶ 45).⁴ *See id.* at 454 n.18, 582 n.63, 583 (¶¶ 204, 584, 585). In all other respects, though, the Board ruled in licensee's favor on the various management issues specified by the Commission. It thus concluded that licensee has demonstrated its "managerial capability and technical resources to operate Unit 1 while maintaining Unit 2 in a safe configuration and carrying out planned decontamination and/or restoration activities." *Id.* at 582 (¶ 584). It also found the short-term actions necessary and sufficient for resumption of operation. *Ibid.* (¶ 584).

Without the objection of any party, the Licensing Board formally reopened the record on the cheating matter less than a month later and appointed a Special Master to hear the evidence and render an advisory report. ASLB Memorandum and Order of September 14, 1981 (unpublished). *See* 10 C.F.R. § 2.722.⁵ The Board defined the broad issue to be heard in the reopened proceeding as

the effect of the information on cheating in the NRC April examination on the management issues considered or left open in the Partial Initial Decision, recognizing that, depending on the facts, the possible nexus of the cheating incident in the NRC examination goes beyond the cheating by two particular individuals and may involve the issues of Licensee's management integrity, the quality of its operating personnel, its ability to staff the facility adequately, its training and testing program, and the NRC process by which the operators would be tested and licensed.

ASLB Memorandum and Order of October 14, 1981 (unpublished), at 2. It also gave examples of numerous specific questions to be addressed. (These are set forth in Appendix B.) The Special Master thus held further hearings and in accordance with the Board's instructions issued a

⁴ For ease of reference, we cite to the paragraph as well as page references of the Board's various decisions.

⁵ Because of the reopening, we deferred briefing of any appeals from the management partial initial decision.

report reflecting his conclusions and recommendations. See LBP-82-34B, 15 NRC 918 (1982). The Special Master essentially concluded that although licensee's upper management did not encourage, condone, participate in, or know of the cheating at the time it occurred, it was responsible for the negative attitude among its staff toward the NRC examination process that led to the cheating and similar incidents revealed in the record. *Id.* at 1053-54 (¶ 338).

The Licensing Board adopted the evidentiary record developed before the Special Master and most of his conclusions. It differed somewhat, however, as to the cause of the breakdown in licensee's training and testing program. According to the Licensing Board, this was attributable to a failure (1) to define clearly the portion of licensee's management with responsibility for the program, and (2) to apply the principles of quality assurance and quality control to the training and testing program. LBP-82-56, *supra*, 16 NRC at 300 (¶ 2082). The Board nevertheless concluded that these weaknesses did not undermine its earlier findings in favor of restart. *Id.* at 301 (¶ 2089). It did, however, impose several conditions on restart that basically require future auditing of licensee's training and testing. *Id.* at 384 (¶ 2421).

Briefing of the intervenors' appeals from the Licensing Board's two management phase decisions followed. But by the time briefing was completed, our consideration of the design phase was well under way and required a reopening of that part of the record for additional evidence. See ALAB-708, 16 NRC 1770 (1982). We thus deferred consideration of the instant appeals. Appeal Board Memorandum of January 19, 1983 (unpublished). At about the same time, information assertedly bearing on management competence issues was coming to light during the Commission's review of the now-settled civil lawsuit by licensee's parent corporation against the manufacturer of the TMI reactors, Babcock & Wilcox (B&W). See *General Public Utilities Corp. v. Babcock & Wilcox Co.*, No. 80-CIV-1683 (S.D.N.Y. filed March 25, 1980) ["B&W trial"]. By the spring of 1983, we received both the Aamodts' and TMIA's motions to reopen the record, based in part on the B&W trial record and in part on other developments related to management issues. In ALAB-738, 18 NRC 177 (1983), we ruled on those motions as well as a third one filed earlier by the Aamodts. We denied the motions except to the extent they sought reopening on allegations of pre-accident falsification of leak rate data at TMI-2. We remanded that issue to the Licensing Board for hearing, but the Commission has indefinitely stayed that proceeding. Commission Order of October 7, 1983 (unpublished).

As is often the case with complex litigation extending over a long period of time, events occur that appear to overtake, or at least to affect,

the matters at hand. Such is the case here. In fulfillment of their well-established obligation to apprise us of "significant new information," the parties have submitted an enormous number of documents, reports, etc. See *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 & 2), ALAB-143, 6 AEC 623, 625-26 (1973). This information is not evidence of record.⁶ On the other hand, we cannot be so myopic as to ignore either the very existence of ongoing investigations into matters relevant to management competence, or important matters of fact about which there can be no dispute (*e.g.*, personnel and staff changes). In this opinion, we attempt to achieve a balance between these competing factors. As a result, we dispose of some issues that appear amenable to final resolution, identify others that clearly require record supplementation, and note still others that are subject to ongoing investigations.

II. STANDARDS

The nebulous concept of "management competence" has assumed different facets as developments have unfolded during the course of this proceeding. What began as an inquiry into primarily licensee's technical capability and resources has evolved — as a necessary consequence of those developments — into a search for answers to questions concerning the "integrity" of licensee's management as well.⁷ In its order providing guidance to the Licensing Board on the specific management issues the Board was to consider, the Commission acknowledged that it had no standards for nuclear power plant management and operation. Nevertheless, it directed the Board to "apply its own judgment in developing the record and forming its conclusions on these questions." CLI-80-5, *supra*, 11 NRC at 409-10.

The Board, however, was not left to operate entirely within a regulatory vacuum. Section 103b of the Atomic Energy Act, 42 U.S.C. § 2133b, requires licensees to comply with Commission requirements for the protection of the public health and safety. In addition, section

⁶ We have also been served with copies of myriad pleadings solicited by the Commission to aid it in its consideration of actual "restart." See note 2, *supra*. Time, lack of resources, and — most important — the limitations of formal adjudication compel us to confine ourselves to the adjudicatory record and materials addressed specifically to us.

⁷ In this connection, it should be kept in mind that the purpose of this special proceeding is not to explore what happened during the TMI-2 accident, or even to litigate the overall safety of TMI-1. Rather, given the questions raised by that accident, the focus is on licensee's ability to operate TMI-1 safely in the future, should restart be authorized. See CLI-84-3, 19 NRC 555, 560 (1984).

182a, 42 U.S.C. § 2232a, permits the Commission to consider a licensee's "character."⁸ Presumably, character is what the Licensing Board meant by its references to licensee's "management integrity." See, e.g., LBP-81-32, *supra*, 14 NRC at 403 (¶ 45).⁹

The Atomic Energy Act, however, does not define "character," and the legislative history is unenlightening as to Congress's intent.¹⁰ Evaluation of character always involves consideration of largely subjective factors. In the corporate context, with the interplay of individual and collective actors, that undertaking proves even harder to tackle. But not long after the Commission identified a number of management-related issues to be resolved here, in another case it spoke in general, yet forceful, terms on the matter of applicant/licensee competence and character:

Either abdication of responsibility or abdication of knowledge, whether at the construction or operating phase, could form an independent and sufficient basis for revoking a license or denying a license application on grounds of lack of competence (i.e., technical) or character qualification on the part of the licensee or license applicant.

Houston Lighting and Power Co. (South Texas Project, Units 1 and 2), CLI-80-32, 12 NRC 281, 291 (1980). See also *Consumers Power Co.* (Midland Plant, Units 1 and 2), CLI-83-2, 17 NRC 69, 70 (1983) (mere planning to withhold material information, e.g., is evidence of "bad character" and could warrant adverse licensing action); *id.*, ALAB-106, 6 AEC 182, 184 (1973) ("managerial attitude," as well as technical qualification, is relevant to inquiry into applicant's quality assurance program).

⁸ Section 182a specifically refers to an applicant's character. But that section also provides that "[t]he Commission may at any time after the filing of the original application, and before the expiration of the license, require further written statements in order to enable the Commission to determine whether the application should be granted or denied or whether a license should be modified or revoked." 42 U.S.C. § 2232a.

⁹ "Character" is defined as "reputation esp. when good," and "a composite of good moral qualities typically of moral excellence and firmness blended with resolution, self-discipline, high ethics, force, and judgment." *Webster's Third New International Dictionary* 376 (unabridged ed. 1971). "Integrity" is "an uncompromising adherence to a code of moral, artistic, or other values: utter sincerity, honesty, and candor: avoidance of deception, expediency, artificiality, or shallowness of any kind." *Id.* at 1174. *The Original Roget's Thesaurus* §§ 929, 933 (1962) includes "character" and "integrity" as synonyms for "probity" and "virtue."

¹⁰ Reference to an applicant's character appeared in the original version of section 182 in what ultimately became the Atomic Energy Act of 1954. See Joint Comm. on Atomic Energy, A Proposed Act to Amend the Atomic Energy Act of 1946, 83d Cong., 2d Sess. (1954). We have been unable to locate in the pertinent House and Senate Reports, Hearings, and Debates more than an occasional passing remark concerning the Commission's authority to consider character. See, e.g., *Hearings Before the Joint Comm. on Atomic Energy on S. 3323 and H.R. 8862, to Amend the Atomic Energy Act of 1946*, 83d Cong., 2d Sess. 1131 (1954) (excerpts from an analysis prepared upon behalf of the Federal Power Commission).

We also recognize that a licensee of a nuclear power plant has a great responsibility to the public. The view expressed almost two decades ago by the court in *Hamlin Testing Laboratories, Inc. v. AEC*, 357 F.2d 632, 638 (6th Cir. 1966), is no less apt today: "We can imagine no area requiring stricter adherence to rules and regulations than that dealing with radioactive materials, from the viewpoint of both public health and national security." A licensee's responsibilities are increased by the Commission's heavy dependence on the licensee for accurate and timely information about the facility and its operation. *Petition for Emergency and Remedial Action*, CLI-78-6, 7 NRC 400, 418-19 (1978).

Thus, while lacking precise standards against which to measure licensee's conduct, the foregoing views provide valuable aid for grasping the slippery concept of management competence. They serve as well as guideposts for our appellate review of the Licensing Board's decisions.

III. TRAINING

Foremost among the matters warranting our consideration is the broad category characterized by the Licensing Board as "training." Encompassed within this topic are issues concerning the adequacy of the testing procedures to measure training effectiveness and the related cheating matter. The Commission gave training special emphasis in the 1979 order instituting this proceeding. See CLI-79-8, *supra*, 10 NRC at 144-45. The Licensing Board as well stressed the important relationship between training and operator competence. See LBP-81-59, 14 NRC 1211, 1709-10 (¶¶ 2015-2018) (1981). The substantial part of the record devoted to training underscores its role in assuring the safe operation of TMI-1. Training thus demands our considerable attention here on appeal.

In its first partial initial decision, the Licensing Board devoted substantial discussion to the TMI-1 training program for both licensed and non-licensed personnel. See LBP-81-32, *supra*, 14 NRC at 441-79 (¶¶ 163-276). It described the program, organization, and personnel devoted to the facility's training needs, noting that employees spend one of every six weeks in training. *Id.* at 443-53 (¶¶ 169-200). The Board also discussed the significant changes in licensee's training program since the TMI-2 accident, particularly the Operator Accelerated Retraining Program (OARP). Licensee developed the OARP to satisfy the Commission's short-term requirement (1.(e)) to augment operator retraining. *Id.* at 451-55 (¶¶ 196-207). See CLI-79-8, *supra*, 10 NRC at 144. The Licensing Board reviewed the testimony and other evidence licensee adduced in support of its improved training program, as well as that of the

NRC staff and Marjorie Aamodt. The Aamodts' contention 2 on training was somewhat vague and principally focused on the need for independent certification that TMI-1 personnel can perform their jobs in a safe manner.¹¹ The Board nonetheless addressed the discrete points pressed by the Aamodts at the hearing — *i.e.*, human factors engineering (control room design), simulator training, the adequacy of licensee's training and testing program, operator stress, operator attitude, and the adequacy of NRC testing. LBP-81-32, *supra*, 14 NRC at 465-78 (¶¶ 243-275). The Board concluded that licensee's training program is "comprehensive and acceptable" and in compliance with the Commission's orders. *Id.* at 478-79 (¶ 276).¹² The Board, however, expressly qualified its findings with regard to operator testing and licensing as a result of the then-recent revelations about cheating on the NRC operator examinations, and it promised to reconsider them after further investigation. *Id.* at 454 n.18, 479 n.24, 582 n.63 (¶¶ 204, 276, 584).

After considering the evidentiary record, the Special Master's report, and the parties' comments in connection with the reopened hearing on cheating, the Licensing Board

remain[ed] convinced that the evidence supported the conclusion that Licensee's training program was well designed to train qualified operators and that there was a rational plan to implement the program. As we noted above, on the one occasion when the integrity of the examination procedures was questioned, the Board reasonably inferred that suitable action would be taken, *i.e.*, requalification tests would be "closed-book".

LBP-82-56, *supra*, 16 NRC at 379 (¶ 2399). Although the Board identified some weaknesses in the program, it did not find the operators to be incompetent. *Id.* at 300, 381 (¶¶ 2085, 2410). Rather, the Board attributed these shortcomings to failures in quality assurance and quality control. *Id.* at 300, 379, 381 (¶¶ 2084, 2401, 2410). As a remedy for this problem, the Board imposed five conditions on restart, requiring,

¹¹ The Aamodts' contention 2 states:

It is contended that TMI-1 should not open until the performance of licensee technicians and management can be demonstrated to be upgraded as certified by an independent engineering firm. This upgrading should include 100% test performance of job description with provision for retraining and retest, or discharge of those who cannot consistently and confidently master all necessary information for safe conduct of their job description under all anticipated critical situations as well as routine situations.

LBP-81-32, *supra*, 14 NRC at 442 (¶ 165).

¹² The Board also reviewed numerous licensee commitments in the area of operator training, imposing many as license conditions. *Id.* at 567-71, 578-82 (¶¶ 538-555, 583).

among other things, a two-year post-restart audit of licensee's training and testing program. *Id.* at 384 (¶ 2421).¹³

We now turn to the numerous arguments raised on appeal that concern the broad topic of training.

A. Licensee's Consultants

On appeal, the Aamodts first challenge both the "independence" and the qualifications of the consultants who reviewed licensee's training program and testified on its behalf. In addition to several of its own employees, licensee presented a panel of three consultants whom it asked to evaluate the adequacy of the upgraded training program. These three witnesses were Dr. Eric Gardner, an educational psychologist; Dr. Julien Christensen, an engineering psychologist and human factors specialist; and Mr. Frank Kelly, a nuclear engineer and president of PQS Corporation, a firm that acts as a consultant to power plants on training and staffing. Licensee also introduced into evidence the June 1980 report of the OARP Review Committee ("OARP Report"). *See* Lic. Exh. 27. Dr. Robert E. Uhrig, an official of Florida Power & Light Company, chaired the committee, which included as members Drs. Gardner and Christensen, as well as Dr. William R. Kimel, Dean of the College of Engineering at the University of Missouri, and Mr. Richard J. Marzec, a training official for Duke Power Company.

¹³ The five conditions imposed are:

- (1) There shall be a two-year probationary period during which the Licensee's qualification and requalification testing and training program shall be subjected to an in-depth audit by independent auditors, approved by the Director of NRR, such auditors to have had no role in the TMI-1 restart proceedings.
- (2) Licensee shall establish criteria for qualifications of training instructors to ensure a high level of competence in instruction, including knowledge of subjects taught, skill in presentation of knowledge, and preparation, administration, and evaluation of examinations.
- (3) Licensee shall develop and implement an internal auditing procedure, based on unscheduled ("surprise") direct observation of the training and testing program at the point of delivery, such audits to be conducted by the Manager of Training and the Supervisor of Operator Training and not delegated.
- (4) Licensee shall develop and implement a procedure for routine sampling and review of examination answers for evidence of cheating, using a review process approved by the NRC Staff.
- (5) Until further order in this proceeding, any participation of Gary P. Miller in the start-up, testing or operation of TMI-1 shall be under the direct supervision of an appropriately qualified official of GPU Nuclear Corporation.

LBP-82-56, *supra*, 16 NRC at 384 (¶ 2421). The Board also sought to impose a \$100,000 penalty on licensee "as a long-term remedy to provide reasonable assurance that TMI-1 can be operated without endangering the public health and safety." *Ibid.* (¶ 2420). In CLI-82-31, 16 NRC 1236 (1982), however, the Commission concluded that the Board had no jurisdiction to impose such a fine and referred the matter to the Office of Inspection and Enforcement. *See* CLI-83-20, 18 NRC 1 (1983).

The Aamodts' objection to characterizing these individuals as "independent" is baseless. None is an employee of licensee, and none has ever purported to be anything but a hired consultant. The latter fact of itself does not undermine the value of these individuals' testimony. See *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1091 (1983).

Nor have the Aamodts successfully challenged the qualifications or testimony of licensee's consultants. We have reviewed each and find that both the witness panel and the OARP Review Committee are comprised of exceptionally well qualified persons from a range of disciplines (nuclear engineering, education, psychology, testing) most suitable to their task. See Gardner, fol. Tr. 12,409, at 2-4; Kelly, fol. Tr. 12,409, at 1, App. A; Christensen, fol. Tr. 12,409, at 1-3; Lic. Exh. 27, OARP Report, at 4-9. Understandably, no one witness or member of the OARP Review Committee is an expert in all of these areas. In this age of specialization, it would be rare indeed to find such a Renaissance man or woman. See generally *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-379, 5 NRC 565, 569 (1977).¹⁴ It is not surprising, then, that Dr. Gardner, an educational psychologist, told Mrs. Aamodt at the hearing that he was "not qualified" to respond to her question concerning the operators' "competen[ce] to operate the plant under all conditions." Tr. 12,628. The few other examples cited by the Aamodts of where these witnesses' testimony was "destroyed or weakened through cross-examination" are similarly without foundation. See Aamodt Brief (October 4, 1982) at 5-6. Further, the limited intervenor testimony presented did not damage that of licensee's witnesses. See Aamodt, fol. Tr. 12,931.

As for the Aamodts' complaint that the Licensing Board overlooked the more critical elements of the OARP Report, we believe that the Board could have elaborated more on the areas the Committee identified as needing improvement (e.g., description of control room operator tasks, the training facility, instructor training, communication between management and staff). See LBP-81-32, *supra*, 14 NRC at 454 (¶ 203). See also Lic. Exh. 27, OARP Report, at 140, 141, 143, 146-47, 149. Nonetheless, it cannot be reasonably disputed that the overall conclusion of the OARP Review Committee, which took account of the weaknesses in the program, was strongly favorable, and the Board's decision fairly reflects that. *But see* pp. 1234-36, *infra*.

¹⁴ Brought to mind is John Kennedy's often paraphrased statement to a White House gathering of Nobel laureates that there had never been a greater collection of genius — with the possible exception of when Thomas Jefferson dined alone.

B. Cheating

Both TMIA and the Aamodts devote substantial portions of their arguments on appeal to the cheating incidents explored at the reopened hearing. They are primarily dissatisfied with the Licensing Board's treatment of allegations against several individuals, particularly where the Board's conclusions differ from those of the Special Master.¹⁵ In intervenors' view, the Board should have deferred more to the Special Master's observations concerning witness demeanor and credibility.

Before turning to the individual areas on which intervenors disagree with the Licensing Board's conclusions, a brief synopsis of the cheating episode is in order. In July and August 1981, the Licensing Board received a series of Board Notifications from the NRC staff, informing it that cheating had occurred on the NRC Reactor Operator (RO) and Senior Reactor Operator (SRO) examinations in April 1981. The staff also noted that some sessions of the examinations had been unproctored for extended periods of time, and it concluded that reexamination was warranted. *See* BN-81-17 (July 28, 1981); BN-81-17B (August 7, 1981); BN-81-17C (August 14, 1981); BN-81-17D (August 17, 1981). The Licensing Board soon thereafter issued its already completed partial initial decision on management, but retained jurisdiction and reopened the hearing insofar as the cheating allegations were concerned. An extensive hearing was held before the Special Master, and the Licensing Board, after consideration of his findings, issued another partial initial decision on cheating alone.

At this stage, the following facts are essentially no longer in dispute. Two shift supervisors, O and W,¹⁶ cheated extensively on licensee-administered examinations as well as the April 1981 NRC examinations. Their employment with licensee has been terminated. G and H, reactor operators, cheated on licensee-administered examinations. G is no longer employed by licensee. Letter from E.L. Blake to Appeal Board (October 7, 1982); App. Tr. 159. Pursuant to a stipulation between licensee and the Commonwealth of Pennsylvania (*see* note 1, *supra*), H will

¹⁵ Intervenors also complain about the "loose" testing procedures and the casual attitude of a number of operators as to what constitutes cheating. There is no real dispute that the administration of the April 1981 NRC examination and earlier licensee tests was lax. *See* LBP-82-56, *supra*, 16 NRC at 357 (¶ 2324). In fact, the Commission has issued a Notice of Violation imposing a \$40,000 civil penalty for licensee's failure to implement its Operator Accelerated Retraining Program properly. CLI-83-20, *supra*, 18 NRC 1. What is relevant here, however, is whether there can be confidence that future training and testing procedures will not be so compromised. We address that issue below at pp. 1232-39.

¹⁶ In order to protect their identities, many of the persons involved in the cheating incidents have been referred to throughout this proceeding by letter designations, per agreement of the parties and at the discretion of the Special Master. Our continuation of this practice should not be construed as an endorsement of it.

never again operate TMI-1 and is now assigned to the TMI-2 Waste Shipping Department as an engineering associate. Commonwealth of Pennsylvania Motion to Withdraw Appeal (July 8, 1983), Stipulation of Withdrawal (July 6, 1983) at 2; App. Tr. 221.¹⁷ A number of other licensee employees also were implicated in various cheating incidents. While the Special Master was able to reach conclusions as to wrongdoing in some instances, the Licensing Board was, in some cases, unable either to reach the same conclusions or to impose sanctions for conduct it did, in fact, find improper. It is the Licensing Board's action in this regard that is the principal source of intervenors' complaints on appeal concerning the cheating incidents.

1. Michael Ross

We devote our attention first to the charges involving Michael Ross, Manager of Plant Operations at TMI-1. The Licensing Board rightly described him as possibly "the most important person on the TMI-1 operating team as far as the public health and safety is concerned." LBP-81-32, *supra*, 14 NRC at 439 (¶ 155). He is the highest level of management directly implicated in cheating and, thus, it is essential that all questions concerning his conduct be resolved satisfactorily.¹⁸

The allegations against Ross are twofold but arise from the same set of circumstances. He is accused of improperly influencing the NRC examiners to broaden the answer keys for the April 1981 NRC licensing test so as to increase the operators' scores. At the same time, he is said to have kept, intentionally, the NRC proctor away from one of the examination rooms. The Special Master found both allegations to be true. LBP-82-34B, *supra*, 15 NRC at 976, 988 (¶¶ 152, 178).

First, the Special Master acknowledged that it is the NRC's standard practice to have the senior members of a facility's staff review the questions and answers for NRC licensing examinations. This is done to assure that the questions and answers are still valid for the plant and that the questions can be clearly understood. The review is done during

¹⁷ In these circumstances, it is not necessary for us to address TMIA's argument that G and H should be removed from licensed duties.

¹⁸ This is so despite the fact that none of the intervenors filed proposed findings on the Ross matter. See LBP-82-56, *supra*, 16 NRC at 326 n.236 (¶ 2194). In this circumstance, they may be deemed to be in default and to have waived any further right to pursue the issue. See LBP-81-32, *supra*, 14 NRC at 399 (¶ 35); 10 C.F.R. § 2.754. See also *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-709, 17 NRC 17, 23 (1983).

Nevertheless, we view this matter with great concern. As an indication of that, we asked the parties to devote special attention to the charges against Ross during oral argument of this appeal. Appeal Board Memorandum and Order of December 22, 1983 (unpublished), at 5.

the examination to avoid premature disclosure of answers, while still leaving time to correct any errors in it. See Staff Exh. 29, ES-201 (rev. 2, 1969), at 3. On April 23 and 24, 1981, Ross and two of licensee's training instructors, Nelson Brown and Dennis Boltz, met with Bruce Wilson, the NRC examiner and proctor, to review the answer key for the "A" examination (given on April 21 and 22) and the questions and answers for the "B" examination then in progress. The unusual aspect of this review was that Ross himself had taken the "A" examination because of the Commission's requirement that *all* licensed personnel be retested. See CLI-79-8, *supra*, 10 NRC at 144. It was thus unavoidable that at least one examinee would also have to be a reviewer. See LBP-82-34B, *supra*, 15 NRC at 970-72 (¶¶ 137-141).¹⁹

The Special Master, however, relied heavily on the testimony of YY, a former TMI-1 employee who had reported an incident involving Ross to the NRC's Office of Inspection and Enforcement (I&E) in September 1981. YY alleged that on April 23 or 24, Ross

appeared to be in a very happy — almost ecstatic — mood and was talking to the shift supervisor. . . . [Ross] told how he had met with one of the NRC proctors in BB's office to go over the RO/SRO exams. He said that he had gotten the NRC to "expand" the answer key so as to give the examinees more latitude in their answers and also that he had kept the proctor out of the room for a very long period of time. The inference I [YY] drew was that by both actions he had made it easier for the people taking the tests.

Staff Exh. 27, Encl. 1.²⁰ YY added his belief that Ross "had meant what he said" and was not "beyond doing something such as purposely keeping the NRC proctor out of the room." *Ibid.* He also stated, however, that Ross could have been "bragging." *Id.* at 7.

The Special Master called YY to testify at the hearing. YY essentially repeated the charges against Ross. Tr. 26,011, 26,015-16. The Special Master found other evidence of Ross's comments in statements to NRC investigators by GG, KK, and RR. LBP-82-34B, *supra*, 15 NRC at 972-73 (¶ 143). Ross testified that he could not remember specifically, but that he probably made statements similar to those YY attributed to him. He added, however, that by such remarks he would have meant the answer keys were adjusted to correspond better with the operators' training and that his intent in making the remarks was to increase low

¹⁹ So that there could be some review of the "A" examination while it was in progress on April 21-22, licensee provided two members of its staff and an outside training consultant. None, however, was a licensed operator with "hands-on" knowledge of the day-to-day operation of the plant. See LBP-82-34B, *supra*, 15 NRC at 971 (¶ 139).

²⁰ Ross is referred to in this statement and other testimony as EE, but did not seek anonymity.

operator morale. *Id.* at 973 (¶ 144). *See* Tr. 24,331-32, 24,334-35. But the Special Master found Ross's testimony "not credible," citing several discrepancies in his statements. LBP-82-34B, *supra*, 15 NRC at 974-75 (¶ 147).²¹ He also discounted the somewhat more favorable testimony of Bruce Wilson because Wilson had an interest in not appearing as though Ross had duped him. *Id.* at 975-76 (¶ 150). On the other hand, the Special Master found YY's testimony "clear" and his demeanor "completely forthright," while finding Ross's demeanor "less than forthright." *Id.* at 976 (¶ 151).

The Special Master also considered a sampling of 12 changes — about one-fourth the total number — made to the answer key of the "A" examination. He found many changes correct and necessary, except for two, where "[t]he good faith of the reviewers is at issue." *Id.* at 987 (¶ 177). In those two instances, the Special Master was especially influenced by the fact that the reviewers (Ross, Brown, and Boltz) were about the only examinees to benefit from the proposed changes. *Ibid.* (¶ 177). This, coupled with the Special Master's negative findings on Ross's credibility, led to his conclusion that Ross acted improperly, as alleged by YY. *Id.* at 987-88 (¶ 178).

The Licensing Board disagreed, emphasizing a number of factors. LBP-82-56, *supra*, 16 NRC at 326, 327 (¶¶ 2195, 2199). First, the occasion for Ross and his colleagues to review the examination with Wilson was not of Ross's making: it was the product of both the ordinary NRC practice of having senior plant personnel review its examinations, and the extraordinary requirement that all operators be retested. *Id.* at 326-27 (¶ 2198). Second, the Board found Ross's statement, even as recalled by YY, "equivocal" — *i.e.*, "it could mean that Mr. Ross influenced the NRC to expand the answer keys accurately to fairly provide more latitude and that this process took a very long time." *Id.* at 327 (¶ 2201). Third, the Board found YY's own statements and the surrounding circumstances even more equivocal. *Id.* at 327-29 (¶¶ 2201-2205). Fourth, the Board stressed that GG, KK, and RR inferred from Ross's statements that he had *fairly* broadened the answer keys. *Id.* at 329 (¶ 2206). Fifth, although the Board conceded that Ross's statements were sometimes uncertain, it found the more important discrepancies noted by the Special Master (*see* note 21, *supra*) explained by other testimony and "Ross' tendency to limit his testimony to his definite

²¹ The discrepancies in Ross's testimony concerned the following: whether changes in the answer key were in fact made; how many changes were suggested; how much time had elapsed since the exam; how long it took for the review; and whether the exam was in fact being proctored during the review. *See* LBP-82-34B, *supra*, 15 NRC at 974-75 (¶ 147).

knowledge.” *Id.* at 329-30 (¶¶ 2207-2209).²² Sixth, the Board analyzed the two answers that the Special Master concluded Ross improperly sought to alter. As to one, the Board found the change recommended by Ross was just as likely to be correct as the NRC’s original answer. As to the other, the Board concluded that the change was properly rejected but suggested in good faith by Ross and Boltz. *Id.* at 330-33 (¶¶ 2212-2224). In sum, the Board determined that the charges against Ross were unfounded. *Id.* at 333 (¶ 2225).

After conducting our own review of all of the testimony and evidence pertinent to this matter, we fully agree with the Licensing Board. That Board analyzed the record thoroughly and did not reach its favorable conclusion on Ross lightly.²³ Like the Licensing Board, we find that the statements attributed to Ross — which he has not denied making — are *on their face* benign. But when viewed with other evidence, the statements become amenable to an interpretation more plausible than that proffered by the Special Master.

For example, according to YY, Ross “said that he [Ross] had gotten the NRC to ‘expand’ the answer key so as to give the examinees more latitude in their answers.” Staff Exh. 27, Encl. 1. At least three other employees, KK, GG, and RR, heard this comment. In statements (one of which was sworn) to the NRC investigators, these persons stated their impression that Ross had meant that the review resulted in more correct and fairer answers. Further, they viewed his comments as intended to reassure an already depressed and angry group of employees. *Id.* at 24, 26, 27-28, Encl. 6.²⁴ This is consistent with Ross’s own testimony. *See* Tr. 24,331-32, 24,334-35. As for the changes in the answer key itself, by the Special Master’s own reckoning, the great proportion of them were correct and necessary.²⁵ The Special Master appears to have overlooked, or at least unfairly minimized, this fact when he found Ross to have acted in bad faith. The need for such heavy reliance on facility

²² For instance, the Board noted that three NRC officials were available to proctor the “A” examination, which Ross took. Thus, Ross did not have reason to assume that the “B” examination was unproctored while he reviewed the exams with Wilson. LBP-82-56, *supra*, 16 NRC at 330 (¶ 2209).

²³ The Aamodts contend that the Board “lacked objectivity” because it had reached its own tentative conclusions about Ross independent of the Special Master’s report. Aamodt Brief at 21. *See* LBP-82-56, *supra*, 16 NRC at 326 (¶ 2194). That argument, on its face, suggests just the contrary. In any event, we are convinced that the Board fully and fairly reviewed the record before reaching its conclusion. It even went so far as to issue its decision on the Ross issues in draft form, allowing the parties one more opportunity to comment. *Ibid.* (¶ 2195).

²⁴ The Special Master specifically called YY to testify, but did not call KK or RR in order to explore their statements further. GG testified but apparently was asked only a few questions about this incident by TMIA’s representative. *See* Tr. 25,688-89.

²⁵ As for the two instances where the Special Master found the reviewers’ attempts to have the answer key changed improper, we agree with the Licensing Board’s analysis and contrary conclusion. *See* LBP-82-56, *supra*, 16 NRC at 330-33 (¶¶ 2212-2224).

personnel may well reveal serious deficiencies in the NRC's examination procedures. See pp. 1237-39, *infra*. But problems inherent in that program cannot and should not provide a basis for inferring bad faith on Ross's part.

With respect to Ross's statement — as attributed to him by YY — “that he had kept the proctor out of the room for a very long period of time,” again, on its face, the statement is benign and in accordance with other testimony concerning the length of time the review took. Despite Ross's denial (Tr. 24,342-43), the Special Master concluded that Ross “obviously knew” that one of the examination rooms was unproctored for a long time. But the evidence on which he bases his conclusion shows only that *the NRC proctor* (Wilson) “obviously knew” the examination was unproctored. See LBP-82-34B, *supra*, 15 NRC at 975 (¶ 149). Apparently at no point did the Special Master or any party attempt to determine what Ross actually knew about this. For example, no one asked Wilson if, during all the hours spent with Ross, either had mentioned the unproctored status of the room. Wilson, in fact, indicated his belief that the reviewers had not intended to distract him. See Staff Exh. 27, Encl. 2 at 3-4. When one considers that it was NRC procedures and requirements that occasioned this situation in the first place (see pp. 1213-14, *supra*), the evidence on which the Special Master relies to conclude that Ross “obviously knew” all proctors were absent is thin indeed. We, like the Licensing Board, are not willing to make so broad a jump.

The Special Master also did not fully take account of the fact that YY's testimony, both at the hearing and to the NRC investigators, reflects his perceptions. That is, it largely recounts YY's “feelings” and inferences. To be sure, much testimony could be so characterized, inasmuch as what a witness *says* he saw or heard is often determined by what the witness *thinks* he saw or heard. But where the record permits it, triers of fact generally consider a witness's particularly perceptual testimony in context. Here, the Special Master failed to note several factors that may well have influenced YY's perceptions — *e.g.*, YY never took the licensing examination (Tr. 26,022); YY objected to Ross's apparently inconsistent attitude toward requisitioning office supplies (Tr. 26,009-10, 26,013-14, 26,020-21, 26,023); YY did not report his concerns to the NRC until some five months after the exam and after O and W were terminated; YY felt it was wrong for management (of which Ross was a part) to fire W for cheating (Tr. 26,018-19). None of these factors, of course, could provide a basis for discrediting YY's testimony. But they do supply the background detail to complete the picture of YY's total testimony. Moreover, because YY testified as to his

perceptions, his statements are not necessarily or totally inconsistent with the testimony and evidence of other witnesses. The Special Master did not have to pick and choose between YY and Ross, finding one truthful and one not.

The Special Master, however, presumably felt compelled to do so on the basis of YY's and Ross's demeanor. See LBP-82-34B, *supra*, 15 NRC at 976 (¶ 151). But having identified demeanor as a factor of decisional significance, the Special Master failed to elaborate on *why* YY's demeanor was "completely forthright" and Ross's was less so. See *ibid.* (¶ 151).²⁶ Contrary to intervenors' arguments, the Licensing Board did give "special weight" to the Special Master's direct observations of witness demeanor. LBP-82-56, *supra*, 16 NRC at 289 (¶ 2036). Cf. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 404 (1976) ("where the credibility of evidence turns on the demeanor of a witness, [appeal board] give[s] the judgment of the trial board which saw and heard his testimony particularly great deference"). The Board noted, however, that "where [the Special Master's] conclusions are materially affected by witness demeanor, [it has] given especially careful consideration as to whether or not other, more objective credibility criteria are consistent with his conclusions." LBP-82-56, *supra*, 16 NRC at 289 (¶ 2036). Thus, in the case of Michael Ross, the Licensing Board found other more objective evidence at odds with the Special Master's demeanor findings and so concluded that Ross had not acted improperly. *Id.* at 325-33 (¶¶ 2192-2225). The Board's analysis is wholly in accord with judicial precedent. See *Millar v. FCC*, 707 F.2d 1530, 1539-40 (D.C. Cir. 1983) (demeanor evidence of little value where other testimony, documentary evidence, and common sense suggest contrary result); *Local 441, IBEW v. NLRB*, 510 F.2d 1274, 1276 (D.C. Cir. 1975) (providing it acknowledges and explains the basis of its disagreement, Labor Board may differ with administrative law judge's demeanor findings as a result of its own assessment of the probabilities of the situation). In these circumstances, and fortified by our own independent review of the record, we see no basis for disturbing the Licensing Board's conclusions about Michael Ross.

²⁶ In contrast, the Special Master gave fuller explanations as to why he found certain of Ross's testimony "not credible." Demeanor, of course, is a more intangible concept and is based on one's observations of the witness. Thus, we recognize that it is more difficult — but not impossible — to articulate why a person's demeanor influences a factfinder's judgment one way or the other.

2. *Henry Shipman*

Henry Shipman is the plant operating engineer and principal assistant to Michael Ross. He also holds a senior reactor operator's license and thus took both licensee and NRC examinations in April 1981. By his own account, he provided an answer on one of those exams to an unidentified individual. The incident probably occurred during the NRC's "A" examination on April 21 or 22. Shipman had taken a break and, while at the coffee machine in the hallway, he was approached by someone who asked a question, which Shipman answered. He later realized that the question, which he could not identify, was probably on the exam. Although he could not identify the individual either, he assumed that he came from the smokers' room, because Shipman was in the non-smokers' room and only one person from each room could take a break at the same time. Shipman first disclosed this incident during an interview with Henry Hukill (then, TMI-1 Vice President; now, Director of TMI-1) in the wake of the disclosure of the cheating by O and W. He also gave statements concerning this matter to NRC investigators and testified at the hearing before the Special Master.²⁷ After inquiring into the matter himself, the former president of GPU Nuclear, Robert Arnold, placed a letter of reprimand in Shipman's file. See LBP-82-34B, *supra*, 15 NRC at 954-55 (¶¶ 94-95); LBP-82-56, *supra*, 16 NRC at 313-14 (¶¶ 2139-2141).

The principal focus of this incident is on who asked Shipman the question at the coffee machine. Shipman has steadfastly maintained that he cannot recall who it was. The NRC investigators and the Special Master, however, concluded that Shipman is not being truthful. Tr. 25,368; LBP-82-34B, *supra*, 15 NRC at 956 (¶ 100). The suspicion is that he is protecting someone; that someone, perhaps still a TMI-1 employee, cheated. After reviewing the record, the Licensing Board tempered the Special Master's conclusion somewhat. In its view, the conclusion that Shipman is not truthful "is probably the best inference to be drawn," but it is not so convincing as to warrant removal or suspension of Shipman from his position at TMI-1. LBP-82-56, *supra*, 16 NRC at 314 (¶ 2144).

We essentially share the Special Master's and the NRC investigators' judgment that Shipman is not telling the truth in his asserted failure to recall who solicited the test answer from him. We find it virtually impossible to believe that he could recall the incident and where it occurred

²⁷ In some testimony and documents, Shipman is referred to as FF, although he did not claim any right to confidentiality.

but not the principal player, or even any of his physical characteristics. See Tr. 23,986-87, 25,368-71.²⁸ This is especially so considering that there was not much room at the coffee stand, and that the list of possible persons who could have asked the question numbers only eight. Tr. 26,360; Lic. Exh. 83. Included among those individuals are shift foremen and training instructors — people with whom Shipman is presumably familiar. One would expect him to have been able at least to *exclude* some persons, thereby narrowing the field for the investigators. Moreover, according to Shipman's own sworn statement, his action likely resulted "from compassion for my co-worker. We are a very close-knit group." Staff Exh. 28, Encl. 3 at 6. It is hard to believe that one could have such strong feelings without being able to recall the beneficiary of them. In such circumstances, the most plausible inference to be drawn is that Shipman does recall who approached him but is indeed protecting him.²⁹

Nonetheless, we do not agree with the Special Master's recommendation that licensee not be permitted to use Shipman in the operation of TMI-1 until he either names the unidentified questioner or provides a credible reason why he cannot do so. See LBP-82-34B, *supra*, 15 NRC at 1044-45 (¶ 315). For one thing, as the Licensing Board correctly noted, "[n]either will ever happen." LBP-82-56, *supra*, 16 NRC at 315 (¶ 2145). It is clear from the record that even the "quite persuasive" efforts of Hukill and the NRC investigators were not enough to elicit the questioner's identity from Shipman. See Tr. 25,373-74. Thus, it is extremely unlikely that the primary purpose of the Special Master's recommendation — identification of the unknown cheater — would ever be fulfilled.

Moreover, other more positive factors militate against additional sanctions. Shipman voluntarily — albeit not as promptly as he should have — came forward with the disclosure of this incident, a clear admission against his own self-interest. But for his statements, this incident would never have been revealed.³⁰ Shipman willingly testified in his own

²⁸ As noted, Shipman could not recall what the question was, but when pressed at the hearing, he speculated as to what it could have been. Tr. 26,363-64.

²⁹ While disbelieving Shipman about his ability to remember who asked him for help, we find credible his description of the spontaneity of the situation that prompted him to supply the answer. See Tr. 26,377.

³⁰ In this regard, the Licensing Board quite properly noted the "public interest in encouraging such disclosures." LBP-82-56, *supra*, 16 NRC at 314 (¶ 2144). In this scheme of regulation, so heavily and necessarily dependent upon self-policing, disclosure of *some* information about wrongdoing (or any type of problem) is more desirable than disclosure of *no* information. Indiscriminate imposition of draconian sanctions on those who come forward with important information would surely lead to the latter.

name and, as a consequence, has had his veracity publicly disputed.³¹ He has been formally reprimanded, and Hukill has promised to terminate him for any similar incident in the future. Tr. 23,985-86. Finally, apparently this is the only incident in his career with licensee where his honesty and “capability to respond properly to unexpected events” have been questioned. Hukill, fol. Tr. 23,913, at 14-15; Tr. 23,989. In these circumstances, the formal reprimand is sufficient.³²

3. Charles Husted

There are essentially two allegations with respect to Charles Husted — who, until recently, was a licensed operator training instructor. First, he allegedly solicited (but did not obtain) an answer to a question from P, a TMI-1 shift supervisor, during an unproctored session of the April 1981 NRC SRO licensing examination. Second, Husted was accused of failing to cooperate with NRC investigators inquiring into the overall cheating controversy.

On the first charge, despite much conflicting testimony and a determination that neither P nor Husted was credible, the Special Master found that Husted did solicit information from P concerning an exam question.³³ The Special Master also found that Husted, at least initially, had refused to cooperate with the NRC investigators. LBP-82-34B, *supra*, 15 NRC at 957-61 (¶¶ 101-111). As for sanctions, the Special Master suggested that Husted be reprimanded for soliciting the exam answer. For Husted’s failure to cooperate with the NRC, the Special Master essentially recommended a sanction less than removal from licensed duties, inasmuch as he found no standard against which to measure Husted’s conduct. *Id.* at 1045-46 (¶¶ 316-317).

The Licensing Board, however, found insufficient evidence to support the Special Master’s conclusions about P’s and Husted’s credibility and, more important, his ultimate finding that Husted had asked P for the answer. But as for Husted’s alleged failure to cooperate with the NRC investigators, the Board is in full agreement with the Special Master. Indeed, on that count, the Board found Husted’s testimony “incredible” and lacking “seriousness and regret.” LBP-82-56, *supra*, 16 NRC at 315-19 (¶¶ 2148-2166). In order to treat this “attitude” problem, the Board requires certain changes in licensee’s training program, including

³¹ Mrs. Aamodt asked Shipman if he would be ostracized by his fellow workers, were he to reveal the questioner, and if this would influence his decision to talk. Shipman stated that being ostracized would be “insignificant” compared to what “this has been like so far.” Tr. 26,389-90.

³² See p. 1229, *infra*, concerning the adequacy of licensee’s investigation of this matter.

³³ In some evidence, Husted is referred to as DD, but has not claimed any right to confidentiality.

(1) development of criteria for training instructors, and (2) an audit of the training program, as actually implemented. Although it imposes no direct sanction on Husted, the Board recommends that his performance receive particular attention in the audit. *Id.* at 320, 365, 384 (¶¶ 2168, 2347, 2421).

Developments subsequent to briefing of these appeals make it unnecessary for us to resolve the dispute between the Special Master and Board concerning Husted's alleged solicitation of an answer, or to determine if Husted should be removed from licensed duties. By stipulation with the Commonwealth of Pennsylvania (*see* pp. 1212-13, *supra*), licensee has agreed to the following.

2. Now and at any time in the future Licensee will not utilize Mr. [Husted] (whose attitude was criticized by the ASLB) to operate TMI-1 or to train operating license holders or trainees.
3. Licensee will direct that the ASLB-mandated training audit specifically evaluate Mr. [Husted's] performance and attitudes as an instructor and Licensee will comply with the findings in a timely and appropriate manner, but in no event would Mr. [Husted] be utilized for any function specified in paragraph 2, above. Prior to the audit Licensee will continue to monitor Mr. [Husted's] performance and assign work consistent with that performance.

Commonwealth Motion to Withdraw, Stipulation at 2. We have also been advised by licensee that Husted has been named Supervisor of Non-Licensed Operator Training. Letter from D.B. Bauser to Appeal Board (May 6, 1983) at 3. While, as noted, the stipulation has effectively mooted some issues as to Husted, his promotion to a supervisory position of such importance has surely raised another that we cannot ignore.

At the outset, we confirm that the record supports the conclusions of both the Special Master and Licensing Board about Husted's poor attitude toward his responsibilities — as reflected in his failure to cooperate with the NRC investigators. *See* Staff Exh. 26 at 39; Staff Exh. 27 at 16; Tr. 26,927-33.³⁴ The Licensing Board explains it quite well:

By first refusing to answer fully the NRC examiners' question [Husted] raised suspicions where perhaps none would have arisen otherwise. His testimony on the matter was not only unbelievable, but it gave the sense that he didn't care whether he was believed or not.

... These factors are not exactly quantifiable but they add up to a conclusion that, if Mr. Husted is representative of the TMI-1 training department, his attitude may be

³⁴ Licensee conceded that Husted was flippant and did not appear to take this matter seriously. Licensee Proposed Findings (January 5, 1982) at 89.

a partial explanation of why there was disrespect for the training program and the examinations. We would have expected Mr. Husted to shoulder at least part of the responsibility for the need perceived by O, W, G and H to cheat. We would expect him to be gravely concerned about the damage to his co-workers, his employer and the public's confidence in the operation of the unit caused by the cheating episodes and failure of his own training department to create a serious and organized environment during the training and quizzes. As a licensed operator instructor Mr. Husted may have the ability to impart accurate technical knowledge to his charges — the record is silent on this. But, from our evaluation of his contribution to the investigation and the reopened hearing, we question whether he is able, or if able, willing, to impart a sense of seriousness and responsibility to the TMI-1 operators.

LBP-82-56, *supra*, 16 NRC at 319 (¶¶ 2166-2167).

We must, however, part company with the Licensing Board on how it views the relationship of Husted's attitude toward his teaching responsibilities. The Board states:

We have no evidence that the attitude we criticize is manifested in [Husted's] performance as a teacher but, as noted above, we fear that such is the case. But there is also the widely held view in the field of education that the attitude of a teacher is irrelevant to his or her competence. Mr. Husted does not have to love and respect the NRC to do his duties.

Id. at 319-20 (¶ 2168). This does not square with the Board's earlier finding that Husted's "attitude may be a partial explanation of why there was disrespect for the training program and the examinations." *Id.* at 319 (¶ 2167). Nor does the Board provide any support for what it terms "the widely held view in the field of education that the attitude of a teacher is irrelevant to his or her competence." *Id.* at 320 (¶ 2168). Such a view would be valid only if the Board defines "competence" so narrowly as to mean the mere possession of and ability to impart to others a certain quantum of information. We reject that notion in favor of one that recognizes teacher competence to include the ability to communicate effectively a sense of responsibility as well as information. *See* Lic. Exh. 27, OARP Report, at 60 (factors considered by OARP Review Committee in rating training instructors). Where, as here, so much of the training information to be conveyed concerns the need to comply with proper procedures (*see* p. 1239 and note 61, *infra*), the instructor's attitude toward — *i.e.*, respect for — those procedures becomes an integral (though perhaps subliminal) part of his or her ability to teach.

To be sure, Husted will no longer be permitted to train licensed operators. Moreover, there is no hard evidence on this record that Husted's bad attitude did, in fact, affect his teaching performance. *See, e.g.*, Lic. Exh. 27, OARP Report, at 60-63. But in his new position as Supervisor of Non-Licensed Operator Training, not only will Husted be in a po-

sition to instruct personnel with important duties that affect the public health and safety,³⁵ he will obviously have certain management responsibilities. As such, Husted will presumably also have a role in establishing the criteria for training instructors and developing the audit program imposed by the Licensing Board, at least in part, as a remedy for his own failure to cooperate with the NRC. See LBP-82-56, *supra*, 16 NRC at 320, 365, 384 (¶¶ 2168, 2347, 2421).³⁶ We seriously question licensee's judgment in *promoting* Husted to an important position with management responsibilities, given his documented past failure to cooperate with the NRC in its cheating investigation.³⁷ We therefore require, in addition to those commitments reflected in the stipulation with the Commonwealth and the conditions imposed by the Licensing Board should restart be authorized, that Husted have no supervisory responsibilities insofar as the training of non-licensed personnel is concerned.

4. U

The Licensing Board aptly described U, a control room shift foreman: "Either he has an unlucky affinity for situations having an aura of cheating, or he was involved in cheating episodes." *Id.* at 320 (¶ 2169). Three allegations concerning U were pursued at the hearing — (1) he was "available" in Husted's office during the NRC "B" examination to help those taking the test; (2) during that same examination, he called KK (a shift technical advisor) to solicit the answer to an examination question, assertedly on O's behalf; and (3) he used notes written on his hand and "crib sheets" to cheat on NRC and licensee examinations.³⁸

Both the Special Master and Licensing Board explored these charges in depth, and no purpose would be served here by a rehearsal of the relevant testimony. See LBP-82-34B, *supra*, 15 NRC at 962-69, 1046-47 (¶¶ 112-132, 318-319); LBP-82-56, *supra*, 16 NRC at 320-24 (¶¶ 2169-2187). The Board noted that it reached some conclusions more favorable to U than the Special Master and some others less favorable to him. But, on balance, both reached the same ultimate result

³⁵ These non-licensed personnel are auxiliary operators, who are on the career path to becoming licensed operators.

³⁶ The Board's conditions apply to the overall training program, not just licensed operator training.

³⁷ Here on appeal and in reference to Husted's conceded attitude problem, licensee states: "While this type of attitude should not be and has not been condoned or encouraged, neither should it be equated with a lack of integrity." Licensee's Brief (November 15, 1982) at 89. Promoting Husted to Supervisor of Non-Licensed Operator Training, in our view, amounts to at least condoning his demonstrated bad attitude.

³⁸ We note that U was also one of the eight individuals implicated in the Shipman incident, pp. 1219-21, *supra*. See Lic. Exh. 83; Tr. 25,375.

of reluctantly giving U the benefit of the doubt and recommending no sanction against him. LBP-82-56, *supra*, 16 NRC at 324 (¶ 2185). The Special Master described some evidence about U as “extraordinarily confusing” and referred to the events surrounding U’s alleged telephone call to KK as “a mystery.” LBP-82-34B, *supra*, 15 NRC at 967 (¶¶ 127, 129). Our own review of the record leaves us uncomfortable but leads us to an ultimate conclusion no different than that of the Board and Special Master.

We add only a few comments in response to the principal arguments raised in this regard on appeal. TMIA calls our attention to T’s testimony concerning his own use of Husted’s office during the “B” examination. (T is a control room operator who took the “A” examination.) We find that T’s testimony in fact lends support to U’s claim that he was legitimately in Husted’s office at the time in question to study, and not for the purpose of improperly aiding test candidates. *See* Tr. 26,600-04, 26,616-20. Also in this connection, the fact that U may have never studied before (or since) in Husted’s office is of little or no significance. It must be kept in mind that the entire operator retraining program and reexamination process was a one-time event in response to the Commission’s post-TMI-2 order. Although U, as an already licensed operator, would have had some training on a regular basis, he previously would not have had to undergo this more demanding program. In this circumstance, it is not implausible that he would study so far in advance for another exam and that he would use Husted’s office for that purpose.

Finally, TMIA repeats the argument it made to the Licensing Board that, although licensee’s management may not have placed him there, U stationed himself in Husted’s office to help examinees. The Board found this “inviting conjecture with some evidentiary support” in U’s own testimony. After listing that evidence, however, the Board noted its reluctance to find misconduct on U’s part without “some reliable external evidence.” It thus gives U the benefit of the doubt. LBP-82-56, *supra*, 16 NRC at 323-24 (¶¶ 2184-2185). We see it a bit differently. It is not a matter of giving U the benefit of the doubt. Rather, the evidence on the whole is inadequate to support a finding of wrongdoing by U. Clouds of suspicion, though thick, are not enough.

5. GG, W, and MM

GG, W, and MM are, respectively, a shift foreman, former shift supervisor, and shift technical advisor. The answers they provided to two questions on a December 1980 licensee-administered quiz were remarkably similar. Especially as to “Lessons Learned” Question 1, the

three answers contained the same stilted language and spelling errors. The Special Master found that GG and W cooperated on the answers to both questions and that MM cooperated as well on Question 1. Although he was not able to determine who copied from whom, the Special Master thought the evidence suggested GG copied from either W or MM. LBP-82-34B, *supra*, 15 NRC at 951-54 (¶¶ 82-93). He recommended no sanction, however, against either MM or GG, essentially because of the limited nature of this incident. *Id.* at 1043-44 (¶¶ 312-313). (W had already been terminated for cheating on an NRC examination. *See* p. 1212, *supra*.)

The Licensing Board disagreed with the Special Master's finding that MM cheated on Question 1. The Board relied in part on MM's comments submitted after the Special Master's report. MM pointed out that, as a shift technical advisor, he was not required to take these quizzes but did so only to evaluate his knowledge. MM also noted that his answers were in the form of a "list" (which the question sought) and thus the language should not be viewed as unnatural or stilted. Although the parallelisms in the answers of MM, GG, and W still troubled the Board, it concluded that MM had not cheated. LBP-82-56, *supra*, 16 NRC at 310-12 (¶¶ 2128-2132). The Board agreed with the Special Master, however, that the evidence established cooperation between GG and W on the two questions. Characterizing it as a weak inference, the Board concluded that W copied from GG, with the latter's consent or knowledge. *Id.* at 312 (¶¶ 2133, 2134). But the Board imposed no sanction on GG for four reasons:

- (1) W was his supervisor, (2) this was a company-administered examination, (3) there was inappropriate informality and inadequate proctoring during the examinations, and (4) there was a broad attitude of disrespect for the examination process.

Ibid. (¶ 2135). The Board observed that its finding would differ had this been an NRC licensing examination.

On appeal, TMIA first objects to the Licensing Board's reliance on MM's post-hearing comments. MM did not testify and was not present at the hearing. He filed his comments in response to the Board's invitation to all affected plant personnel to comment on the Special Master's report. *Id.* at 311 (¶ 2130). TMIA contends that it was a violation of due process for the Board to have treated MM's comments as evidence when it was not introduced as such. In the abstract, we would agree. But as applied to the particular circumstances here, we find no prejudice or violation of TMIA's due process rights.

The Licensing Board itself pointed out that, when they had the opportunity, none of the intervenors even proposed a finding of wrongdoing by MM to the Special Master. *Id.* at 311 n.232 (¶ 2132). *See, e.g.*, TMIA's Proposed Findings (January 15, 1982) at 46-49. In that circumstance and out of concern for fairness to MM, it was not unreasonable for the Board to give him an opportunity to defend himself against the Special Master's unfavorable conclusions.³⁹ The Board recognized this procedure was unconventional but, after weighing the alternative of reopening the record for MM's testimony, it found little likelihood of a different outcome and decided against reopening. LBP-82-56, *supra*, 16 NRC at 311 n.232 (¶ 2132). We believe the Board's action was reasonable and resulted in no prejudice to TMIA or any other intervenor.⁴⁰

TMIA also challenges the Board's conclusion that W copied from GG. TMIA apparently believes GG was the "aggressive cheater" and that the Board's contrary conclusion is "arbitrary" and "favorable to Licensee." TMIA's Brief (September 30, 1982) at 42, 43. TMIA's argument, however, ignores the principal Board findings that GG and W did cooperate on the exam and that GG consented to or knew of W's copying. *See* LBP-82-56, *supra*, 16 NRC at 312 (¶¶ 2133, 2134). *See also id.* at 290 (¶ 2040). This, of course, is cheating — just as if GG copied from W — and can hardly be characterized as a finding "favorable to Licensee." As for the Board's conclusion itself, we see no basis in the record for overturning it. There is no doubt in our minds that GG and W cooperated on the quiz, and the testimony supports the Board's "albeit weak" inference that W copied from GG, with the latter's consent or knowledge. *See* Tr. 25,692-99, 26,144-49, 26,155-56.

Finally, TMIA complains about the Board's failure to impose a sanction on GG.⁴¹ It expresses concern about the distinction between ethics and technical competence drawn by the Licensing Board in this regard. *See* LBP-82-56, *supra*, 16 NRC at 312 (¶ 2135). In general, we share that concern. Although perhaps conceptually different, ethics and technical proficiency are both legitimate areas of inquiry insofar as consideration of licensee's overall management competence is at issue. *See* pp. 1206-08, *supra*.

³⁹ It is not clear why no one (including the Special Master) called MM to testify in the first place.

⁴⁰ We note further that the Board's actual finding as to MM was lukewarm at best. As the Board stated, This is not the total exoneration to which MM might have been entitled after a full hearing with his participation. The evidence simply isn't there to overcome all the implications of the very similar answers. It would be exceedingly unfair to MM, and possibly a factual mistake, if his status or reputation were to be affected by our uncertain conclusion.

LBP-82-56, *supra*, 16 NRC at 311-12 (¶ 2132).

⁴¹ TMIA essentially acknowledges that action less than removal from licensed duties would be acceptable in this instance. TMIA's Brief at 56.

On the other hand, we believe the Board here properly took account of the attendant circumstances of the quiz (especially the informality of its administration) in not imposing a sanction on GG. See LBP-82-56, *supra*, 16 NRC at 312 (¶ 2135). In our view, the Board erred only in failing to consider a sanction less than removal from licensed duties, like one akin to the reprimand given to Shipman. See pp. 1219, 1220-21, *supra*. We do not read the Board's opinion, however, as condoning GG's conduct. In fact, the Board's very conclusions, which we here affirm, serve as at least an implicit reprimand of GG.⁴²

6. Other Individuals Implicated in Cheating

TMIA, the Aamodts, and UCS mention other incidents that, in their view, show cheating or a lack of credibility by some individuals. For instance, WW (a shift technical advisor) provided information over the telephone, which he later learned could have been helpful during a licensee-administered exam then in progress. WW was not able to identify the caller. The Licensing Board found this was probably cheating and chastised WW for his "carelessness" and for not providing this information earlier in the NRC investigation. LBP-82-56, *supra*, 16 NRC at 324 (¶¶ 2188-2189). See LBP-82-34B, *supra*, 15 NRC at 969 (¶¶ 133-134). There was also evidence (OO's own testimony) that OO, P, and Q discussed questions and answers during some quizzes. See *id.* at 946-47, 958 (¶¶ 69, 106); LBP-82-56, *supra*, 16 NRC at 317 (¶ 2159). Further, the Special Master found it likely that, despite their denials, A and I had observed cheating by O and W. See p. 1212, *supra*. Nonetheless, the evidence of this was not so strong that he could in fact conclude that there was misconduct on their part. LBP-82-34B, *supra*, 15 NRC at 932-33 (¶¶ 23-24).

Though intervenors refer to each of these items in passing, none develops any particular argument on brief. Our own review of the record in this regard has provided no basis for reaching conclusions other than those of the Special Master and Licensing Board in their essentially compatible decisions. We add only that each incident provides yet more evidence of the poor administration of both NRC and licensee examinations at TMI-1 during 1980 and 1981.

⁴² A corresponding concern, however, is the adequacy of licensee's response to this incident, given the Board's finding of GG's cooperation on the examination. We believe that in this circumstance it is both fair and proper that licensee now formally reprimand GG, as it has Shipman for similar conduct.

7. Licensee's Investigation of, and Response to, the Cheating

Intervenors, particularly TMIA, argue in general terms that licensee did not adequately investigate the cheating incidents, impeded the NRC staff's investigation, and did not take appropriate disciplinary action toward certain employees. In intervenors' view, this reflects licensee's negative attitude about its responsibilities to the public. The Licensing Board has thoroughly canvassed the record and considered the Special Master's recommendations on the subject. There is no need here to rehearse in detail that evidence and those findings, except to note the Board's ultimate conclusion that licensee's investigation was "adequate." See LBP-82-56, *supra*, 16 NRC at 333-44 (¶¶ 2228-2271). One aspect of the Board's decision, however, warrants additional comment.

There can be no doubt that the investigatory work of licensee's attorney, John Wilson, was not as thorough as it should have been. If licensee truly did not "stint[] in the resources allocated to the investigation," the fact that time may have been short does not fully explain the failure to follow up on obvious leads (*e.g.*, by interviewing W and the eight individuals implicated in the Shipman incident): additional investigators/attorneys could have been assigned to assist Wilson. See *id.* at 343 (¶ 2269). Nor does it satisfactorily explain why licensee never investigated the important allegation that U was stationed in Husted's office to help those taking the NRC examination. See *id.* at 337-38 (¶¶ 2243-2246).

The Board found that Wilson was naive and naturally inclined to believe in the honesty of licensee's employees. *Id.* at 339 (¶ 2252). Despite questioning his impartiality, however, the Board declined to second-guess licensee's management on the assignment of Wilson to the cheating investigation. *Id.* at 342 (¶ 2266). While recognizing the benefit of hindsight, we are more critical of licensee's decision in this regard. Given the serious implications of the cheating allegations, the already high visibility of this proceeding, and licensee's earlier use of outside counsel to investigate other serious allegations of wrongdoing,⁴³ licensee exercised extremely poor judgment in delegating a company employee the responsibility for investigating his fellow employees. In the summer of 1981 licensee should have been aware of the folly of its decision.

⁴³ In April 1980, licensee hired a Minneapolis law firm (Faegre & Benson) to conduct an inquiry into the so-called "Hartman allegations" of falsified leak rate data at TMI-2. See ALAB-738, *supra*, 18 NRC at 184. The Licensing Board, however, was not aware of this at the time it issued its decision. See *id.* at 197 n.38.

Nonetheless, we are not willing to equate this bad judgment and Wilson's defective detective work with improper motives on the part of licensee. There is nothing in the record to suggest that licensee's management manipulated the investigation or actively discouraged Wilson from pursuing important lines of inquiry. Further, the unusually active involvement of two of licensee's top managers (Arnold and Hukill) in some aspects of the investigation and their meetings with employees indicate anything but a desire to cover up the cheating allegations and inhibit serious inquiry. See *id.* at 343, 336 (¶¶ 2269, 2237-2238). We can therefore endorse the Licensing Board's ultimate determination of the adequacy of licensee's investigation. Moreover, except in the two instances noted above at pp. 1223-24 and note 42 (Husted and GG), we find licensee's action in response to improper employee conduct was appropriate.

8. O and VV

Both the Special Master and the Licensing Board dealt at length with the incident involving O and VV — a matter not directly related to the 1980 and 1981 cheating episodes. Briefly, according to the Board, in July 1979 VV (former Supervisor of Operations at TMI-2, the counterpart of Michael Ross) submitted work prepared by O in fulfillment of his (VV's) operator licensing requalification requirements.⁴⁴ Despite his asserted knowledge of that fact, Gary Miller (former TMI Station Manager) certified to the NRC — with the knowledge and assent of John Herbein (former Metropolitan Edison Vice President) — that VV had satisfactorily completed the 1978-79 requalification program. The Board therefore concluded that licensee, by the action of Miller and Herbein, had made a material false statement to the agency, in violation of the Atomic Energy Act, 42 U.S.C. § 2236. In addition to conditioning restart with the requirement that any participation by Miller in the startup, testing, or operation of TMI-1 be under the direct supervision of an "appropriately qualified" official of licensee, the Board recommended to the Commission that it direct some component of the staff to conduct a broader investigation into this matter. LBP-82-56, *supra*, 16 NRC at 344-55 (¶¶ 2272-2320).

TMIA contends that this incident bears on licensee's integrity in several respects. It questions whether the sanction imposed on VV — removal from his supervisory duties and assignment to an *ad hoc* group

⁴⁴ 10 C.F.R. § 55.33 and 10 C.F.R. Part 55, Appendix A, describe the requirements for requalification, which licensed operators must satisfy every two years.

gathering information about the TMI-2 accident — was adequate, both in fact and as a matter of perception within the TMI organization. It also complains that Miller and Herbein were retained in their high level management posts for some time after this incident. And TMIA argues that the testimony of former GPUN president Robert Arnold on the O and VV incident was not credible and suggests direct involvement by Arnold in VV's certification to the NRC.

Several factors make extended discussion of this matter unnecessary. As already noted, the Special Master and Licensing Board gave it substantial attention, and we can find no fundamental error in the Board's approach. The principal players against which TMIA seeks the imposition of sanctions are no longer employed within GPU Nuclear.⁴⁵ Finally, insofar as VV's certification to the NRC allegedly constituted a material false statement, the Commission has directed us "not to consider" this matter in our review. CLI-82-31, *supra*, 16 NRC at 1237. On that score, the Commission agreed with the Licensing Board on the need for further inquiry and consequently turned the matter over to its Office of Investigations. That investigation led to a Notice of Violation and a proposed \$100,000 civil penalty against licensee for material false statements in connection with VV's certification. CLI-83-20, *supra*, 18 NRC 1.⁴⁶

What this whole incident highlights, however, is the fact that a serious problem existed throughout licensee's organization: formal training and the NRC's regulatory requirements for operator licensing and re-qualification were regarded rather cavalierly, from the staff level to the higher plateaus of management. Moreover, it provides another instance of an employee (VV) in a responsible supervisory position, who is considered technically proficient but who found it necessary and apparently acceptable to submit work not his own.

9. Summary

The Licensing Board stated that, although it could not "conclude with certainty that all possible cheating has been revealed," it is "comfortable

⁴⁵ O was terminated for cheating on the NRC licensing examination. See p. 1212, *supra*. VV resigned in April 1983 and does not work anywhere in the GPU system. Letter from D.B. Bauser to Appeal Board (May 6, 1983) at 3. Herbein is employed by a non-nuclear GPU subsidiary, as is Miller. Letter from E.L. Blake, Jr., to Appeal Board (March 11, 1982) at 1-2; App. Tr. 154. Arnold has resigned as president and director of GPUN. Notice to Commission, *et al.* (December 1, 1983).

⁴⁶ The public record does not reflect whether licensee has consented to the proposed penalty or plans to contest it. It shows only correspondence in August 1983 concerning licensee's request for the investigation report, and the staff's statement that it is deciding whether to release it. Letter from R.C. Arnold to R.C. DeYoung, Director, Office of Inspection and Enforcement (August 5, 1983); letter from R.C. DeYoung to R.C. Arnold (August 22, 1983).

with the results of the inquiries.” LBP-82-56, *supra*, 16 NRC at 290 (¶ 2041). The Board believed that probably all relevant and important cheating had come to light because of (1) the active participation of the intervenors, Commonwealth, and NRC staff in the investigation and hearing, and (2) the “repetitive” and “finite” testimony of the witnesses (operators) themselves. *Id.* at 290-91 (¶¶ 2041-2043). While we have noted some areas of disagreement with the Licensing Board concerning its conclusions about particular individuals or incidents, we generally agree with the Board that overall the inquiry (especially the hearing) has been as thorough as possible. Though intervenors quarrel with that notion, they have failed to give us serious cause to doubt that all significant cheating occurrences have been revealed and investigated.

Earlier in this opinion, we noted that the proper focus of this special proceeding is on whether licensee has demonstrated its ability to operate TMI-1 in a safe and responsible manner in the future. *See* note 7, *supra*. The efficacy of action intended to remedy identified deficiencies in past conduct is a necessary element in that equation. With that in mind, we next consider licensee’s operator training program and the implications of the cheating episodes for that program.

C. Licensed Operator Training

1. Licensee’s Program

Intervenors attack numerous aspects of the TMI-1 training program. The Aamodts, in particular, question the qualifications of the instructors and supervisors within the training department; course content; the amount of time spent on training; the adequacy of simulator training and testing; and the validity of the examination process. All intervenors, especially UCS and TMIA, argue generally that the record in the reopened proceeding on cheating presents a serious challenge to the Licensing Board’s earlier favorable findings concerning licensee’s training program. *See* LBP-81-32, *supra*, 14 NRC at 478-79 (¶ 276). The Licensing Board recognized that the cheating episodes cast some doubt over those findings. *See generally* LBP-82-56, *supra*, 16 NRC at 355-63 (¶¶ 2321-2342). The Board, however, characterized this as a “quality assurance” problem — one that could be remedied by future audits of various aspects of the training program. *Id.* at 364-65 (¶¶ 2344-2347). Intervenors disagree, contending that future audits do not assure safe operation of the facility now.

The Licensing Board correctly framed the issue: “is the instruction adequate to prepare the operators to operate the plant safely?” *Id.* at 363 (¶ 2343). We disagree with the Board, however, on its affirmative

answer to that question. The deficiencies in operator testing, as manifested by the cheating episodes, may be symptomatic of more extensive failures in licensee's overall training program. Whether those deficiencies still exist or have been sufficiently cured is not evident from the record. Indeed, the record in the reopened proceeding perhaps has raised more questions than it has answered satisfactorily.⁴⁷ For example, does the training program actually enhance the operators' knowledge or simply encourage memorization for test-taking purposes? Are the licensee and NRC examinations an effective way to measure an operator's ability to run the plant? Do the format and content of the examinations encourage cheating?

Moreover, we are troubled by the fact that one-fourth of those who took the April 1981 NRC examinations (9 out of 36) either were directly involved in cheating of some sort or were implicated in a way that could not be satisfactorily explained or resolved. See Lic. Exh. 83. See also note 52, *infra*. Several of these individuals were or are still in supervisory positions. Perhaps most disturbing is the testimony that a number of employees (including training instructors) did not take the courses or examination process seriously. See, e.g., Tr. 25,695-96, 25,745, 25,983, 26,404-06.

The principal difficulty with the decision below, however, is the Licensing Board's failure to reconsider, as promised and in a meaningful way, its earlier finding that licensee's training program was "comprehensive and acceptable." See LBP-81-32, *supra*, 14 NRC at 478 (¶ 276). Instead, the Board relied on the post-cheating testimony of only licensee and the staff.⁴⁸ But more significant, the Board essentially presumed that the earlier, favorable expert testimony by the outside consultants would not have been altered by the cheating revelations. See LBP-82-56, *supra*, 16 NRC at 299, 378-79 (¶¶ 2081, 2396-2400). See also *id.* at 360-61 (¶ 2335). We are not so sure, and, in any event, we are not willing to speculate on how the OARP Review Committee and other consultants would assess the cheating incidents and licensee's subsequent changes in its training and testing program.

⁴⁷ Hence, we disagree with the Licensing Board's view that the evidence in the reopened proceeding has not brought the adequacy of licensee's training program into question. See LBP-82-56, *supra*, 16 NRC at 296 (¶ 2061). We do not overlook licensee's improvements in test administration, as supplemented by the Licensing Board. *Id.* at 359-60 (¶¶ 2330-2331). But, like the Special Master, we are not yet convinced that those largely ministerial fixes will salve what may be more serious infirmities in the training program. See LBP-82-34B, *supra*, 15 NRC at 1015-20 (¶¶ 242-251).

⁴⁸ Even in so doing, the Board noted its misgivings about the testimony of Dr. Robert Long, former Director of Training and Education and now Vice President of Nuclear Assurance, which oversees the training program. LBP-82-56, *supra*, 16 NRC at 380-81 (¶¶ 2406-2407).

It is apparent that the generally positive testimony of the OARP Review Committee and licensee's other independent consultants was of decisional significance to the Board's initial, equally positive judgment on licensee's training program. *See, e.g.,* LBP-81-32, *supra*, 14 NRC at 453-54, 459-65, 471, 472-73, 477 (¶¶ 201-203, 225-241, 260, 263, 272). Once the cheating incidents raised questions about that judgment, it was incumbent upon the Board to seek further testimony from the independent experts upon which it so heavily relied in the first instance.⁴⁹ The future audits imposed by the Licensing Board to treat what it sees as a quality assurance infirmity are both necessary and desirable. But whether they are sufficient as well can be determined only after further testimony by the independent consultants.⁵⁰

For example, it is essential to know if Dr. Gardner's favorable opinion of the Operator Accelerated Retraining Program — offered in late 1980 and based on what he believed was the satisfactory implementation of the program — would be altered by the subsequent knowledge of cheating on licensee and NRC examinations. *See* Gardner, fol. Tr. 12,409, at Outline. Mr. Kelly testified about the pride and enthusiasm found among employees in the training program, as well as the professionalism of the instructors. Kelly, fol. Tr. 12,409, at 4, 6, 10. Dr. Christensen observed similar attitudes. Christensen, fol. Tr. 12,409, at 12-13. Subsequent, post-cheating testimony, however, reflected a lack of those qualities. Kelly and Christensen should have been asked how the latter might bear on their previous assessments of the effectiveness of the training program.⁵¹

The OARP Review Committee reported, on balance, favorably on licensee's training program and predicted that program candidates would be well trained and well prepared for the NRC licensing exams. Lic. Exh. 27, OARP Report, at 1, 3. We have seen that the latter prediction was overly optimistic, at best. As to whether the candidates are nevertheless well trained to operate the plant, the record is incomplete. In reading the OARP Report, one question is inescapable: would the Committee reach the same favorable conclusions in light of the cheating

⁴⁹ The Board described the evidence from the reopened proceeding on cheating as showing "only . . . significant weaknesses" — not a "failure" — in the quality of instruction (and thus training). *Id.* at 361 (¶ 2337). Irrespective of the terminology employed, the underpinnings of the Board's earlier decision (*i.e.*, the consultants' predictive testimony) were shaken. If that testimony is to have any real weight, it must be reevaluated in light of actual events.

⁵⁰ Inasmuch as the record on training is now closed, we thus explicitly find the pertinent criteria for reopening satisfied. *See Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980).

⁵¹ Kelly did appear again at the reopened hearing, but his testimony was limited to his role in administering certain "mock" examinations. He did not reassess his earlier expressed views on the OARP. *See* Kelly, fol. Tr. 24,894.

incidents and subsequently acknowledged deficiencies in licensee's training program?

Before answering that ultimate question, the Committee must necessarily reconsider its specific subsidiary conclusions. For instance, the OARP Report referred to "pre-accident neglect" of the TMI Training Department and identified more specific shortcomings (bitterness and anxiety among some employees, inadequate training facilities, the need for special teacher training for the instructors, etc.). *Id.* at 58, 145-47. Notwithstanding these and other criticisms of the program, the Committee gave the OARP high marks. How would the Committee members now strike the balance between the positive and negative aspects of the program? The Report commented briefly but favorably on the written examination. *See id.* at 67. How might that view be revised? One or more of the instructors evaluated by the OARP Committee were involved in the cheating episodes. *See id.* at 62-63.⁵² Would that alter the Committee's generally favorable perceptions of the instructors? *See id.* at 58-61. The Licensing Board's decision requires licensee to establish criteria for training instructors. Licensee has submitted these new criteria and the staff has approved them. Letter from R.W. Starostecki to H.D. Hukill (September 27, 1983), Inspection Report No. 50-289/83-22 at 2. *See also* letter from J.F. Stolz to H.D. Hukill (July 28, 1983), Attachment (Safety Evaluation). But in view of the weaknesses in this area previously identified in the OARP Report, the Committee as well should review licensee's new training instructor criteria. *See Lic. Exh. 27, OARP Report, at 146-47.*⁵³

⁵² We determined this by comparing the list of named instructors in the OARP Report with the letter designation code used in the hearing before the Special Master to protect the identities of the TMI employees. Because all parties have the code and can thus verify our statement, there is no need for us to identify specifically whom we mean. *But see* note 16, *supra*.

⁵³ The Aamodts contend that instructors who teach fluid flow, heat transfer, and thermodynamics should have baccalaureate degrees because "the Commission referred to 'college level' as the standard for augmentation of those courses." Aamodt Brief at 7. On its face, the logic of this point seems apparent. The Aamodts, however, have confused a summary of a June 1979 meeting between the staff and licensee — which states that "the operators will be taking college level technical courses" in those three subjects — with a Commission "standard." *See* "Meeting Summary on the Open Items Regarding TMI-1 Restart" (June 28, 1979) at 1. We have been unable to find any specification of course *level* for fluid flow, heat transfer, and thermodynamics in any of the relevant Commission documents. *See, e.g.,* "Qualifications of Reactor Operators" (March 28, 1980) ["Denton Letter"] at 1; Encl. 1 at 2, 5; Encl. 2. Rather, the focus is on course *content*. *See id.* at Encl. 2. The Licensing Board explored this area at hearing and concluded that licensee's training program was not a college curriculum, nor should it be. LBP-81-32, *supra*, 14 NRC at 472 (¶ 262). We find the Board's conclusion is amply supported by the record.

The Aamodts also complain that the Board erred in finding the number of training instructors that TMI has been increased to 45. Aamodt Brief at 7. *See* LBP-81-32, *supra*, 14 NRC at 472 (¶ 262). The Aamodts claim, without any reference to the record, that there are nine instructors. The Board did err in referring to the "faculty" as numbering 45, when the record shows the training "staff" (which could include non-teaching personnel) is now 45. *See Long, et al., fol. Tr. 12,140, at 3.* This minor error is
(Continued)

The OARP Review Committee devoted substantial attention to the use of both part-task and replica simulators. *Id.* at 95-112. Because of the demonstrated weaknesses in past testing procedures, would the Committee *require* even greater usage of simulators in training and testing?⁵⁴ Perhaps the most important matter that the Committee should address upon further hearing, however, is its rather prophetic, concluding statement: "Top management needs to keep aware of the real and perceived problems of its employees." *Id.* at 149. The Committee suggested that there was a lack of communication between top management and the operating crews.⁵⁵ Do the post-cheating changes in the training program adequately ameliorate this situation?⁵⁶

We recognize that by requiring additional hearing on the post-cheating views of licensee's outside consultants we are further prolonging a pro-

without consequence — and the Aamodts suggest none. The important consideration is the *qualifications* of the training instructors. And that is what the OARP Review Committee should address again in the context of licensee's new instructor criteria.

⁵⁴ The Aamodts argue that the upgraded training program does not include enough simulator training time to satisfy regulatory requirements. They point to NUREG-0660, "NRC Action Plan Developed as a Result of the TMI-2 Accident," as recommending 160-200 hours per operator annually, compared with the 20 hours of actual hands-on simulator training for each TMI-1 operator per year. Aamodt Brief at 15. See Tr. 12,156-57, 12,263. We can find no reference to a specific amount of simulator time in the final version of NUREG-0660, dated May 1980. See NUREG-0660, *supra*, at I.A.4-1 to I.A.4-7. The Aamodts apparently got the 160-200 figure from Lic. Exh. 27, OARP Report, at 110, where the OARP Review Committee mentions a "proposed" version of NUREG-0660 that required "160-200 hours of simulator experience for hot license training." Though not adopted in the final version of NUREG-0660, this refers to *initial* operator training, not the requalification training for already licensed operators discussed at the referenced part of the hearing.

In this connection, we have been unable to locate any regulatory requirement for a specific amount of simulator training. The OARP Review Committee, however, should reconsider its generalized view on this topic with respect to the particular amount of simulator time per operator at TMI-1. See Lic. Exh. 27, OARP Report, at 99. At the same time, the Committee should consider whether all TMI-1 operators, previously licensed or not, should be tested on a simulator. The Aamodts attempted to inject this as an issue at the eleventh hour, just as the Licensing Board was about to issue its original management competence decision. The Board denied that attempt, stating that the motion was too late and that Commission regulations and the order instituting this proceeding do not require simulator testing by the NRC. LBP-81-32, *supra*, 14 NRC at 568-69 (¶¶ 542-548). We agree with the Board that there is no such requirement. Nonetheless, the Board's mandate from the Commission was to decide if the actions ordered were "sufficient" as well as necessary. Licensee has already committed to NRC testing of newly licensed TMI-1 personnel on a simulator. *Id.* at 568 (¶ 542). We believe it is important that the OARP Review Committee now consider whether, in view of the compromised written examinations, previously licensed operators should be tested on the simulator as well. (Thus, we need not decide if the Board erred in refusing to entertain the Aamodts' "late contention" on this subject.)

⁵⁵ The Special Master similarly concluded, with regard to the poor administration of licensee's examinations, that if licensee was not aware of these conditions, "its management was out of touch with the training program." LBP-82-34B, *supra*, 15 NRC at 1050 (¶ 329).

⁵⁶ In reconsidering its earlier appraisal of the OARP, the Committee should take account of several important personnel changes within the Training Department. For example, Dr. Robert Long, who was Director of Training and Education during the cheating incidents, has been promoted to GPUN Vice President for Nuclear Assurance. Dr. Richard P. Coe has replaced him. Samuel Newton, former Operator Training Manager, is now Manager of Plant Training. Edward J. Frederick, a control room operator assigned to TMI-2 at the time of the accident, has been promoted to Supervisor of Licensed Operator Training. Letter from D.B. Bauser to Appeal Board (May 6, 1983) at 2-3. In view of what occurred, are these appropriate assignments?

ceeding that appears to have no end. Nor are we insensitive to the morale problems among employees whose training and job performance continue to be under scrutiny, despite eventual successful retesting by the NRC.⁵⁷ But we are presented with a Hobson's Choice: decide the pivotal issue of the adequacy of training at TMI-1 notwithstanding a significant gap in the record,⁵⁸ or impose more demands, in the form of further hearing, on the resources of all parties and the agency alike. We believe the latter is the more appropriate alternative.

2. *The Role of the NRC Staff*

We would be remiss were we to overlook the role of the NRC staff in the past deficiencies in licensee's training program. Indeed, the staff must share a large measure of the blame due to its poor test administration and inability to earn the respect of many TMI employees. The staff has conceded its laxity with regard to the April 1981 NRC examination⁵⁹ and has informed the Special Master and Licensing Board of new test procedures it has established for the future (e.g., more rigorous proctoring). See Staff Exh. 30, ES-201 (draft rev. 3). While such improvements are desirable, we share the concern voiced by the Licensing Board about the level of staff involvement with respect to licensee's training program.

First, the Board expressed concern with the staff's limited role as "auditor" of licensee's requalification program and administrator of the

⁵⁷ A related problem — indeed, a "catch 22" — is that, because of lack of use, the operators' skills have declined during the long period of plant shutdown. This is evident from a recent Inspection Report, where the staff concludes that overall licensed personnel at TMI-1 are well trained but identifies several areas of weakness that are to be addressed in a special restart training program. Letter from R.W. Starostecki to H.D. Hukill (April 13, 1984), Enclosure (Inspection Report No. 50-289/84-05 at 4-5).

⁵⁸ This is not a matter of bringing a "stale" record in a closed proceeding up to date. See *Interstate Commerce Commission v. Jersey City*, 322 U.S. 503, 514-15 (1944). Rather, it is akin to recalling a crucial witness for further testimony after new developments come to light during a lengthy trial.

⁵⁹ While criticizing the staff, the Licensing Board found it "in literal compliance" with the governing standard for administering operator license examinations, ES-201, LBP-82-56, *supra*, 16 NRC at 368 (¶ 2357). We would not be so generous. The extensive review during the examination and the numerous changes that were necessary strongly suggest that the examiners failed to acquaint themselves adequately with the facility and that headquarters staff did not conduct the pre-examination review, as required by ES-201. See Staff Exh. 29, ES-201 (rev. 2, 1969), at 1, 2. Moreover, the staff's argument that the standard was satisfied by having at least one NRC representative present somewhere in the *training building* during the examination makes a mockery of the standard as well as the examination process. See NRC Staff's Proposed Findings (January 15, 1982) at 68. Under "Administration of Examination," ES-201 provides that "applicants should not be allowed to leave the examination room, except for the obvious purpose, (one at a time)," and "[d]uring the examination, applicants are not permitted to communicate or refer to any texts or descriptive material. . . ." It also refers to "ensur[ing] the integrity of the examination," avoidance of the use of *facility* proctors, and the desirability of oversight of the examination personally by the examiner. Staff Exh. 29, ES-201 (rev. 2, 1969) at 2-3. It would be impossible, in our view, to administer an examination in compliance with this standard simply by having one NRC representative present somewhere in the building during the test.

NRC licensing examination. LBP-82-56, *supra*, 16 NRC at 364 (¶¶ 2345-2346). The staff has indicated its intent not to review licensee's future plans to qualify candidates for the NRC examination, limiting its involvement to comparing the performance level of license candidates on NRC examinations with a perceived industry norm and licensee's past record. Boger, fol. Tr. 25,480, at 2-3. As the Board pointed out, this conflicts with the more substantive role for the staff contemplated in the regulations. *See generally* 10 C.F.R. §§ 55.10(a)(6), 55.33(a)(4). *See also* 10 C.F.R. Part 55, Appendix A ("a requalification program which has been reviewed and approved by the Commission"). It also conflicts with Task I.A.2 of NUREG-0660, which provides that "[t]he NRR staff will review the contents of revised training programs, and the IE staff will audit the implementation." NUREG-0660, *supra* note 54, at I.A.2-1. *See also id.* at I.A.2-3 to I.A.2-4.⁶⁰ In our view, focusing on the performance level of license candidates (*i.e.*, the percentage that passes the examination) puts too much emphasis on the examination *qua* examination and too little on the substance of the *training* itself.

We are also troubled by the numerous substantive problems in the examination identified by the Special Master and noted with concern by the Board. *See* LBP-82-34B, *supra*, 15 NRC at 1026-35 (¶¶ 269-287); LBP-82-56, *supra*, 16 NRC at 369-71 (¶¶ 2363-2372). In short, the questions and answer keys often reflected training information (some of which might be either obsolete or overly specific), rather than actual plant design. This, in turn, means that training may not be oriented to actually operating the plant. Again, this shows undue emphasis on passing the examination, as opposed to learning how to operate the particular plant in question.

We are, of course, aware that the problems just discussed are generic in nature, and that we have no jurisdiction to require the staff to adopt or abandon certain methods for doing its myriad assigned duties. We are aware, too, that Congress has directed the Commission to take a new look at the broad subject of training. *See* Nuclear Waste Policy Act of 1982, § 306, 42 U.S.C. § 10,226. The Commission's substantial effort in that regard is under way. *See* SECY-84-56 (February 2, 1984); SECY-84-56A (April 30, 1984). We thus join the Licensing Board in urging the Commission to give the highest priority to the efforts to make the operator training and testing process a meaningful one. *See* LBP-82-56, *supra*, 16 NRC at 371 (¶ 2372).

⁶⁰ Regulatory Guide 1.8 envisions similar increased staff "participation" in licensee training programs for both initial license candidates and those seeking requalification. *See, e.g.*, Reg. Guide 1.8, "Personnel Qualification and Training," 2d proposed rev. 2 (1980), §§ 2.2.2, 2.2.7. Although this document still exists only in draft form, it represents a public statement of the staff's current position.

In sum, proper training is essential to the safe operation of the plant and requires the closest scrutiny.⁶¹ This is especially so here, where because of the role of operator error in the TMI-2 accident, training has been of key importance in this proceeding from the outset. There is no substitute for a complete and convincing record. We therefore remand to the Licensing Board that part of this proceeding devoted to training, for further hearing on the views of licensee's outside consultants (including the OARP Review Committee) in light of both the weaknesses demonstrated in licensee's training and testing program and the subsequent changes therein.

D. Non-licensed Operator Training

Although most of the attention at the hearing with regard to training was directed to licensed operators, the Licensing Board recognized the important functions of non-licensed personnel for the safe operation of the plant. The Board found that licensee has expanded and improved its training program for non-licensed employees. LBP-81-32, *supra*, 14 NRC at 441-42, 455-59 (¶¶ 164, 208-224). Although intervenors did not participate in the litigation of the issue, the Board also addressed Issue 4 specified in CLI-80-5, *supra*, 11 NRC at 409, concerning the qualifications of TMI-1 health physics personnel. It concluded that this staff is adequately trained to ensure effective implementation of licensee's radiological controls program. LBP-81-32, *supra*, 14 NRC at 505-11 (¶¶ 360-376).

On appeal, the Aamodts raise essentially three matters with regard to non-licensed operator training. First, they contend that the Board "failed to develop any significant record." Aamodt Brief at 12. The Aamodts rely on a November 1980 Inspection Report (No. 50-289/80-21) that identified several weaknesses in licensee's training

⁶¹ The record in this proceeding is replete with examples of where it is essential for an operator to be fully conversant with plant design and procedures. *See, e.g.*, ALAB-729, *supra*, 17 NRC at 832-35, 894 (action to enhance reliability of emergency feedwater system); 841-42, 846-47 (raising steam generator water level to 95 percent to promote boiler-condenser cooling); 861 n.213, 862 n.217 (closure of PORV block valve in event of a loss-of-coolant accident); 864 (prevention of low temperature overpressurization of the reactor vessel); 864-65 (mitigation of inadequate core cooling conditions); 866, 870-71 (intervention to combat unforeseen events); 880-81, 894 (reliance on redundant indication closest to saturation); 856, 860, 886-87, 894 (connection of pressurizer heaters to emergency power). *See also* LBP-81-59, *supra*, 14 NRC at 1709-10.

We note in this connection a recent Notice of Violation citing numerous instances where licensee's personnel failed to follow proper operating procedures. The staff noted that licensee had admitted and identified most of these violations and took corrective action. Nonetheless, because of the large number of violations within a relatively short time, the staff determined that a \$40,000 civil penalty should be imposed. *See* letter from R.C. DeYoung to P.R. Clark (May 7, 1984), Appendix at 4-5. Licensee has apparently decided to pay this fine. Wall St. J., May 16, 1984, at 53, col. 6.

program for non-licensed operators, including the absence of a written training program and a disorganized management overview. *See* Staff Exh. 4, NUREG-0680 (Supp. No. 1), Appendix B at 9. The staff indicated in that report, however, that it would apprise the Board and parties of its evaluation of licensee's corrective action during the hearing. *Ibid.* The staff fulfilled this commitment in Staff Exh. 13, NUREG-0680 (Supp. No. 2), at 2-4. There the staff described the content of licensee's training programs for auxiliary operators and plant technicians (including radiological control and chemistry technicians) and concluded that each complied with the pertinent regulatory requirements. The staff also noted that licensee had issued a training manual incorporating the details of these programs. The staff stated that it was reviewing the manual and would "assure its adequacy prior to any recommendation for restart of TMI-1." *Id.* at 4.⁶² The staff also concluded that licensee's training program for non-licensed personnel was acceptable and that it considered the weaknesses identified in Inspection Report No. 50-289/80-21 to be resolved. *Ibid.* The Licensing Board took note of that evaluation, and the Aamodts have offered no basis to challenge it. *See* LBP-81-32, *supra*, 14 NRC at 459 (¶ 224).

Second, the Aamodts argue that the Licensing Board measured licensee's training program for non-licensed operators by the wrong standard, American National Standard for Selection and Training of Nuclear Power Plant Personnel ANSI/ANS-3.1 (1978). *See id.* at 441 (¶ 164). They point out that this standard preceded the TMI-2 accident and argue that the appropriate standard for augmented training should be the post-accident 1979 draft version of ANS-3.1.⁶³ Although the Board referred to ANSI/ANS-3.1 (1978), the record shows that the staff applied the even more rigorous requirements of the December 6, 1979, draft version of ANSI/ANS-3.1 to licensee's training program. The staff testified that it would apply the Second Proposed Revision 2 of Regulatory Guide 1.8 (September 1980) to all licensees. Crocker, *et al.*, fol. Tr. 12,653, at 7-8. That Regulatory Guide (at 10) explicitly incorporates and endorses the requirements of the 1979 version of ANSI/ANS-3.1. *Id.* at 5-6. Thus, although the Licensing Board's decision does not reflect it, the record shows that licensee's training program was, in fact, evaluated in terms of the post-TMI-2 standard sought by the Aamodts.

⁶² The staff has now completed its review of the manual and training program for non-licensed personnel, finding them acceptable. *See* letter from T.T. Martin to GPU Nuclear Corporation (January 12, 1983), Inspection Report No. 50-289/82-19 at 24-25; letter from T.T. Martin to GPU Nuclear Corporation (March 10, 1983), Inspection Report No. 50-289/83-02 at 10.

⁶³ The Aamodts refer to "Draft ANS 3.2-1979." Aamodt Brief at 13. We assume they mean ANS-3.1.

Third, the Aamodts complain that at the reopened hearing on cheating the Special Master erred in refusing to let Harry Williams, who had been briefly employed as a guard at TMI, testify about "looseness" in licensee's administration of Radiation Worker Permit tests during April 1979. Williams had alleged cheating and other improprieties by certain non-TMI employees (construction workers). The Special Master concluded, after *voir dire* of Williams, that he was a highly unreliable witness. The Special Master excluded Williams's testimony for that reason as well as its lack of probative value. LBP-82-34B, *supra*, 15 NRC at 988-89 (§§ 179-180). The Licensing Board agreed. LBP-82-56, *supra*, 16 NRC at 333 (§ 2226). So do we, for the reasons stated by the Special Master. The Aamodts argue, however, that Williams's allegations have been effectively corroborated by a later incident involving licensee's failure to secure the answer keys to a radiation worker test. This same incident was the basis of a motion to reopen filed by the Aamodts and denied in ALAB-738, *supra*, 18 NRC at 193-94. We explained there that licensee's response to this incident was both prompt and sufficient. Indeed, it demonstrated that licensee's system for dealing with such irregularities was working. The Aamodts have provided no cause for us to reconsider either that conclusion or the Special Master's initial exclusion of Williams's testimony.

IV. STAFFING AND WORK HOURS

Two matters related to training are licensee's staffing plans and work schedule for operating personnel. The Aamodts express concern about licensee's ability to staff TMI-1 with enough high quality operators on each shift. They assert that the Licensing Board's staffing requirements are below the minimum standards set forth in several Commission documents, particularly NUREG-0737, "Clarification of TMI Action Plan Requirements" (November 1980), and NUREG-0731, "Guidelines for Utility Management Structure and Technical Resources" (September 1980). As we understand their argument, the Aamodts want a minimum of five shifts to operate the plant, with each shift to have a minimum of two senior reactor operators (SROs). They also want limits on overtime. Aamodt Brief at 16-19. The Licensing Board would require licensee to "employ all reasonable efforts to ensure personnel will be scheduled on a six-shift rotation" but otherwise authorizes lesser variations in shift rotations. The Board would also permit licensee to staff each shift with one SRO (who will act as shift supervisor), another person who is either an SRO or a reactor operator

(RO), and two other ROs. LBP-81-32, *supra*, 14 NRC at 580-81 (¶ 583, condition 9).

Subsequent events have essentially mooted the Aamodts' appeal on this matter. In July 1983, the Commission promulgated new regulations governing licensed operator staffing at nuclear power plants. These regulations, which took effect January 1, 1984, and apply to *all* licensees (including TMI), incorporate the NUREG-0737 criteria sought by the Aamodts. Pursuant to 10 C.F.R. § 50.54(m)(2)(i), licensee now must have a minimum of two SROs and two (or three) ROs⁶⁴ per shift. 48 Fed. Reg. 31,611, 31,614 (1983). In addition, 10 C.F.R. § 50.54(m)(2)(iii) requires at least one of the SROs to be "in the control room at all times" and an RO or SRO to be "present at the controls at all times." *Ibid.* These new regulations supersede the less stringent conditions imposed by the Licensing Board in 1981.⁶⁵

Licensee has notified the staff of both its ability and willingness to satisfy this requirement. As of March 1984, it has 13 SROs and 20 ROs and "plans to utilize the *six-shift* rotation plan for licensed operators during startup" and power escalation testing. Letter from D.B. Bauser to Appeal Board (April 4, 1984), Attachment (letter from H.D. Hukill to T.E. Murley (March 30, 1984) at 3, 4) (emphasis added).⁶⁶ This number of SROs and ROs is more than enough to satisfy the new staffing requirements of 10 C.F.R. § 50.54(m)(2)(i) for all six shifts (12 SROs and 12 (or 18) ROs).⁶⁷ Thus, licensee will exceed the staffing requirements sought by the Aamodts.⁶⁸

With respect to the Aamodts' concern about excessive overtime by licensed operators, the Commission staff has now adopted overtime

⁶⁴ The new rule specifies two SROs and two ROs for a one-unit facility with one unit operating. A two-unit facility (with two control rooms) with only one unit operating requires two SROs and *three* ROs. TMI is, of course, such a two-unit facility, but because Unit Two is indefinitely shutdown, it is not clear whether it should be classed as a one-unit or two-unit facility for purposes of this rule. Because the Aamodts' concern is with the number of SROs and the rule requires two SROs for both one-unit and two-unit facilities, we need not resolve the question of how many ROs are required.

⁶⁵ This is so despite the contrary impression given by certain recent staff correspondence. See letter from J.F. Stolz to H.D. Hukill (February 22, 1984), Enclosure at 1-2, 3.

⁶⁶ As far as we are aware, the Commission has never set or suggested a specific number of *shifts* for any facility, leaving that to management prerogative. Licensee here has clearly expressed its preference for six shifts — a number that appears to be consistent with the Aamodts' position. We see no need to formalize this commitment further.

⁶⁷ See note 64, *supra*.

⁶⁸ The Aamodts express concern about the high attrition rate at TMI. Licensee's March 30 letter notes that only one licensed operator has resigned in the past two years. Licensee also sets out in chart format the experience of each member on each shift, showing a very favorable comparison with the baseline experience suggested for "Near Term Operating License" plants. Letter from D.B. Bauser to Appeal Board (April 4, 1984), Attachment (letter from H.D. Hukill to T.E. Murley (March 30, 1984) at 3, 1, Attachment 1).

restrictions. Before the accident at TMI-2, there were no such regulations or policy. NUREG-0737, however, noted studies showing that fatigue could affect operator performance. It also referred to inspections that revealed personnel at some plants remain on duty for extended periods of time. Consequently, the staff proposed overtime guidelines for interim use while the agency and industry working groups studied the matter further. NUREG-0737, *supra*, at 3-10 to 3-11 (IE Circular No. 80-02). Two years later, the staff revised NUREG-0737 and issued Generic Letter No. 82-12, "Nuclear Power Plant Staff Working Hours" (June 15, 1982). See 47 Fed. Reg. 7352 (1982). This reflects the current NRC policy on overtime and applies to *all* licensees and applicants.

The stated objective of the policy is "to prevent situations where fatigue could reduce the ability of operating personnel to keep the reactor in a safe condition." Consequently, enough personnel should be employed to "work a normal 8-hour day, 40-hour week" and to avoid "routine heavy use of overtime." The policy recognizes, however, that situations can arise that make overtime inevitable.⁶⁹ It therefore prescribes the following guidelines for licensees to follow:

- a. An individual should not be permitted to work more than 16 hours straight (excluding shift turnover time).
- b. An individual should not be permitted to work more than 16 hours in any 24-hour period, nor more than 24 hours in any 48-hour period, nor more than 72 hours in any seven day period (all excluding shift turnover time).
- c. A break of at least eight hours should be allowed between work periods (including shift turnover time).
- d. Except during extended shutdown periods, the use of overtime should be considered on an individual basis and not for the entire staff on a shift.

Generic Letter No. 82-12, Attachment at 2-3. Licensee has agreed to these restrictions and has already incorporated them into its Administrative Procedures and Technical Specifications for TMI-1. Letter from H.D. Hukill to D.H. Eisenhut (December 16, 1982); letter from J.F. Stolz to H.D. Hukill (September 1, 1983) at 1. See note 89, *infra*.

Aware of Generic Letter No. 82-12, the Aamodts nonetheless now argue that the new overtime guidance and restrictions are "not reassuring." Aamodt Brief at 29.⁷⁰ They fail to elaborate other than to

⁶⁹ In fact, it seems logical that, in an emergency, overtime by certain employees would be desirable in order to assure continuity in some functions and to provide important information to the next shift.

⁷⁰ The Aamodts also contend that the Licensing Board erroneously denied them the opportunity to litigate operator fatigue in connection with both control room design and operator working hours. The
(Continued)

urge "short hours." *Ibid.* Without more — including a nexus to the TMI-2 accident (*see* note 70, *supra*) — we are unwilling and unable to impose any stricter limitations on overtime than those to which licensee is already committed pursuant to Generic Letter No. 82-12. Moreover, these restrictions, in conjunction with licensee's fully-staffed, six-shift rotation and obligation to comply with 10 C.F.R. § 50.54(m)(2)(i), represent a significant improvement in licensee's operation. The Aamodts, in fact, have gotten all they originally sought with regard to plant staffing and work hours. Assuming that licensee's personnel are adequately trained (*see* pp. 1232-37, *supra*), we conclude that TMI-1 is sufficiently staffed to assure safe operation of the facility.

V. MAINTENANCE

Among the management competence issues the Commission directed the Licensing Board to consider in this proceeding was the adequacy of licensee's maintenance program. *See* CLI-79-8, *supra*, 10 NRC at 145; CLI-80-5, *supra*, 11 NRC at 409. In addition, the Board admitted and litigated TMIA's contention 5. As pertinent here, the contention alleged that licensee has deferred "safety-related" maintenance and repair in violation of its own procedures, failed to keep accurate and complete maintenance records, and used overtime extensively in performing safety-related maintenance. *See* LBP-81-32, *supra*, 14 NRC at 479 (¶ 277). (The entire contention is set out in Appendix C.) Although the Licensing Board identified some deficiencies in licensee's maintenance program (particularly its record keeping practices), it resolved all issues encompassed within TMIA contention 5 in licensee's favor. *See generally id.* at 479-501 (¶¶ 278-348). On appeal, TMIA raises a number of procedural and substantive objections to the Board's treatment of this im-

Board excluded the Aamodts' "fatigue" evidence because it had no nexus to the TMI-2 accident itself or licensee's response to the accident. Tr. 17,256, 17,265-67. We have reviewed Mrs. Aamodt's testimony, fol. Tr. 12,931, and agree with the Board. *See also* Intervenor Response to Board Request for Evidence (March 10, 1981). That is not to say that her *general* points concerning the relation of fatigue and operator performance are not valid. Indeed, Mrs. Aamodt relies on the same material in NUREG-0737 that is discussed above and that undergirds the staff's current overtime policy. Where the Aamodts failed, however, is in showing a particular connection between fatigue and the TMI-2 accident — a linkage necessary in this *special* proceeding. *See* Commission Order of March 14, 1980 (unpublished) at 2. The points they raised are of general applicability to all plants — hence, the staff's eventual generic response.

As for control room design, that matter was thoroughly litigated in the design phase of this proceeding and to a lesser extent in this phase. *See* LBP-81-59, *supra*, 14 NRC at 1318-28 (¶¶ 907-920); LBP-81-32, *supra*, 14 NRC at 466-67 (¶¶ 244-247). The Aamodts raise no specific arguments on appeal in this regard.

portant matter.⁷¹ As explained below, however, we see no basis for overturning the Board's decision on licensee's maintenance program.

A. TMIA's Procedural Objections

1. *Burden of Proof*

The Licensing Board candidly admitted that TMIA's maintenance contention "was not litigated . . . in the usual manner, . . . with Licensee first presenting its case on the subject, followed by the Staff and by any intervenors presenting direct evidence." *Id.* at 479 (¶ 278). The Board had directed TMIA to proceed with its case first because of TMIA's failure to comply with certain discovery requests and Board orders. As the Board explained, this would give licensee the opportunity to "discover" the specific dimensions of TMIA's case and thus permit it to respond more effectively. *Id.* at 480 (¶ 278). *See Northern States Power Co. (Minnesota)* (Tyron Energy Park, Unit 1), LBP-77-37, 5 NRC 1298, 1300-01 (1977), *cited with approval in Pennsylvania Power and Light Co. (Susquehanna Steam Electric Station, Units 1 and 2)*, ALAB-613, 12 NRC 317, 338 (1980). TMIA now claims that this alteration in the order of evidence presentation was unfair and amounted to an improper shift in the burden of proof.

TMIA's claim is without merit. First, there is absolutely no indication in the Board's decision — and TMIA cites none — that TMIA in fact bore the burden of proof on contention 5. Indeed, throughout this entire special proceeding, that burden has been (and remains) on licensee to show cause why it should be authorized to restart TMI-1. *See Consumers Power Co. (Midland Plant, Units 1 & 2)*, ALAB-315, 3 NRC 101, 105 (1976). On the other hand, by raising a particular contention challenging licensee's ability to operate TMI-1 in a safe manner, TMIA necessarily assumed the "burden of going forward" with evidence to support that contention. *See Consumers Power Co. (Midland Plant, Units 1 and 2)*, ALAB-123, 6 AEC 331, 345 (1973). The procedures employed by the Licensing Board here are entirely consistent with that responsibility.

Moreover, the Board was fully justified in requiring TMIA to proceed first. As the Board noted, it could have found TMIA in default for failing to comply with its discovery orders and dismissed its contention.

⁷¹ TMIA does not challenge the Licensing Board's decision on those parts of its contention 5 that concern licensee's maintenance budget and staffing plans. *See* LBP-81-32, *supra*, 14 NRC at 493-96 (¶¶ 320-330). Our own review of that part of the Board's decision discloses no error warranting corrective action.

LBP-81-32, *supra*, 14 NRC at 480 n.26 (¶ 278). See 10 C.F.R. §§ 2.707, 2.718(e). Instead, because of the importance of the issue, the Board chose to require TMIA to proceed with its case first. We find the Board's action to be a reasonable exercise of its discretion, fully in accord with agency law and the Administrative Procedure Act. See *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-459, 7 NRC 179, 188 (1978); 10 C.F.R. § 2.731; 10 C.F.R. Part 2, Appendix A, § V(d)(4); 5 U.S.C. § 556. The Board's action was also in furtherance of the Commission's instruction in this very proceeding to ensure that all necessary information be received, but without undue delay. See CLI-79-8, *supra*, 10 NRC at 147.⁷²

2. *Loss of Counsel*

TMIA was initially represented by legal counsel in this proceeding. After the presentation of its case-in-chief on contention 5, TMIA was unable to continue paying its legal fees and its counsel withdrew. TMIA now claims that the Licensing Board violated due process when, in January 1981, it imputed knowledge of what had transpired thus far to TMIA's new lay representative, Louise Bradford. It contends that the Board should have provided her with "constructive assistance" and should not have expected her to understand, analyze, and prepare cross-examination of licensee's witnesses. TMIA's Brief at 7.

When a *party* is permitted to enter a case late, it is traditionally expected to take the case "as it finds it." It follows that, when a party that has participated in a case all along simply changes *representatives* in midstream, knowledge of the matters already heard and received into evidence is of course imputed to it. The Licensing Board's only other alternatives here were to dismiss contention 5 or to relitigate what had already been presented. Neither would have been in TMIA's best interest, and the latter option would have been unfair to the other parties as well and caused undue delay. The record reflects that the Board was duly solicitous of TMIA's situation and essentially directed TMIA's former counsel to bring Bradford up to date on the case. Tr. 10,421-23, 10,431-32, 10,440-42. See ABA Model Code of Professional Responsibility EC 2-32 (1980) (now, ABA Model Rules of Professional Conduct

⁷² Subsequent to the Board's action, the Commission issued its *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981), in which it "reemphasized" the boards' authority and responsibility to take a wide range of measures to ensure the orderly conduct of NRC proceedings. See *id.* at 453, 454.

Rule 1.16(d)(1983)).⁷³ TMIA itself stated its intent to participate “in a more limited way” from that point on and apparently did not seek extra time to get caught up on the case. Tr. 10,421.⁷⁴

The NRC’s Rules of Practice are more liberal than those of some other agencies and courts, in that the NRC permits non-attorneys to appear and represent their organizations (like TMIA) in agency proceedings. See 10 C.F.R. § 2.713(b). Compare 49 C.F.R. §§ 1103.2, 1103.3 (Interstate Commerce Commission); 2d Cir. § 46(d); 3d Cir. R. 9; Fed. Cir. R. 7(a). Further, we do not hold lay representatives to as high a standard as we do lawyers. But the right of participation accorded *pro se* representatives carries with it the corresponding responsibilities to comply with and be bound by the same agency procedures as all other parties, even where a party is hampered by limited resources. *Statement of Policy on Conduct of Licensing Proceedings*, *supra* note 72, 13 NRC at 454. See, e.g., *Pennsylvania Power and Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-693, 16 NRC 952, 956-57 (1982). Expecting Bradford to be familiar with her organization’s own case neither is unfair nor violates due process.

3. Licensing Board Involvement

In a related vein, TMIA suggests that the Licensing Board itself should have participated more directly to compensate for TMIA’s lack of legal and technical expertise. Specifically, in TMIA’s view, the Board should have appointed independent experts to assist both TMIA and the Board in presenting and understanding the evidence on contention 5. As explained below at p. 1273, the Board was precluded by law from appointing anyone to assist TMIA in its case. With respect to the Board’s calling upon independent experts to assist the Board itself, we pointed out in *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-663, 14 NRC 1140, 1146 (1981), that this action is warranted in only the most extraordinary circumstances — *i.e.*, when “‘a board simply cannot otherwise reach an informed decision on the issue involved.’” The record here presents no such circumstance. The mere fact that TMIA may regard certain of the Licensing Board’s

⁷³ Despite the fact that intervenors ceased getting free transcripts during the proceeding (see p. 1273, *infra*), all documents and transcripts were still available in the local public document room.

⁷⁴ Bradford entered her appearance on January 15, 1981. At that time, there was no date set for hearing licensee’s evidence on contention 5, but the Board assured her that she would have “some lead time” to prepare. Tr. 10,422. The Board, in fact, did not begin to receive testimony on this matter until February 24, 1981. See Tr. 13,528 *et seq.*

conclusions as arbitrary does not demonstrate the Board's inability to make an informed decision, so as to require outside expertise.⁷⁵

TMIA's claim that the Board was obliged to play a more active role at the hearing is similarly without basis. Our canvass of the record reveals a board well aware of its responsibility to the public and the Commission "to ensure that it receives all information necessary to a thorough investigation and resolution of the questions before it." CLI-79-8, *supra*, 10 NRC at 147. See Tr. 3034. Particularly with respect to TMIA contention 5, the Board could have found TMIA in default and dismissed the contention. See pp. 1245-46, *supra*.⁷⁶ Yet, because of the importance of the issue, it chose to receive evidence on it. LBP-81-32, *supra*, 14 NRC at 480 n.26 (¶ 278). In addition to TMIA's 15 witnesses, the Board called another to testify on licensee's overtime practices — an issue specifically raised in contention 5. *Ibid.* (¶ 279). Further, the Board required licensee to produce additional evidence concerning its maintenance record keeping practices and pursued other areas of inquiry on its own. *Id.* at 488, 484, 497 (¶¶ 302, 290, 336). This scarcely shows a board content only to call "balls and strikes" and insensitive to its public responsibilities.

Accordingly, we reject TMIA's argument that it was unfairly and improperly impeded in developing the record on its contention 5.

B. TMIA's Substantive Objections

1. *Deferral of Safety-related Maintenance*

Briefly, TMIA sought to show, through the testimony of licensee's employees and a sample of numerous job tickets requesting maintenance work at Unit 1 before the TMI-2 accident, that licensee had deferred "safety-related" maintenance even beyond the time for such work specified in licensee's own procedures. Licensee responded with witnesses of its own who addressed the specific job tickets cited by TMIA. The staff adduced testimony as well, generally supporting licensee's claim that its past and present maintenance practices have not endangered the public health and safety. TMIA disagrees with the Licensing Board's finding that licensee deferred no significant maintenance work. See *id.* at 485 (¶ 296). It argues that the Board arbitrarily rejected or ignored its evidence, while relying on assertedly unsupported statements of licensee

⁷⁵ Likewise, TMIA's random charges of the Board's "bias" are supported by neither the record nor the fact that the Board's ultimate conclusions are contrary to those urged by TMIA.

⁷⁶ The Board, of course, would still have been obliged to consider the general adequacy of licensee's maintenance program, as that was among the issues specified for hearing by the Commission. See p. 1244, *supra*.

and the staff. Further, TMIA complains that the Board did not explain its decision adequately.

A problem confronting the Board at the outset was the definition of "safety-related," as used in TMIA's contention 5. The problem remains on appeal, particularly insofar as TMIA objects to the Licensing Board's discussion of the parties' "agreement" concerning this term. *See id.* at 484-85 (¶¶ 291-295). We have reviewed the pertinent portions of the record and conclude that, overall, the Board's discussion reflects the gist of the parties' positions on the meaning of safety-related.⁷⁷ TMIA is correct, however, in identifying some discrepancies — minor ones, in our view — between the Board's opinion and its (TMIA's) statements at the hearing. For the sake of clarification, we believe the following more accurately states the parties' positions.

TMIA stated that it would call Joseph Colitz (Manager of Plant Engineering at TMI-1) to testify and to provide technical expertise on the matter of what is safety-related. TMIA indicated, however, that it might not agree with Colitz's views⁷⁸ and would leave it to the Board to draw its own conclusions. Licensee, on the other hand, was willing to accept Colitz's opinion. Tr. 2575-77. TMIA went on to offer its alternative view that the safety significance of a maintenance activity could be found on the face of the job ticket — *i.e.*, in the description of the function of the system to be repaired and in the priority assigned to the work order. The Board expressed its skepticism, though, as to the adequacy of TMIA's approach. Tr. 3032-38.

TMIA's criticism of the Board's actual evidentiary rulings and comments at the hearing, however, is not warranted on the record. TMIA has taken isolated remarks out of context and not fairly represented what occurred.⁷⁹ For example, TMIA excerpts parts of the transcript that suggest an arbitrary rejection of unspecified evidence by a board that is confused and uninformed. TMIA's Brief at 6-7. In fact, in one instance,

⁷⁷ One point that is clear and disputed by no one is that safety-related, as used in TMIA's contention 5, was meant to have a common-sense, ordinary dictionary meaning. There was no intent to reflect any particular NRC usage of the term. *See* Tr. 2575-77, 2860-62, 2865-67. We therefore do not have the problem here that we recently certified to the Commission for resolution in *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-769, 19 NRC 995 (1984).

⁷⁸ The Board, in fact, noted subsequent areas of disagreement between TMIA and Colitz. LBP-81-32, *supra*, 14 NRC at 484 (¶ 292).

⁷⁹ It should be kept in mind that TMIA's contention 5 alleged that licensee *had violated its own procedures in deferring safety-related maintenance. But as the Licensing Board found, licensee had and has no fixed times within which certain work is to be performed. Id.* at 483-84 (¶ 289). Strictly speaking, then, the Board could have ended its inquiry into that portion of the contention early on. Nonetheless, the Board found it important to pursue the broader issue of whether the examples of deferred maintenance cited by TMIA demonstrated significant deficiencies in licensee's maintenance practices. *Id.* at 484 (¶ 290).

after initially leaning toward rejection of certain evidence (TMIA Exh. 34A-K) on the ground that it was not related to nuclear safety, the Board nevertheless *admitted* it because it concerned quality control in licensee's record keeping practices. Tr. 3727-32.⁸⁰ In another instance cited by TMIA, the Board rejected TMIA Exh. 29A-D because the discussion on the record showed no safety significance to the work in question. Tr. 3671-75. TMIA claims this action was arbitrary because the Board "admittedly did not have sufficient information as to the exhibit's relevance to make a fair ruling." TMIA's Brief at 6. In fact, the Board simply referred to "a void of information" on the subject work orders, pointed out by counsel for the Commonwealth. Tr. 3675-76. If anything, that "void in information" detracts further from the probative value of the proffered exhibit and shows the correctness of the Board's ruling.

There is no doubt that this part of the record reflects a certain amount of confusion on the part of *all* participants. But this was of TMIA's own making; had it cooperated during discovery, there would have been no need for the Board to alter the usual order of procedure. *See* pp. 1245-46, *supra*. As a consequence, the presentation of evidence and testimony was unavoidably complicated. The transcript only reflects the Board's frustration in attempting to develop the record as fully and efficiently as possible — not the arbitrariness ascribed to it by TMIA. *See, e.g.*, Tr. 3032-38, 3126-32, 3662-63, 3731-32. TMIA wanted the Board to "draw its own conclusions." Tr. 2575. It appears to us that the Board did just that. It ruled on a substantial amount of evidence tendered by TMIA, admitting a good deal of it in the process. TMIA has not directed us to any particular evidence that was rejected and *explained* why it should have been admitted. We thus have no cause to conclude the Board was arbitrary in its treatment of TMIA's case on contention 5.

TMIA also argues that the Board failed to explain adequately the basis for its conclusions on maintenance deferral. In particular it objects to the Board's direct reliance on licensee's testimony for the conclusion that TMIA's work request exhibits do not show improper maintenance deferral. *See* LBP-81-32, *supra*, 14 NRC at 485-86 (¶ 296). We disagree with TMIA and find the Board's explanation sufficient. The Board noted that licensee's responsive written testimony addressed, in detail, each of the work requests admitted as TMIA's exhibits. The Board found nothing inconsistent between that testimony and the witnesses' additional testimony at the hearing. The Board also pointed out that, during its

⁸⁰ The Board discussed this evidence in its decision as well. *Id.* at 487, 490 (¶¶ 298, 308).

cross-examination of the witnesses, TMIA did not attempt to elicit further information about the exhibits.⁸¹ Rather than setting out this extensive testimony, the Board listed all 20 exhibits with explicit references to the portion of the record that explained why each work request was not an example of improperly deferred maintenance. *Id.* at 486 (¶ 296). Given that no effective challenge was made to the testimony, no purpose would have been served by the Board's rehearsal of it. We thus find the Board's approach entirely reasonable in the circumstances.

Even on appeal, TMIA makes no more than a generalized attack on licensee's rebuttal to its work request exhibits. *See* TMIA's Brief at 8. Nonetheless, we have reviewed each exhibit and the corresponding testimony and concur in the Licensing Board's finding that no significant maintenance was unduly delayed. While many of the work requests seemed to show long delays in repair, licensee's witnesses explained that often the maintenance was performed immediately, but the paperwork on closing out the job was delayed or the matter would be held open for observation for six months or more. *See, e.g.,* Shovlin, *et al.*, fol. Tr. 13,533, at 25 (TMIA Exh. 13), 52-53 (TMIA Exh. 11), 76-77 (TMIA Exh. 31). In other instances, items were properly identified for repair at some time in the future — *i.e.*, at the next scheduled outage. *See, e.g., id.* at 53-55 (TMIA Exh. 19), 75-76 (TMIA Exh. 20). In still others, design modification was thought preferable to a repair (although not for safety reasons), leading to a longer than usual closeout of the work request. *See, e.g., id.* at 23-24 (TMIA Exh. 12), 56-58 (TMIA Exh. 22). In many cases, the problem was paperwork (*i.e.*, bad record keeping), not deferral of important safety-related work. *See, e.g., id.* at 30-34 (TMIA Exhs. 42, 43), 61-68 (TMIA Exhs. 16, 17, 18, 28).

Where the Board did address at greater length the particular items involved in the work requests, TMIA objects to the Board's conclusions. TMIA's Brief at 8-9. *See* LBP-81-32, *supra*, 14 NRC at 486-88 (¶¶ 297-299). In one instance, the Board *agreed* with TMIA that its exhibits showed bad maintenance practices in delaying replacement of certain filters. But the Board also found that licensee's new inclusion of monthly filter inspections in its preventive maintenance program would help to avoid a potential effect on safety-related equipment in the long run. *Id.* at 487 (¶ 298). We see no basis for disagreeing with the Board's treatment of this matter. Another of TMIA's exhibits concerned an alarm that infrequently (once or twice a year) sounds for no apparent

⁸¹ The Commonwealth, however, conducted some cross-examination. *See, e.g.*, Tr. 13,599-606.

reason. The Board concluded from the record that this had no safety significance but commented critically on what was, by that time, a four-year delay in repairing it. *Id.* at 487-88 (¶ 299). We join in the Board's criticism of such inordinate delays, but we are unable to conclude on this record, as TMIA suggests, that this matter presents a risk to the public health and safety. *See* Shovlin, *et al.*, fol. Tr. 13,533, at 27-29; Tr. 13,602-04.

Although the Licensing Board found (correctly, in our view) no significant deferral of safety-related maintenance, that was not intended as an endorsement of all aspects of licensee's maintenance program. The Board found licensee's former system for designating the priorities for corrective maintenance work "clearly unsatisfactory as conceded by Licensee." LBP-81-32, *supra*, 14 NRC at 482 (¶ 285). Under that system, there were three general priorities: Priority 1 - urgent; Priority 2 - routine; Priority 3 - low priority. They reflected neither an estimate of work time for the job nor its safety significance. Shovlin, *et al.*, fol. Tr. 13,533, at 51. As a consequence, the designation of a priority for a given work request was a largely subjective undertaking. Because it could not be relied on to highlight the really important maintenance, "real" priorities were determined on an *ad hoc* basis at meetings held three times a week and attended by maintenance and operations personnel. LBP-81-32, *supra*, 14 NRC at 482 (¶¶ 285-286).

As of October 1980, this system was supplanted by the following four new priority categories:

Priority 1: Can *only* be classified by superintendents, department heads or shift supervisors; will cause a plant shutdown; reduce generation; has a time clock of very short duration; is an immediate industrial or nuclear safety hazard; compromises nuclear safety or security, reactor control or power conversion cycle control system in so far as to present a clear threat of initiation of a trip or severe transient; imposes or threatens increased personnel radiation exposure; constitutes one element of a multievent failure which would result in initiation of a trip or transient.

Priority 2: Could cause a plant shutdown if operation is continued too long; redundant component and backup is no longer available; could cause a plant limitation in the near future; time clock on the component that will require it to be repaired in a timely fashion; items that should be repaired when plant conditions allow.

Priority 3: Routine corrective maintenance that does not impact plant operation.

Priority 4: Corrective maintenance to clear minor problems that don't actually affect the operation of any components; all change modifications and any improvements that are not related to plant performances.

Id. at 481-83 (¶¶ 284, 287). The old work request form was also replaced by a computerized "job ticket." This reflects the work originator's priori-

ty recommendation (which may be changed by his or her immediate supervisor) *and* the priority ultimately established by the Manager of Plant Maintenance (or his or her designee). Tr. 3096-98.

TMIA contends that the new priority system does not amount to any real change. It claims the categories are still too subjective and ambiguous, and there are no guidelines for determining, for example, what constitutes "an immediate industrial or nuclear safety hazard." TMIA also argues that the review process is essentially the same: the initiator recommends a priority and his or her supervisor reviews it; the new procedures and computerized job ticket simply formalize this. In TMIA's view, the changes reflect a concern for form over substance, while the potential for the abuses of the old system remains. TMIA also complains that the individual managers responsible for maintenance are the same now as under the old system.

We disagree with TMIA, in that we believe licensee's new priority designations do represent a meaningful improvement over its former system. Priorities 1 and 2, in particular, provide useful guidance for plant personnel. *See* p. 1252, *supra*. Any such system is inherently subjective, no matter how detailed the priority categories, and will require varying degrees of skilled and informed judgment. Licensee's new priorities are no exception. But it must be kept in mind that it is not laymen who will make these maintenance determinations. It will be trained, experienced plant personnel,⁸² and their decisions will be reviewed by at least two levels of management.

With respect to that review procedure, however, we agree with TMIA that there appears to be little or no substantive change from the previous system.⁸³ The originator of the work request recommends a priority, his or her supervisor reviews it, and the Manager of Plant Maintenance (or his or her designee) passes ultimate judgment on the matter. The only real difference from the old system is that the new job tickets show on their face the ultimate priority assigned by the Manager of Plant Maintenance. *See* Tr. 3096-99. The new *form* is thus somewhat clearer, but we fail to perceive any substantive change in how priorities are assigned and reviewed. Unlike TMIA, however, we do not find anything objectionable in this procedure. It seems eminently reasonable and

⁸² This provides yet another example of the important role of training in the safe operation of TMI-1. *See* p. 1239, *supra*. Properly trained personnel should find these priorities unambiguous and readily amenable to application to most maintenance problems that arise.

⁸³ We are compelled to note that both the written and oral testimony on the new maintenance procedures is less than clear and does not always appear entirely consistent. *Compare* Lic. Exh. 2; Shovlin, *et al.*, fol Tr. 13,533, at 14-19, 40-41; Tr. 3096-99. Our conclusions are based on a common-sense reading of the record. Of course, if our understanding of the record is in error, we expect the parties to call that to our attention, with proper documentation.

desirable that the work request originator's supervisor would review his or her recommendation and that the Manager of Plant Maintenance (or similar official) would be responsible for the ultimate priority assignment.⁸⁴

TMIA characterizes as the "most relevant point regarding maintenance practices" the fact that the same pre-1979 maintenance managers are still in charge of the department today. TMIA's Brief at 12.⁸⁵ What should not be overlooked, however, is that these are the same managers who recognized the need for improvement in the system and developed new procedures to that end. Moreover, as discussed above, we agree with the Licensing Board that there was no significant deferral of safety-related maintenance. Hence, the abuses TMIA perceives have not been shown on this record. We have no basis to adjudge them "incompetent," as TMIA suggests. *See generally* LBP-81-32, *supra*, 14 NRC at 419-22, 440-41 (¶¶ 87-94, 156-162).

2. Record Keeping

Another aspect of TMIA's contention 5 alleged that the failure to keep accurate and complete maintenance records shows licensee's disregard for safety. The Licensing Board found that TMIA had demonstrated poor record keeping in the past by licensee. *Id.* at 489 (¶ 304). For example, the Board noted problems with duplicative work requests, unexplained or ambiguous "cancellations," and lost job tickets. *Id.* at 489-90 (¶¶ 305-309). The Board concluded, however, that licensee has properly responded to these deficiencies, principally through a new computerized system that tracks the maintenance job tickets. *Id.* at 490 (¶ 310). TMIA demurs, claiming that the new computer system itself has problems and has not been shown to be effective.

To be sure, when the new computer system ("Generation Maintenance System," or GMS) was developed in the late 1970s, some of the same record keeping problems as existed under the old system continued. *See* Shovlin, *et al.*, fol. Tr. 13,533, at 29-30. But as the Board pointed out, TMIA has ignored licensee's corrective actions undertaken since 1979. LBP-81-32, *supra*, 14 NRC at 491 (¶ 312). *See* Shovlin, *et al.*, fol. Tr. 13,533, at 30-34. Many of the early startup problems in the GMS were the inevitable result of making the transition from a manual

⁸⁴ Further, this hierarchy should result in uniformity in the application of the four priorities to particular work requests.

⁸⁵ The former lead shift maintenance foreman, however, has recently been reassigned and replaced, apparently as a routine personnel change. Letter from D.B. Bauser to Appeal Board (January 27, 1984) at 2.

to an automated information system. Licensee has moved to correct those deficiencies, and the testimony by the time of the hearing revealed an effective system for tracking maintenance work requests. *Id.* at 12-21, 35-39.⁸⁶

That is not to say licensee's record keeping system is perfect. The Board noted several areas, all involving quality control (QC), where there is still room for improvement. TMIA, however, has failed to show that any of these areas is of safety significance.

First, the Board opined that Quality Control should sign off (initial) at each QC "observation hold point[]," rather than only at the completion of the job. LBP-81-32, *supra*, 14 NRC at 492 (¶ 317). The Board found that licensee had complied with its own procedures in this regard and that it did not reveal "a serious problem on the part of management attitude." Nonetheless, the Board found that the ability to audit the QC records would be enhanced by the addition of intermediate QC sign-offs. *Id.* at 495-96 (¶ 328). Because these extra notations will supplement the maintenance history for a particular job, we join in the Board's recommendation. Requiring this as a condition of restart, however, is not warranted; the significant factor is that QC signs off at the completion of the job.

Second, the Board commented that delays in noting QC approval for the work should be minimized. *Id.* at 492 (¶ 318). It noted as well, though, that these delays were not shown to have an impact on plant safety, and that the enlargement of licensee's QC staff should result in fewer future delays. *Id.* at 496 (¶¶ 329-330). TMIA has presented no reason to doubt the Board's judgment on that score.

Third, the Board strongly urged licensee to consider revising its new job ticket format to reflect better the nuclear safety effect of the requested work, where the maintenance is to be performed on a non-QC component. *Id.* at 492-93 (¶ 319). We endorse the Board's view, and apparently licensee does as well. It has now revised its job ticket so that management must explicitly agree that particular work will have no effect on nuclear safety, irrespective of the QC/non-QC status of the work. *See* Board Notification BN-84-016 (January 27, 1984).⁸⁷

⁸⁶ One action licensee took was a monthly review of all outstanding work requests in an effort to clear out those that had been cancelled, completed, or superseded. Shovlin, *et al.*, fol. Tr. 13,533, at 30. We have been informed that this review is now undertaken on a quarterly basis "due to the fact that the great majority of old work requests have, over time, been removed from the computer system." Letter from E.L. Blake, Jr., to Appeal Board (November 29, 1983), Attachment at 2.

⁸⁷ The Licensing Board also noted that, due to a limited data base, the Component History Report provided by the GMS does not always reliably reflect the QC status of the component involved in a given work request. LBP-81-32, *supra*, 14 NRC at 491 (¶ 313). Acknowledging this shortcoming in its
(Continued)

While pointing out these several areas that, in its view, warrant minor improvement, the Board emphasized the clear benefits of the GMS:

The automated system, with the rapid retrieval of information in various formats, and the administrative checks to avoid the problems of duplicative requests, multiple work not being documented as it was performed, and priority designations being checked at appropriate management levels to assure the computerized system accurately reflects the real priority, all represent substantial improvement.

LBP-81-32, *supra*, 14 NRC at 490 (¶ 310). It therefore reasonably concluded that licensee's conceded record keeping problems appeared to be solved. Because any such finding is necessarily predictive, the Board suggested that the staff give special attention, during its routine future inspections, to the efficacy of licensee's already improved maintenance record system. *Id.* at 492 (¶ 315). TMIA has shown no basis for requiring more.

3. Overtime

TMIA's contention also alleged that licensee extensively relied on overtime in performing maintenance, in further disregard of the public's safety. Its argument is similar to that of the Aamodts (*see* pp. 1242-44, *supra*): overtime should be prohibited because it increases the risk of carelessness due to fatigue. Although the Licensing Board considered this issue at length, TMIA claims the Board gave this matter "shoddy treatment." TMIA's Brief at 14. *See* LBP-81-32, *supra*, 14 NRC at 496-501 (¶¶ 331-348). According to TMIA, the Board mischaracterized the testimony, was arbitrary, and failed to provide a reasoned analysis of the evidence.

At the outset, the Licensing Board correctly observed that "[m]uch of the maintenance and modification work [at a nuclear plant] can be done only during refueling outages." *Id.* at 496 (¶ 332). A staff large enough to perform these functions without overtime would be idle much of the time during normal operation. Moreover, the quality of safety-related maintenance is often enhanced when it is begun and completed by the same crew, particularly where some of the employees have special skills. Licensees must balance these various considerations. *Id.* at 496-97 (¶¶ 332-333).

system, licensee stated that it does not consider this particular computer printout as official documentation. As the history in the data base expands, its reliability will be enhanced. In the meantime, machinery history is maintained on cards and not through the use of this computer printout. *See* Shovlin, *et al.*, fol. Tr. 13,533, at 38-39.

With that in mind, the Board turned to the evidence. It heard from three witnesses, all current or former TMI maintenance employees. Their testimony reflected the whole range of views on overtime. Some employees personally disliked it but felt compelled by management to work overtime, some liked it for the extra money, and some were neutral. *Id.* at 497-98 (¶¶ 335-338). The Board considered the testimony highly subjective and was unable to determine if licensee had had sound overtime practices or not. But it relied heavily on a staff inspection report that found no evidence that licensee's use of overtime had affected the quality of the maintenance performed. *Id.* at 498-500 (¶¶ 339-342). The Board also found that TMIA's concerns — not supported by the record — were, in any event, mooted by a subsequent staff statement on overtime, IE Circular No. 80-02. *Id.* at 500 (¶ 343).

The Board's decision belies TMIA's characterization of it as "shoddy treatment." The decision is consistent with the testimony and other evidence, and we have been given no reasonable cause to disturb the Board's findings on maintenance overtime practices.⁸⁸ Insofar as TMIA objects to the Board's mootness finding, we would agree that the mere adoption by the staff of a new "policy" on overtime does not in and of itself moot TMIA's issue. Unless the policy amounts to a regulatory requirement or a party agrees to be bound by it, there is no assurance that the standards enunciated in the policy will be observed and enforced. But as we explained at p. 1243, *supra*, since the Licensing Board's decision, the Commission has adopted a new overtime policy (embodied in Generic Letter No. 82-12), and licensee has agreed to be bound by it.⁸⁹ The policy, which discourages routine heavy use of overtime and sets guidelines for those inevitable occasions when overtime will be necessary, expressly applies to key maintenance personnel and major maintenance work. Deviation from the guidelines is permitted only if senior management, taking account of personnel effectiveness, authorizes it. Generic Letter No. 82-12, *supra*, Attachment at 2-3. In our view, this new policy, binding on licensee, is an adequate response to TMIA's stated concern in contention 5 about the "extensive" use of overtime for maintenance work.

⁸⁸ Hearing from additional witnesses, as TMIA urges, would not have added to the scope of the testimony presented to the Board (*see* p. 1257, *supra*), or made the employees' personal views on overtime less subjective. *See* LBP-81-32, *supra*, 14 NRC at 498 (¶ 339).

⁸⁹ As noted at p. 1243, *supra*, licensee has incorporated the new overtime restrictions into its technical specifications. As such, they become part of its operating license and are legally binding. *See Portland General Electric Co. (Trojan Nuclear Plant)*, ALAB-531, 9 NRC 263, 272-73 (1979).

VI. MANAGEMENT RESPONSE TO THE TMI-2 ACCIDENT

In CLI-80-5, *supra*, 11 NRC at 409, the Commission directed the Licensing Board to consider (as Issue 10)

whether the actions of Metropolitan Edison's corporate or plant management (or any part or individual member thereof) in connection with the accident at Unit 2 reveal deficiencies in the corporate or plant management that must be corrected before Unit 1 can be operated safely[.]

Licensee and the staff presented direct evidence on this issue, but none of the intervenors did. The staff, and Licensing Board as well, focused principally on the flow of information, during and after the accident, from licensee to the NRC, the Commonwealth, and others.⁹⁰ On appeal, TMIA argues that the Board has not resolved Issue 10, and that there is no reasonable assurance that licensee has corrected all the asserted management problems revealed by the TMI-2 accident.

A. Witness Credibility

TMIA first complains that the witnesses presented by licensee on this issue were not credible. Those witnesses were: William S. Lee, President of Duke Power Company, who served as an assistant to Herman Dieckamp (GPU President) beginning a week after the accident; William Wegner, a consultant from Basic Energy Technology Associates, Inc. (BETA); and Robert W. Keaten and Robert L. Long (*see* note 48, *supra*), two members of licensee's management. While we would not go so far as to find them "not credible," we do find that the direct testimony of licensee's witnesses was not particularly probative or responsive to the issue at hand. But we also find that the Licensing Board appears to share that view, inasmuch as it did not rely on their testimony to any significant extent in reaching its conclusions on Issue 10.

For example, after summarizing Lee's testimony, the Board noted that Lee described his view of licensee's response to the accident after he arrived on the scene one week later, rather than licensee's response at the time — which is the focal point of the "information flow" issue. LBP-81-32, *supra*, 14 NRC at 539 (¶ 465). *See* Lee, fol. Tr. 13,251. As for Keaten and Long, the Board found their testimony "more positive

⁹⁰ Also included under Issue 10 was the Board's brief discussion of the then-ongoing Department of Justice investigation into certain of licensee's past practices. *See* LBP-81-32, *supra*, 14 NRC at 557 (¶¶ 504-506). This matter came to be known as the "Hartman allegations" and is discussed more fully in ALAB-738, *supra*, 18 NRC at 183-92. *See also* p. 1205, *supra*; pp. 1276-78, *infra*.

than appears warranted,” and does not rely on it for any substantive findings. LBP-81-32, *supra*, 14 NRC at 539 (¶ 466). See Keaten and Long, fol. Tr. 13,242.⁹¹ The Board found the “broader perspective” of Wegner’s brief testimony on this issue “more accurate.” According to him, the problems that led to the accident were shared throughout the civilian nuclear power industry. At the time of his testimony before the Board, Wegner considered it still too early to expect that all of the deep seated problems would be corrected. He essentially concluded, however, that licensee was making progress in that direction, sufficient to permit restart. Wegner, fol. Tr. 13,284, at 33-35. Other than summarizing his testimony, however, the Board does not appear to have given it any particular weight on Issue 10. Indeed, Wegner’s testimony is so general and brief that the Board would have been hard pressed to use it as support for any specific finding.

Thus, although the testimony of licensee’s witnesses on Issue 10 was not especially useful, it also did not provide the evidentiary basis for any critical finding by the Board. Accordingly, we see no error in the Board’s decision in that regard.

B. Information Flow

1. Motion to Reopen (TMIA Exhs. 49 and 50)

TMIA argues that the Licensing Board erred in rejecting two exhibits it offered in connection with a motion to reopen the record on Issue 10. TMIA Exh. 49 is a March 1981 report by the Majority Staff of the U.S. House of Representatives Committee on Interior and Insular Affairs, entitled “Reporting of Information Concerning the Accident at Three Mile Island.” It is known as the “Udall Report” and is critical of licensee’s actions on March 28, 1979, the date of the TMI-2 accident. TMIA Exh. 50 is actually TMIA’s July 2, 1981, Motion to Require Further Development of the Record. Attached to the motion is a June 1981 review of the Udall Report by Edward C. Abbott, a Senior Fellow for the NRC’s Advisory Committee on Reactor Safeguards (ACRS). Abbott agrees with the Udall Report’s conclusions.

According to TMIA, “[t]he Board took official notice of every other federal government report on the information flow topic,” except for the Udall Report. That was the only such report that concluded that two of licensee’s officials, former TMI Station Manager Gary Miller and

⁹¹ The Licensing Board could also have fairly described it as “self-serving”; in our view, the testimony is more self-serving than is ordinarily expected from a proponent’s own statement.

former Met Ed Vice President John Herbein, "deliberately withheld information" on the day of the accident from state and federal officials. TMIA's Brief at 24. The others, in particular Staff Exh. 5, NUREG-0760, "Investigation into Information Flow During the Accident at Three Mile Island" (January 1981), at 11, concluded that, while licensee was "not fully forthcoming on March 28, 1979," neither did it intentionally withhold information. In TMIA's view, the Licensing Board relied too heavily on NUREG-0760: it used facts selectively and is therefore not a credible document. It asserts that the Board should have formally admitted the Udall Report and Abbott's review to provide more balance. TMIA also offered, a week after it moved to reopen, to provide witnesses to sponsor the two exhibits. Tr. 22,997-98. On appeal, TMIA requests that we review "sua sponte" [sic: de novo] all of "the raw materials" on this subject. TMIA's Brief at 25.

The record on information flow during the accident had closed several months before TMIA filed its motion to reopen for receipt of Exhs. 49 and 50. TMIA was therefore obliged to show that the motion was timely and addressed a significant issue, and that it might alter the outcome. *Diablo Canyon, supra* note 50, 11 NRC at 879.⁹² Also, the Board had explained on several occasions earlier in the hearing that the Udall Report was not the type of matter of which the Board could take official notice and that, for it to be treated as formal evidence, it must be proffered in a timely fashion and sponsored by a witness. Tr. 12,006-07, 20,776-82, 21,011-15. See *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 477 (1982).

Several months later, on the last day of the hearing, when TMIA for the first time formally tendered the Udall Report with possible witness sponsorship, the Board was justified in finding that it was not a timely offer. Further, TMIA conceded that the raw material in the Udall Report was essentially the same as in NUREG-0760, which was in evidence. TMIA Exh. 50, Motion at 2. Only the conclusions differed. Thus, as to both the Udall Report and Abbott's review, the Board stressed that, because it (the Board) was responsible for reaching conclusions on licensee's response to the accident, the conclusions of others would not be of any particular value. Tr. 22,998-99. In other words, while the *facts* as to what happened were important (and were in evidence in NUREG-0760), the *opinions* of the Udall committee and Abbott would not have influenced the Board's decision one way or the

⁹² TMIA incorrectly states the staff "endorsed" its motion. TMIA's Brief at 24. Rather, the staff did "not interpose an objection" and suggested that, if the Board granted the motion, it should also admit into evidence other reports, which were more favorable to licensee's position. Tr. 22,965.

other. We agree with the Board here that, once it is fully apprised of the facts, it is able and obliged to form its own conclusions. This is not a situation involving the competing opinion testimony of experts in a technical field. Thus, the Board did not err in denying TMIA's motion.

The important consideration is that, despite TMIA's contrary representation to us, the Board treated equally all of the various governmental reports and memoranda concerning information flow that were not admitted into evidence. It did not take official notice of any of them or make any findings solely on the basis of such extra-record material. The only actual evidence on this issue was NUREG-0760 (Staff Exh. 5), and it was properly sponsored by a witness, who thus was available for cross-examination. See LBP-81-32, *supra*, 14 NRC at 540-42 (¶¶ 469-471). Nevertheless, the Licensing Board was unquestionably aware of the conflicting conclusions reached on basically the same underlying data. In fact, to demonstrate its awareness of these views it set forth and discussed significant portions of the Udall Report and other documents. *Id.* at 546-51 (¶¶ 482-489). Furthermore, the Board was not wholly persuaded by the conclusions and terminology of NUREG-0760 either.⁹³ The Board "interpreted" the statement in NUREG-0760 that licensee was "not fully forthcoming" in providing information as meaning that licensee's officials intentionally — *i.e.*, consciously — held back information, possibly because they did not appreciate the severity of the situation. The Board agreed with former Commissioner Hendrie's comment that this was "cold comfort indeed." *Id.* at 544 (¶ 477).

In sum, we see no purpose that would have been served by the formal receipt into evidence, at the eleventh hour, of the Udall Report and Abbott's review of it. The factual material discussed by both was already in evidence, and the Board was aware of the differing conclusions reached on those same data by several different entities. There is no error in the Board's evidentiary rulings on TMIA Exhs. 49 and 50.

2. John Herbein and Gary Miller

TMIA's principal argument in regard to the Board's treatment of Issue 10 is that the Board failed to pursue thoroughly the roles of licensee officials John Herbein and Gary Miller in responding to the accident. For example, TMIA cites an instance where Miller (former

⁹³ TMIA also attacks the credibility of NUREG-0760, contending that at a December 1981 public meeting its author, Victor Stello, in essence recanted his earlier conclusions and now agrees with the Udall Report. TMIA's Brief at 25. But in a subsequent memorandum to Commissioner Gilinsky, served on the parties on March 10, 1982, Stello states that his views on information flow "remain unchanged" from those expressed in NUREG-0760.

TMI Station Manager) knowingly provided incomplete information to Commonwealth official William Dornsife. See Staff Exh. 5, NUREG-0760, at 108-1 to 108-3, 112-1 to 112-5. According to TMIA, the Board should have questioned Dornsife about this matter at the hearing. As for Herbein, TMIA contends that he demonstrated bad judgment on several occasions (e.g., assertedly pulling Miller offsite at the height of the emergency to meet with Lieutenant Governor Scranton). Acknowledging that it (TMIA) declined to litigate this matter, TMIA argues that the Board was “derelict in its duty” to pursue Herbein’s conduct on its own. TMIA’s Brief at 27. The implications for the public health and safety are significant, according to TMIA, because of the high level position Herbein held with licensee. TMIA also expresses concern that the Board did not examine fully how the involved individuals interpreted the events of March 28, 1979.

It would certainly be unfair to suggest that the Board did not devote considerable attention to licensee’s role in providing the Commonwealth and the NRC with information at the time of the accident. See generally LBP-81-32, *supra*, 14 NRC at 537-55 (¶¶ 461-497). It is apparent from the Board’s opinion itself, however, that not all the questions concerning information flow were fully explored on the record. In addition to raising questions about the principal evidence, NUREG-0760 (see p. 1261, *supra*), the Board identified a number of points or witnesses that *could* have been pursued further. See, e.g., *id.* at 543-44, 552 (¶¶ 475, 476, 491).

But with respect to Miller, the Board stressed that no party had alleged he was unfit for his then-present position as Manager of the Startup and Test Department, and that intervenors had not questioned available witnesses on Miller’s actions. Conceding the relevance of personal integrity to any job, the Board concluded Miller’s role in the flow of accident information had assumed less importance in view of Miller’s change in job duties. *Id.* at 545 (¶ 479). The Board made similar observations concerning Herbein. It noted TMIA’s failure to litigate this matter in a timely fashion and found particularly significant the Commonwealth’s and the staff’s decisions not to challenge Herbein’s fitness for a management position. *Id.* at 551-52 (¶ 490). Also influenced by the Commission’s apparent determination not to take enforcement action with respect to information flow, the Board concluded it would not be worthwhile, from a public health and safety standpoint, to conduct further inquiry on its own, especially given its limited investigatory resources. *Id.* at 552-53 (¶¶ 491-493).

Although we have both the benefit of hindsight and an appreciation for the Board’s enormous task in conducting this prolonged hearing on a

plethora of issues in addition to those dealing with management competence, we agree with TMIA that the Board should have pursued the inquiry into information flow more fully on its own. Despite the absence of active intervenor participation on this issue, the Board was nonetheless obliged to make all reasonable efforts to resolve lingering questions. In CLI-79-8, *supra*, 10 NRC 141, the Commission ordered the Licensing Board to conduct a hearing on specified issues. In CLI-80-5, *supra*, 11 NRC 408, it further "directed" the Board to examine 3 broad issues and 13 specific ones including the actions of licensee's management in response to the TMI-2 accident. Neither the hearing itself nor the litigation of the specified issues was dependent upon the active participation of intervening parties. In the course of hearing and deciding those issues, the Licensing Board was thus bound "to ensure that it receive[d] all information necessary to a thorough investigation and resolution of the questions before it." CLI-79-8, *supra*, 10 NRC at 147.⁹⁴

To be sure, the Board's lack of its own investigating team and lack of authority to direct the staff in the performance of its duties effectively limit the Board's ability to comply with the Commission's mandate. See *Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant, Units 1, 2, 3, and 4), CLI-80-12, 11 NRC 514, 516 (1980). But the Board can at least call and examine witnesses of whom the Board is aware and who are likely to have information necessary for the proper resolution of the issues before it. See generally 10 C.F.R. § 2.718.⁹⁵ In this case, the Board could have called Dornsife and another involved Commonwealth official, Thomas Gerusky, as well as Herbein and Miller, to testify directly about the communications that occurred among them on March 28, 1979.⁹⁶

We also believe the Board was wrongly "influenced by the fact that the Commission itself, in the context of its oversight of the staff's enforcement actions, elected not to recommend further censure of individuals because of improper disclosure of information." LBP-81-32, *supra*, 14 NRC at 552 (¶ 492). Generally, where the Commission wants to foreclose adjudicatory inquiry into a matter in favor of enforcement

⁹⁴ The Licensing Board's pursuit of this matter is thus distinguishable from a board's raising of an issue *sua sponte* in an operating license application proceeding. See 10 C.F.R. § 2.760a.

⁹⁵ It is clear from *Summer*, *supra*, 14 NRC at 1152-57, that, in the proper circumstances, NRC adjudicatory boards are empowered to call witnesses to help develop the record. Our strong criticism of the Licensing Board's effort in that case to call outside consultants to give *expert* testimony is easily distinguished from the situation here, where the needed testimony concerned the witnesses' factual recollections, more than expert opinions.

⁹⁶ The Board obviously had several other individuals in mind as well who might be able to contribute testimony. See LBP-81-32, *supra*, 14 NRC at 552 (¶ 491).

action, it so indicates unambiguously, as in the case of the O and VV incident. *See* p. 1231, *supra*. Here, the Board cites, and we are aware of, no expression or even suggestion of such a Commission intent with regard to the information flow issue.⁹⁷ Moreover, we view it as unwise for a board to give too much weight to enforcement action or the lack thereof. The Commission's enforcement program has a different purpose and scope than adjudication. Further, the independence of the adjudicatory boards is essential to preserve the integrity of the hearing process. The Commission itself noted in *South Texas, supra*, 12 NRC at 289, that

[a] decision by the Director of Inspection and Enforcement in an enforcement action does not bind a [l]icensing board in an operating license adjudication from making a decision which would further restrict, or even deny a license for, the operation of a facility. The [b]oard must make its decision based upon the record in the case before it.

The same should apply for a special proceeding such as this, particularly when the Board has been directed to hear certain issues that may also be subject to enforcement action.

Be that as it may, we see no purpose that could be meaningfully served at this late date by requiring further hearing on Herbein's and Miller's actions on the day of the accident. Apart from denial of restart authorization, the Board correctly observed that "the most adverse outcome of such an inquiry . . . would be the removal of Mr. Herbein from some or all of his proposed duties." LBP-81-32, *supra*, 14 NRC at 552 (¶ 491) (footnote omitted). The same would be true for Miller. That has effectively been accomplished: neither is now employed by GPU Nuclear, the actual-licensee subject to NRC jurisdiction. *See* notes 3 and 45, *supra*.

Although TMIA suggested to the Licensing Board that this would be an appropriate remedy, it now argues on appeal that the removal of these licensee officials does not "exonerate the corporate entity . . . ultimately responsible. . . ." TMIA Exh. 50, Motion at 3; TMIA's Brief at 27. We would agree that, *if* further hearing established significant improper action by Herbein and Miller — or indeed any employee — the corporate entity itself must bear some of the responsibility. The degree would depend on the circumstances and conduct involved. In that sense, then, the corporate entity can never be held blameless for past acts. But the question here is whether the corporate entity can reasonably assure more responsible conduct by its managers in the future.

⁹⁷ Indeed, it is by no means clear that further enforcement action is out of the question. Various investigations of TMI are still under way and inquiry into the information flow issue may well be included. *See, e.g.*, Board Notifications BN-[83]-117 (August 4, 1983) and BN-83-152 (October 3, 1983).

A corporate entity is a "person" in the legal sense that it can sue and be sued and incur responsibilities, but in a real sense it can "act" solely at the direction of individuals. Replacing high level *managers* can therefore effect a corresponding substantive change in the philosophy and overall behavior of *management*. In this connection, we stress that we find only that the Board erred in not pursuing the Herbein and Miller matter further; we do not pass judgment on their actions. Nonetheless, it cannot be gainsaid that their absence from the ranks of licensee's managers removes a large hurdle in licensee's path to proving it is competent to manage TMI-1 in a safe manner.⁹⁸

3. *The Dieckamp Mailgram*

On May 9, 1979, Herman Dieckamp, President of GPU, sent a mailgram to Congressman Morris Udall in an effort to correct assertedly erroneous information about TMI reported in the *New York Times* the day before. The story concerned a "pressure spike" that had occurred within the TMI-2 containment at about 1:50 p.m. the day of the accident. As the Licensing Board explained, this "was a sudden increase in containment pressure from about 3 to 28 psig, followed by a rapid decrease to 4 psig. . . . It was caused by a sudden burning or explosion of hydrogen, which would be symptomatic of core damage." LBP-81-32, *supra*, 14 NRC at 555 (¶ 499). This increased pressure initiated containment spray. There are conflicting statements, set out in NUREG-0760, as to how several employees in the TMI-2 control room interpreted this at the time. Licensee did not report the pressure spike to the NRC or the Commonwealth, however, until a day or so after it occurred. *Ibid.* (¶ 499). The pertinent part of Dieckamp's mailgram for our purposes here is his statement that

[t]here is no evidence that anyone interpreted the "pressure spike" and the spray initiation in terms of reactor core damage at the time of the spike nor that anyone withheld any information.

Staff Exh. 5, NUREG-0760, at 117-1.

The staff investigated this matter to determine if Dieckamp's mailgram contained a material false statement in violation of section 186 of

⁹⁸ We also note that the "corporate entity" to which TMIA refers has been denied permission to operate TMI-1 for more than five years. Virtually every aspect of its plant management and operation has undergone, and will continue to be subject to, scrutiny by the NRC and myriad external organizations (including intervenors) greater than that to which most other plants are subjected. Thus, it cannot be fairly said that the corporate entity has escaped sanction for its action in connection with the TMI-2 accident.

the Atomic Energy Act, 42 U.S.C. § 2236, and concluded it did not. *Id.* at 45-46. The Licensing Board considered this matter more broadly, in terms of its implication for management integrity. Nonetheless, it agreed with the conclusion of the staff witness who testified on this issue that Dieckamp believed the statement was true when he made it. As the Board saw it, the staff's inquiry into the matter was "equal to or better than any the Board could make." Thus, it regarded the staff view as "reliable enough to set the matter to rest." LBP-81-32, *supra*, 14 NRC at 556 (¶ 501). *See also ibid.* (¶ 503). The Board equivocated, though, commenting that, in retrospect, perhaps it should have pursued the matter by recalling Dieckamp to testify. *Ibid.* (¶ 502).⁹⁹ It decided against this, however, because it would mean "substantial delay" in issuing its decision and "a serious distraction" from the other important issues involved in the proceeding. *Ibid.* (¶ 503).

TMIA thus complains that the Board erred in not resolving this issue as part of its overall responsibility to resolve Issue 10. We agree. The Board itself essentially conceded both the importance of this issue to management integrity and the unresolved nature of it. *See* Tr. 13,063, 13,060.¹⁰⁰ As is the case with the actions of Herbein and Miller on the day of the accident, the Board was obliged to pursue the circumstances of the Dieckamp mailgram as best it could, given the limits on its authority and resources. *See* pp. 1262-63, *supra*. Indeed, we think the Board greatly underestimated its own ability to ferret out the facts, while overestimating the thoroughness of the staff's inquiry on this matter.

In the first place, the staff's review of the matter was solely from the standpoint of whether Dieckamp had made a material false statement as that term is used in the Atomic Energy Act. *See* Staff Exh. 5, NUREG-0760, at 45-46. That narrow focus was bound to have influenced the staff investigators in the questions they asked and conclusions they reached.¹⁰¹

⁹⁹ When Dieckamp testified on other issues, neither the Board nor any party questioned him with regard to the mailgram to Congressman Udall. Further, licensee presented no testimony on this subject at the hearing. LBP-81-32, *supra*, 14 NRC at 556 (¶ 502).

¹⁰⁰ Our citation to Tr. 13,063 refers to lines 20-23. These are identified by "A" as the witness's words; it is clear from the context, however, that it is the Board speaking, beginning with line 16.

¹⁰¹ The Board stated that staff witness Norman C. Moseley "made it clear [when testifying] that IE did not rest entirely upon such narrow grounds as duty to report under the Atomic Energy Act." *Ibid.* (¶ 501). It infers this from Moseley's statement that he believed Dieckamp thought he (Dieckamp) was being truthful at the time he sent the mailgram. *See* Tr. 13,063-64. We do not agree with the Board's assessment of the scope of the staff inquiry. Moseley's statement was no more than a specific answer to the Board's specific leading question during the hearing. It reveals little or nothing about the scope of the staff's actual inquiry while under way. If anything, the transcript shows Moseley thought there might be different ways to interpret Dieckamp's statement; but because Moseley did not believe they were worth pursuing, he suggested that the Board question Dieckamp about it. *See* Tr. 13,062. This hardly shows breadth in the scope of the staff's approach to this matter.

More important, though, is that the staff's investigative report, upon which the Board was so willing to rely, is wholly conclusory. It is devoid of any explanation of *why* the staff believed some of those it interviewed, but not others — namely, those whose statements suggested knowledge or a suspicion (by one or more persons) as to the cause of the pressure spike at the time it occurred.¹⁰² With respect to Joseph Chwastyk, Brian Mehler, and Theodore Illjes, the staff just summarily concluded that their respective recollections about the pressure spike and its possible connection to the presence of hydrogen were “in error” or occurred after March 28, 1979. *Id.* at 28, 29.¹⁰³ Nor do the excerpts of these individuals' statements to the staff investigators, appended to NUREG-0760, supply any basis for the staff's conclusions. *See id.* at 57-1 to 57-11, 59-1 to 60-1, 77-1 to 81-1, 87-1 to 89-2, 91-1 to 91-6. Finally, it is not readily apparent that the staff even interviewed the principal individual involved in this incident, Dieckamp himself. The transcript *suggests* the staff interviewed him on the subject of the mailgram, but NUREG-0760 does not include any reference to such an interview. *See* Tr. 13,063; Staff Exh. 5, NUREG-0760, at 22-31, 45-46, Appendix B at 1-5 (list of attachments).

Thus, the Board did not have a reasonable basis for relying on the staff's investigation of this matter. Notwithstanding the additional delay it would have caused, and as in the case of Herbein and Miller, the Board should have pursued the matter on its own by seeking testimony from Dieckamp, those in the control room at the time of the pressure spike, and those from whom Dieckamp got the information conveyed in his mailgram. But unlike Herbein and Miller, Dieckamp is still a high level “presence” at GPU Nuclear. Although he was recently replaced as Chairman and Chief Executive Officer of GPUN, he remains a Director there and thus will continue to participate in the management of GPUN, albeit to a far lesser extent. Notice to the Commission, *et al.* (February 6, 1984). It is not unreasonable to expect that, as a former Chairman and CEO, Dieckamp will have a more commanding voice in directing the affairs of GPUN than many of his fellow members of the Board. Moreover, he sent the mailgram to Congressman Udall in his capacity as President of the parent firm, GPU — a position he still holds (along with Chief Operating Officer and Director).

¹⁰² None of these persons testified before the Licensing Board on this subject.

¹⁰³ The fact that *other* persons interviewed did not have similar personal recollections is irrelevant to the Dieckamp mailgram inquiry. It is important here to emphasize what is at issue *in this regard* and what is not. First, was there evidence that *anyone* interpreted the pressure spike and containment spray in terms of core damage *at the time of the spike*, and was any such information withheld? Second, on what information, and from what source(s), did Dieckamp base *his* statement?

We therefore believe that it is important that this matter be further explored by the Licensing Board so as not, in the Board's own words, to "leave it dangling." Tr. 13,060. Again, we do not suggest any wrongdoing by Dieckamp; the record as only partially developed does not permit a determination one way or the other. Accordingly, we remand to the Board for further hearing on the significance of Dieckamp's mailgram vis-a-vis licensee's competence to manage TMI-1 safely.

We recognize that such a hearing, now five years after the fact, may not be particularly fruitful. Memories fade, making selective recall a problem. But unlike the staff and Licensing Board, we believe it is worth some additional effort, even at this late date. See LBP-81-32, *supra*, 14 NRC at 556 (¶ 503). Although delay and distraction were disincentives to reopening in 1981, they do not figure as prominently now. In fact, it would seem logical for the Board to pursue this matter at the same time it commences hearing on the training issues we have remanded above. See p. 1239, *supra*. Moreover, the scope of the Board's inquiry is relatively limited. As we pointed out at note 103, *supra*, the focus should be on (1) whether *anyone* interpreted the pressure spike and containment spray, at the time, in terms of core damage, and (2) who or what was the source of the information that Dieckamp conveyed in the mailgram.

VII. CORPORATE ORGANIZATION

Two of the issues the Commission directed the Licensing Board to consider at the hearing are:

- (1) Whether Metropolitan Edison's command and administrative structure, at both the plant and corporate levels, is appropriately organized to assure safe operation of Unit 1;
• • • [and]
- (6) whether the relationship between Metropolitan Edison's corporate finance and technical department is such as to prevent financial considerations from having an improper impact upon technical decisions[.]

CLI-80-5, *supra*, 11 NRC at 408-09. As in the case of Issue 10 (see p. 1258, *supra*), licensee and the staff presented testimony on these subjects, but intervenors did not. In each instance, the Board resolved the issue favorably to licensee. LBP-81-32, *supra*, 14 NRC at 412, 518 (¶¶ 67, 401). TMIA's objections to the Board's decision generally parallel those it raised in connection with Issue 10. According to TMIA, the Board erred in resting its decision on only the unreliable, self-serving testimony of licensee and staff witnesses; consequently, its decision does not really resolve either issue. But unlike the case of Issue 10, we

disagree with TMIA and find that the Board did a thorough job of developing the record on Issues 1 and 6. Further, it satisfactorily resolved each. *See id.* at 403-41, 514-18 (¶¶ 46-162, 387-401).

A. Command and Administrative Structure

With respect to the organization of licensee's corporate structure (Issue 1), TMIA's principal point goes to the reliability of the various witnesses.¹⁰⁴ In TMIA's view, NRC staff witnesses Lawrence P. Crocker, Frederick R. Allenspach, Richard R. Keimig, and Donald R. Haverkamp lack the necessary expertise to testify on the proper management structure of a nuclear power plant. TMIA further disputed their objectivity and credibility. BETA consultants William Wegner and Murray E. Miles, called on behalf of licensee, assertedly have no management-related experience or training. William S. Lee, President of Duke Power Company and another licensee witness, lacked objectivity and credibility because of "his prominent position in the nuclear industry." TMIA's Brief at 20. TMIA argues that the Board was obliged to inquire beyond their testimony.

The *curricula vitarum* and testimony of these witnesses refutes TMIA's broad attack. Staff witnesses Crocker and Allenspach conceded they lacked formal management training, but their experience over the years in the military, research, and the AEC/NRC qualifies them to testify on this subject. Tr. 11,990-91. *See* Resumes of Lawrence P. Crocker and Frederick R. Allenspach, fol. Tr. 12,653.¹⁰⁵ More important, perhaps, is their principal authorship of NUREG-0731, "Guidelines for Utility Management Structure and Technical Resources," *supra*. This report — still in draft form and prepared in response to the TMI-2 accident — represents the NRC staff's current guidelines for utility management.

Both the Commission, through its early acknowledgment of the lack of standards in this area, and the Licensing Board, in its recognition of

¹⁰⁴ TMIA also accordingly complains about the Board's rejection of TMIA's proposed findings on this topic, which would have found the witnesses unreliable.

¹⁰⁵ The same can be said for Keimig and Haverkamp. *See* Resume of Richard R. Keimig, fol. Tr. 11,946; Resume of Donald R. Haverkamp, fol. Tr. 11,934.

TMIA's treatment of Haverkamp, who at the time of his testimony was a Senior Resident Inspector at TMI, is particularly unjustified. TMIA states that his "objectivity in evaluating GPU's management structure was questioned." TMIA's Brief at 20. The implication is that there was a reason to doubt his objectivity. Review of the portion of the transcript upon which TMIA relies shows no such thing. One of the members of the Licensing Board took the occasion of Haverkamp's appearance as a witness to ask a *general* question she had "wanted to ask . . . of resident inspectors for a long time — how does a resident inspector maintain his independence when he is the NRC person on-site amongst many of the utility personnel." Tr. 12,025.

the inherent shortcomings in the NUREG-0731 guidelines, demonstrate that this is new territory to explore. CLI-80-5, *supra*, 11 NRC at 409-10; LBP-81-32, *supra*, 14 NRC at 429 (¶ 118). The staff's testimony, however, reflects an earnest effort to look at the right factors — the experience of numerous utilities, the recommendations of various TMI-2 investigations and studies, and the views of the American Nuclear Society. Tr. 11,984-90.

TMIA's assertion that William Wegner and the other consultants from BETA have no management training or experience is similarly unwarranted. Wegner served for 15 years as Deputy to Admiral Hyman Rickover, Director of the Department of Energy's Division of Naval Reactors. Wegner's responsibilities in that position were extensive. Perhaps most relevant here is that he developed the Navy's senior officer training program, the purpose of which was to prepare commanding officers to manage the engineering operations under their control. Wegner's colleagues at BETA also have impressive credentials that show their expertise to testify on management issues. *See* Wegner, fol. Tr. 13,284, Attachment 1.¹⁰⁶

TMIA questions William Lee's objectivity and credibility because of his prominent position in the nuclear industry. Yet it is that prominent position — President of Duke Power Company, a recognized leader in the field by virtue of its experience in the design and construction, as well as operation, of commercial nuclear reactors — that qualifies Lee to testify on the indicia of good management. *See, e.g.*, LBP-81-32, *supra*, 14 NRC at 408, 430 (¶¶ 56, 120-121).¹⁰⁷ His testimony is favorable to licensee, as one would expect, especially in view of his role assisting Dieckamp soon after the accident. *See* p. 1258, *supra*. *See generally* Lee, fol. Tr. 13,251. But we are unable to conclude that his testimony is so inherently biased or incredible as to render it unreliable.

TMIA argues that the Licensing Board should have gone beyond the proffered testimony, but it does not explain what more the Board should or could have done. The record clearly shows the Board's active participation in the litigation of Issue 1. It requested licensee's high level managers to appear and testify at the hearing, it was liberal with regard

¹⁰⁶ Interestingly, TMIA in a later motion to reopen was more than willing to admit and rely on BETA's expertise. Through that motion, TMIA sought reopening on the basis of a more recent BETA Report, which criticized licensee's management on the basis of efficiency, not safety. *See* ALAB-738, *supra*, 18 NRC at 198-99.

¹⁰⁷ We thus distinguish Lee's testimony on management organization from his testimony on Issue 10, licensee's response to the TMI-2 accident, which we found not particularly probative or responsive. *See* p. 1258, *supra*.

to the scope of cross-examination, and it questioned the witnesses extensively itself. LBP-81-32, *supra*, 14 NRC at 401, 431 (¶¶ 41, 125). *See, e.g.*, Tr. 11,537-76, 13,263-81, 13,300-23. Further, the Board doggedly pursued the subsidiary issue of licensee's operational quality assurance program virtually on its own. LBP-81-32, *supra*, 14 NRC at 424-28 (¶¶ 107-115). Unlike the matters discussed in Section VI above, the Board did not leave open any fruitful areas of inquiry regarding licensee's management structure.

Most of TMIA's criticism of the Board's decision on Issue 1 is thus directed at the source of the evidence supporting that decision, rather than the substance of either the evidence or the decision. TMIA, however, challenges several particular Board findings. The first is that "[i]ndividual members of the management organization appearing before us seemed to have a clear understanding of their responsibilities, limitations, and the resources available to them." *Id.* at 410 (¶ 59). TMIA claims this is "irrelevant to a conclusion of management competence." TMIA's Brief at 21. TMIA's point has eluded us, for a manager's understanding of his or her responsibilities in *any* organization is an integral part of overall management competence. TMIA also contends that the Board's favorable comment on the demeanor of licensee's managers at the hearing is likewise "irrelevant." In this connection, it argues that the Board erred in finding several of these managers competent. *Ibid.* But the Board's observations about the witnesses' demeanor were entirely appropriate and relevant to — albeit not controlling on — the matter of their competence.¹⁰⁸ As the Board explained,

[c]onsidering the many days spent by some of them under cross-examination, the opportunities to reveal incompetence were abundant, but none of them appear[s] to be incompetent or intellectually unsuited for his assignment. They are very serious about their responsibilities but appear to be confident in their abilities.

LBP-81-32, *supra*, 14 NRC at 431 (¶ 127).¹⁰⁹

¹⁰⁸ TMIA's objections to the Board's comments on witness demeanor here are inconsistent with its argument on the role of witness demeanor insofar as Michael Ross is concerned. TMIA's Brief at 33. *See* p. 1218, *supra*.

¹⁰⁹ As for the four managers TMIA implies are incompetent, Arnold and Herbein are no longer employed by licensee GPU Nuclear (*see* note 45, *supra*); we have previously found no basis to question Shovlin's competence (*see* p. 1254, *supra*); and although we have no basis to find Dieckamp not competent, we have determined that further hearing on the circumstances of his mailgram to Congressman Udall is warranted (*see* p. 1268, *supra*).

B. Financial/Technical Relationship

As for Issue 6 — whether financial considerations can have an improper effect on technical decisions — TMIA again complains that the Board erred in relying exclusively on the assertedly unreliable testimony of licensee and staff witnesses, particularly that of Herman Dieckamp. TMIA questions Dieckamp's statement that safety always takes precedence over economics.¹¹⁰ It also contends that increased manpower (including in-house technical support) and expenditures, which licensee claims it devotes to TMI, do not necessarily mean safer operation.

We see no basis to disturb the Board's findings on Issue 6. Granted, there was little evidence on this issue (primarily that of Dieckamp), but no intervenor even proposed findings on it.¹¹¹ Unquestionably, Dieckamp's testimony is favorable to licensee, and not surprisingly so. That alone, however, does not render it unreliable. We have reviewed his statement and conclude, as did the Licensing Board, that there are enough "checks and balances" within the GPU budget process to assure that economics will not unduly affect technical necessity. *Id.* at 515-18 (¶¶ 392-400). *See* Dieckamp, fol. Tr. 13,437. We would agree with TMIA that increased manpower and expenditures do not necessarily guarantee that safety is licensee's paramount concern. On the other hand, as the Licensing Board recognized, it is some evidence of GPU's willingness to meet "the unique demands of its nuclear obligations." LBP-81-32, *supra*, 14 NRC at 518 (¶ 400). Moreover, the resolution of this issue must be viewed in the context of licensee's commitments and actions in the many other areas examined in this proceeding. We see no evidence on this record, and TMIA points to none, that would suggest that licensee has sacrificed the public health and safety for the sake of economy. *But see* Board Notification BN-83-152, *supra* note 97, at 2, and p. 1280, *infra*.

VIII. PROCEDURAL OBJECTIONS

Intervenors have raised a number of objections to the manner in which the hearing below was conducted. We have already addressed

¹¹⁰ According to TMIA, Dieckamp's statement in this regard conflicts with the evidence on licensee's "excessive" overtime practice. TMIA's Brief at 22. But as discussed at pp. 1256-57, *supra*, licensee's past overtime practice was not found to be excessive, and, for the future, overtime will be permitted only in accordance with Generic Letter No. 82-12.

¹¹¹ The Board correctly noted that the limited attention devoted to this by the staff was neither "adequately helpful," nor "entirely correct." The Board did, however, accept the staff's assessment that financial considerations would not unduly influence licensee's technical decisions. LBP-81-32, *supra*, 14 NRC at 514-15 (¶¶ 389-390). *See* Staff Exh. 4, NUREG-0680 (Supp. 1), at 26-27.

some of those objections in the context of particular issues to which they pertain. *See, e.g.*, pp. 1245-48, *supra*. We now turn to intervenors' remaining procedural complaints.

A. Intervenors' Lack of Resources

TMIA charges that the hearing process was a "fiasco." TMIA's Brief at 3. It stresses the wide imbalance of resources between it, on the one hand, and licensee and the staff, on the other. In TMIA's view, the Licensing Board showed a "callous disregard" for its hardships and made no attempt to assist it. *Id.* at 2, 3.

TMIA's criticism of the Board and hearing process is simply not warranted. We have noted at numerous instances throughout this decision the Board's sensitivity to intervenors' lack of funds and expertise, as well as its active participation in assuring the fullest possible development of the record on almost all issues. But the fact of the matter is, the Board could do no more. In CLI-80-19, 11 NRC 700 (1980), the Commission (reluctantly) denied a specific request for intervenor funding in this case on the basis of advice from the Comptroller General and its own understanding of the appropriations legislation for fiscal year 1980. A subsequent Comptroller General letter decision, No. B-200585 (December 3, 1980), concluded that the fiscal year 1981 appropriations legislation for the NRC precluded intervenor assistance. Accordingly, the Commission Chairman directed that any such assistance cease, including the provision of free hearing transcripts. *See Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-625, 13 NRC 13, 14-15 (1981). Thus, the Board was prohibited by law from "balancing" the resources of the parties. The very length of the record and the myriad Licensing Board and Appeal Board decisions in this proceeding, however, are testament to the meaningful role intervenors were permitted to play, and did in fact play.

B. Pace of the Hearing

Both TMIA and the Aamodts complain in general terms that the pace of discovery and the hearing itself (especially on the cheating matter) was too fast. But they provide no specifics to aid our review of their claim. For our part, we can only observe that the hearing stretched over a period of many months and seemingly adequate opportunity for discovery was provided. We also note again that, except for the specific areas identified in this decision, the record is fully developed and shows substantial participation by intervenors in cross-examination of many licen-

see and staff witnesses. Despite their admittedly limited resources, intervenors nevertheless appear to have kept "up to speed" for much of the hearing, suggesting that the pace was not unfairly rigorous.

The Aamodts complain further that they have been prejudiced by an oral ruling of the Licensing Board on January 18, 1982. That ruling denied them an extension of time in which to supplement their proposed findings on the cheating incidents. Aamodt Brief at 32. Again, we are denied the specific dimensions of their argument. The record, however, reflects the following. All parties had agreed upon a schedule for filing proposed findings. Because they had not obtained access to all transcripts as promptly as they anticipated, the Aamodts sought and obtained from the Board (acting on behalf of the Special Master) two extensions of time to file. The Board, however, denied a further extension request. The Aamodts thus filed some findings but subsequently sought to file others. The Special Master denied the latter attempt, finding no good cause for their delay. The Aamodts tried once more, and again the Special Master found no basis to accept the late material. *See* Special Master Memorandum and Order of February 11, 1982 (unpublished); Special Master Memorandum and Order of April 14, 1982 (unpublished); Aamodt Proposed Findings (January 18, 1982) at 19-20.

The Aamodts have provided us with no reason to overturn these several Board and Special Master rulings. They had ample opportunity to plead their cause below and did not succeed. Further, they have failed on appeal to show or explain how they have *in fact* been prejudiced.¹¹²

Although it does not relate directly to the pace of the hearing, the Aamodts also complain that the public address system at some hearing sessions was "prejudicial" to members of the public. Aamodt Brief at 30. Although the Aamodts provide no particular citations to the record or evidence of such prejudice, the transcript shows an appropriate degree of sensitivity by the Board to this issue. *See, e.g.*, Tr. 12,141-42. Appellate review can effectively provide no more. It is, of course, the hearing participants' obligation to alert boards to this type of problem at the time it occurs. It must be remembered, however, that the tradeoff for holding hearings near the reactor site is that the hearing facilities may well be less than optimum.

C. The Sequestration Order

During the reopened hearing on cheating, the Special Master issued a sequestration order at the request of some parties. The general purpose

¹¹² We note that the proposed findings were directed to the Special Master, whose decision was in large part compatible with the Aamodts' view of the reopened hearing on cheating.

of the order was to prevent witnesses presently or formerly employed by licensee from discussing their testimony with one another. Tr. 23,532. The order thus provided that, except for certain exceptions not pertinent here, no prospective witness was to be in the hearing room while another witness was testifying. Such witnesses were also precluded from discussing before or after their testimony certain specified matters concerning the examination process. Special Master Sequestration Order of November 12, 1981 (unpublished).

On the last day of the hearing, the Aamodts orally moved to stay the hearing pending a separate evidentiary hearing on certain contacts between licensee's counsel and two licensee witnesses, allegedly in violation of the sequestration order. See Tr. 26,712-13. The Aamodts contended that this was evidence of what they believed was a pattern of improper coaching of witnesses by licensee's counsel. They inferred such coaching because many of licensee's witnesses were not, in their opinion, forthcoming in their testimony. Licensee, the staff, and the Commonwealth opposed the motion. Licensee's counsel vigorously denied the charges of impropriety. He claimed that the discussion with two licensee witnesses about the unexpected testimony of an NRC staff witness did not constitute a breach of the order.¹¹³

The Special Master denied the Aamodts' motion. Although he himself was disappointed in the quality of much of the testimony, he found no evidence of a pattern of improper witness coaching. He also concluded that licensee's counsel had acted on a good faith interpretation of the sequestration order. Tr. 26,788-99. A month later, the Aamodts sought reconsideration, and the Special Master denied that as well. He determined that the relief requested — a stay and collateral proceeding — was disproportionate to the limited fact of counsel's one communication. The Special Master confirmed his views that there was no violation of the literal terms of the sequestration order, and that counsel had acted out of a good faith desire to obtain information useful in cross-examination of a staff witness who had provided direct testimony not previously revealed during discovery. Special Master Memorandum and Order of February 9, 1982 (unpublished).

The Aamodts argue on appeal that licensee violated the spirit, if not the letter, of the sequestration order, and that the Special Master's ruling was thus in error. We find no error in the Special Master's ruling. Clearly, there was no literal violation of the order, as the Aamodts concede. We are also inclined to find no violation of the spirit of the order. There is nothing in the discussions surrounding the adoption of

¹¹³ The testimony concerned the incident involving Husted and P, discussed briefly at p. 1221, *supra*.

the order that suggests the parties contemplated its application to the preparation of licensee's counsel for *cross-examination* of a *staff* witness. *See, e.g.*, Tr. 23,532-55, 23,838-59, 23,910-11. On the other hand, those same discussions show the desire of licensee's counsel to comply with the letter *and* spirit of the order, while at the same time fulfilling his professional responsibilities to his client. *Ibid.* But even if the action of licensee's counsel could reasonably be construed as contrary to the intent of the order, we believe the Special Master's measured response was appropriate. Licensee's counsel was bound by his own ethical obligations to prepare for cross-examination of the staff witness on his "surprise" testimony. Had that testimony been revealed in discovery or in a prefiled direct statement, licensee's counsel surely could have prepared for cross-examination by discussing it with his own witnesses. There is also no evidence of more than one such instance, or any real indication that counsel improperly coached any witness. *See generally Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-691, 16 NRC 897, 918-19 (1982), *review declined*, CLI-83-2, *supra*, 17 NRC 69 (1983). The Special Master thus rightly concluded that counsel had acted in good faith and no further inquiry or sanction is warranted.

IX. MOTION TO REOPEN: LEAK RATE FALSIFICATION AT TMI-1

The final matter before us at this juncture is the Aamodts' motion to reopen the record to examine allegations of falsification of leak rate data at TMI-1. In ALAB-738, *supra*, we granted motions to reopen, filed by both TMIA and the Aamodts, for hearing on similar allegations concerning TMI-2 (the Hartman allegations) and remanded the matter to the Licensing Board. *See* 18 NRC at 183-92 for a discussion of the allegations and our disposition of the motions.¹¹⁴ Soon thereafter, we received a series of Board Notifications, in which the staff concluded, contrary to its earlier position in Staff Exh. 13, NUREG-0680 (Supp. No. 2), at 9-10, that there were indications of the same practices concerning leak rate testing at Unit 1 as had been discovered at Unit 2. *See* Board Notifications BN-83-138 (September 2, 1983); BN-83-138A (September 23,

¹¹⁴ Although no party sought review of our decision, the Commission has indefinitely stayed that hearing. Commission Order of October 7, 1983, *supra*. One month later, a federal Grand Jury handed down an 11-count criminal indictment against licensee's corporate predecessor, Metropolitan Edison, in connection with the Hartman allegations. On February 28, 1984, Met Ed pleaded guilty to one count and no contest to six others. The remaining four counts were dismissed on the U.S. Attorney's recommendation. The company was fined and ordered to establish a \$1 million fund for emergency planning. Notice to Commission, *et al.* (March 2, 1984), Attachment (Plea Agreement).

1983); BN-83-138B (October 6, 1983); BN-83-138C (October 25, 1983). See also LBP-81-32, *supra*, 14 NRC at 557 (¶¶ 504-506). On January 24, 1984, not long after oral argument of these appeals, the Aamodts moved to reopen, primarily on the basis of these Board Notifications and their underlying documents.

UCS supports the Aamodts' motion.¹¹⁵ The staff also supports it, on alternative theories. The staff believes that the issue of leak rate testing irregularities at TMI-1 is within the scope of the reopened hearing we have already ordered on the Hartman allegations. In the alternative, it argues that the Aamodts' motion meets the standards for reopening as we applied them in ALAB-738. Licensee opposes the Aamodts' motion solely on the basis that they have not met their considerable burden of showing that a different result might have been reached had this information been considered initially. Licensee's Response to Aamodt Motion (February 8, 1984) at 4.¹¹⁶ Licensee contends that the Board Notifications do not contain sufficient facts to provide a basis for reopening. It thus urges us to await the outcome of the investigations that the staff indicated in the Board Notifications were under way. *Id.* at 3-4. Curiously, however, licensee volunteers that it was prepared to litigate Unit 1 leak rate testing practices at the reopened hearing on the Hartman allegations. *Id.* at 2.

We grant the Aamodts' motion and remand this matter to the Licensing Board for hearing. We note at the outset that we cannot agree with the staff's belief that alleged falsification of leak rate data at TMI-1 is encompassed within the reopened hearing on the Hartman allegations. To be sure, the matters are closely related. Hartman's allegations, however, were expressly limited to Unit 2.¹¹⁷ We also noted differences in the classifications of the leakage pathways for the two units. ALAB-738, *supra*, 18 NRC at 192 n.30. Thus, there would have been no basis *at that time* for our reopening the record to explore leak rate practices at both units.

But now the staff has brought to our attention, through its Board Notifications, its actual change in position with regard to Unit 1 from that originally stated in Staff Exh. 13, NUREG-0680 (Supp. No. 2). We explained in ALAB-738, *supra*, 18 NRC at 189-90, our belief that, because the Licensing Board made its management competence decision subject to the then-ongoing Department of Justice investigation into the

¹¹⁵ TMIA filed no response to it.

¹¹⁶ Thus, no party challenges the other two criteria considered for reopening — the timeliness of the Aamodts' motion or the significance of the matter it raises. See *Diablo Canyon*, *supra*, 11 NRC at 879.

¹¹⁷ During an interview, in fact, Hartman stated his belief that the operators at Unit 1 never had any problem getting "good" leak rate data. Faegre & Benson Report, Vol. Four, Hartman Interview at 76.

Hartman allegations referenced in NUREG-0680, it effectively determined that consideration of that matter might well have made a difference in the outcome.¹¹⁸ The same necessarily follows for the new allegations concerning leak rate practices at TMI-1. Indeed, as the staff notes, the implications of the new allegations are potentially more significant, inasmuch as they involve the very unit that is the subject of this restart proceeding. See NRC Staff's Answer to Aamodt Motion (February 9, 1984) at 5 n.3.

Our decision to grant the Aamodts' Motion is only reinforced by the Investigative Reports (# 1-83-028 and supplement) and underlying documents recently served on the parties and us.¹¹⁹ The overall conclusion of the reports is favorable to licensee: neither a systematic pattern of falsification nor a motive to falsify the leak rate data was discovered. On the other hand, the reports disclosed (1) a lack of understanding concerning record keeping requirements; (2) ignorance (over a period of several years) by both operating staff and management of the existence and significance for leak rate calculations of a "loop seal" in the instrumentation system; and (3) inattention during the pre-accident period to work requests that would have highlighted the loop seal problem. These reports and documents are not before us as evidence. But we believe they are the type of material that is best scrutinized by the Licensing Board as part of its review of *all* of the circumstances surrounding the leak rate testing practices at Unit 1. Licensee was prepared to address this matter at the reopened hearing. See p. 1277, *supra*. Hence, it is logical that the Licensing Board consider it in conjunction with the hearing we have ordered on the Hartman allegations.¹²⁰

X. SUMMARY AND CONCLUSIONS

We have considered all the myriad arguments raised on appeal and have reviewed the extensive record.¹²¹ Many of those arguments are

¹¹⁸ Interestingly, licensee did not argue that intervenors failed to meet their burden on this point in their motions to reopen on the Hartman allegations. See ALAB-738, *supra*, 18 NRC at 189 n.20.

¹¹⁹ These are the reports that licensee requested we await before ruling on the Aamodts' motion.

¹²⁰ Licensee has informed us that it has commissioned its own investigation on leak rate measurement practices at TMI-1 and TMI-2. Letter from D.B. Bauser to Appeal Board (February 7, 1984). Presumably, it would introduce the results of that inquiry into evidence at the hearing.

¹²¹ Many of the points raised by intervenors were not properly preserved for appeal, not fully developed, not supported by citations to the record, or based on references to the record or other authority that did not support the points for which they were cited. Nonetheless, we have endeavored in this opinion to discuss specifically all discernible arguments. Those not addressed are without merit.

We also stress that the Licensing Board and Special Master issued a total of three very comprehensive, well written, and well organized opinions and numerous orders solely on management

(Continued)

without merit. Others have been essentially mooted by the passage of time, personnel changes, or superseding regulatory requirements. But in several important areas, we agree with intervenors that the record does not support the Licensing Board's favorable findings concerning licensee's management of TMI-1. We therefore find it necessary to remand this proceeding to that Board for further record development in those areas.

The most significant issue requiring further hearing is training. Because the safe operation of the plant is so heavily dependent upon the operators' skill, the importance of training cannot be overstated. The cheating and related incidents called into question the adequacy and integrity of licensee's entire training and testing program. Although we have found that the reopened record on the cheating itself was as fully developed as possible,¹²² the impact of those findings on the Licensing Board's earlier conclusions on licensee's training program was not given the full consideration it warrants. In particular, the Board should have sought further testimony, in light of the cheating incidents, from the OARP Review Committee, whose views the Board previously found so persuasive.

Another important area where the record is not as complete as it should be concerns the response of licensee's management to the TMI-2 accident. The Board was obliged to pursue this Commission-mandated issue as thoroughly as possible. To the extent that it did not satisfactorily resolve questions concerning the actions of Gary Miller and John Herbein in the flow of information the day of the accident, it erred. But because neither is now employed by licensee, we see no useful purpose in pursuing the matter at a further hearing. The record on this issue is also incomplete with regard to the circumstances surrounding a mailgram sent by GPU President Herman Dieckamp to Congressman Morris Udall. The Board's reliance on the NRC staff's assessment of this matter was not justified; the Board should have inquired more deeply on its

issues. There was thus no need for our own recitation of all the facts developed at the hearing, especially on issues not the subject of any appeal. That is not to say, however, that we have failed to abide by our commitment in ALAB-685, 16 NRC 449, 451-52 (1982), to consider the whole record. Matters not specifically addressed, in our view, do not warrant corrective action.

¹²² Subject to a few exceptions, we are also in general agreement with most of the Board's findings regarding the various individuals implicated in the cheating. We support the conditions imposed by the Board in that regard and expect licensee to abide by the commitments reflected in its agreement with the Commonwealth.

A related development subsequent to the Board's decision on cheating — the promotion of Charles Husted — warrants the imposition of another condition. The record, in our view, gives us cause to question licensee's judgment in this matter. We therefore require that licensee not delegate any supervisory responsibilities to Husted insofar as the training of non-licensed personnel is concerned.

own. Because Dieckamp remains an important corporate official, we believe the matter must be further explored, and accordingly we remand to the Board for additional hearing on this limited issue.

We are also persuaded that the record should be reopened for hearing on the allegations of improper leak rate practices at TMI-1. As we previously concluded in ALAB-738, *supra*, with regard to similar allegations at TMI-2, these charges raise significant questions that may well have affected the Licensing Board's management decision, had it been fully apprised of the facts at the time.

We have several concluding observations. Appellate review requires us to base our judgment on the adjudicatory record, though we have not been reluctant to take note of newly supplied, essentially "objective" information that served to clarify a point or moot an issue. We are, of course, aware of several recent reports that are generally favorable to licensee's restructured, new management.¹²³ But these and other such subjective documents are not evidence and thus have not been fairly tested through litigation. We are likewise aware of several ongoing investigations by the NRC that cast a shadow over the record on several issues before us — for example, the effect of financial considerations on technical judgments. *See* Board Notification BN-83-152, *supra*, Enclosure (NUREG-1020, Vol. 1, at 10-1 to 10-24). But unresolved allegations similarly cannot supply a reasoned basis for a decision. We previously reopened the record in this proceeding for hearing on the Hartman allegations, and we further reopen here on related charges. Moreover, we find it necessary to remand for additional hearing before the Licensing Board on several important issues, including training. In sum, what we said in ALAB-738, *supra*, still holds true: "we cannot make any final judgment on appeal as to licensee's management competence and integrity without an adequate record." 18 NRC at 190. From our perspective, the final chapters of this proceeding are yet to be written.

This proceeding is reopened and remanded to the Licensing Board for further hearing in accordance with this opinion.

¹²³ Examples are the November 1983 report by Admiral Rickover, "An Assessment of the GPU Nuclear Corporation Organization and Senior Management and Its Competence to Operate TMI-1," and the NRC staff's most recent Systematic Assessment of Licensee Performance (SALP Board Report) (April 2, 1984).

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

APPENDIX A

Specific management competence issues (CLI-80-5, *supra*, 11 NRC at 408-09):

- (1) Whether Metropolitan Edison's command and administrative structure, at both the plant and corporate levels, is appropriately organized to assure safe operation of Unit 1;
- (2) whether the operations and technical staff of Unit 1 is qualified to operate Unit 1 safely (the adequacy of the facility's maintenance program should be among the matters considered by the Board);
- (3) [w]hat are the views of the NRC inspectors regarding the quality of the management of TMI Unit 1 and the corporate management, staffing, organization and resources of Metropolitan Edison;
- (4) whether the Unit 1 Health Physics program is appropriately organized and staffed with qualified individuals to ensure the safe operation of the facility;
- (5) whether the Unit 1 Radiation Waste system is appropriately staffed with qualified individuals to ensure the safe operation of the facility;
- (6) whether the relationship between Metropolitan Edison's corporate finance and technical departments is such as to prevent financial considerations from having an improper impact upon technical decisions;
- (7) whether Metropolitan Edison has made adequate provision for groups of qualified individuals to provide safety review of and operational advice regarding Unit 1;
- (8) what, if any, conclusions regarding Metropolitan Edison's ability to operate Unit 1 safely can be drawn from a comparison of the number and type of past infractions of NRC regulations attributable to the Three Mile Island Units with industry-wide infraction statistics;
- (9) what, if any, conclusions regarding Metropolitan Edison's ability to operate Unit 1 safely can be drawn from a comparison of the number and type of past Licensee Event Reports ("LER") and the licensee's operating experience at the Three Mile Island Units with industry-wide statistics on LER's and operating experience;
- (10) whether the actions of Metropolitan Edison's corporate or plant management (or any part or individual member thereof) in connection with the accident at

- Unit 2 reveal deficiencies in the corporate or plant management that must be corrected before Unit 1 can be operated safely;
- (11) whether Metropolitan Edison possesses sufficient in-house technical capability to ensure the simultaneous safe operation of Unit 1 and clean-up Unit 2. If Metropolitan Edison possesses insufficient technical resources, the Board should examine arrangements, if any, which Metropolitan Edison has made with its vendor and architect-engineer to supply the necessary technical expertise;
 - (12) whether Metropolitan Edison possesses the financial resources necessary to safely operate Unit 1 in addition to cleaning up Unit 2;* and
 - (13) such other specific issues as the Board deems relevant to the resolution of the issues set forth in this order.

APPENDIX B

Specific issues in the reopened proceeding on cheating (Licensing Board Memorandum and Order of October 14, 1981 (unpublished), *supra*, at 2-4):

1. The extent of cheating by TMI-1 operator license candidates on the NRC license examinations in April 1981, and on any other Licensee- or NRC-administered examinations, including but not limited to the following: the Kelly examinations (including Category T) in April 1980; Category T make-up examinations subsequently administered by the company; the ATTS mock examinations in early April 1981; and such other examinations as the Special Master shall deem relevant. These latter shall include any other Licensee-administered qualification or mock exam or NRC-administered exam since the accident at TMI-2.
2. The adequacy of the Staff's investigation of, and NRC response to, the cheating incident and rumors of cheating in the April 1981 NRC examinations.
3. The adequacy of Licensee's investigation of, and Licensee's response to, cheating or possible cheating in the examinations listed in Issue 1 above.
4. [Issue 4 has been combined with Issue 3.]
5. The extent of Licensee management knowledge of, encouragement of, negligent failure to prevent, and/or involvement in cheating in the above mentioned NRC and Licensee examinations.
6. The existence and extent of Licensee management involvement in cheating as alleged by the Aamodts in paragraph 7 in response to the Board's Order of August 20, 1981.
7. The existence and extent of Licensee management constraints on the NRC investigation of cheating and rumors of cheating in the NRC April 1981 examinations.
8. The adequacy of Licensee management response to the incident in July 1979 referred to in the IE investigation report and involving one of the two operators terminated as a result of cheating on the NRC April 1981 examinations.

*The Commission later eliminated this as an issue for consideration at hearing. CLI-81-3, 13 NRC 291, 296-97 (1981).

9. The adequacy of Licensee's plans for improving the administration of future Licensee qualification examinations for licensed operators and candidates for operator licenses, including the need for independent administration and grading of such examinations.
10. The adequacy of the administration of NRC licensing examinations for TMI-1 personnel, including proctoring, grading, and safeguarding the integrity of examination materials; the adequacy of the Staff's review of the administration of Licensee's Category T examinations; and the adequacy of the Staff's plan for retesting operators and monitoring its NRC examinations to assure proper adherence to NRC testing requirements in order to assure that the purposes of the NRC examinations, because of the nature of the questions, cannot be defeated by cheating, the use of crib sheets, undue coaching or other evasive devices.
11. The potential impact of NRC examinations, including retests, and operator terminations on the adequacy of staffing of TMI-1 operations.
12. The sufficiency of management criteria and procedures for certification of operator license candidates to the NRC with respect to the integrity of such candidates and the sufficiency of the procedures with respect to the competence of such candidates.

APPENDIX C

TMIA's contention 5, in its final form, states (LBP-81-32, *supra*, 14 NRC at 479):

It is contended that Licensee has pursued a course of conduct that is in violation of 10 CFR 50.57, 10 CFR 50.40, 10 CFR 50.36, 10 CFR 50.71 and 10 CFR 50 Appendix B, thereby demonstrating that Licensee is not "technically . . . qualified to" operate TMI Unit 1 "without endangering the health and safety of the public." This course of conduct includes:

- a. deferring safety-related maintenance and repair beyond the point established by its own procedures (see, e.g. A.P. 1407);
- b. disregarding the importance of safety-related maintenance in safely operating a nuclear plant in that it:
 1. [deleted]
 2. proposed a drastic cut in the maintenance budget;
 3. [deleted]
 4. fails to keep accurate and complete maintenance records related to safety items;
 5. has inadequate and understaffed QA/QC programs related to maintenance;
 6. extensively uses overtime in performing safety-related maintenance.



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Charles Bechhoefer, Chairman
Dr. Frederick P. Cowan
Dr. Jerry Harbour**

In the Matter of

**Docket Nos. 50-329-OM&OL
50-330-OM&OL
(ASLBP Nos. 78-389-03-OL
80-429-02-SP)**

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

May 7, 1984

The Licensing Board admits two of three proposed contentions based upon allegations made in complaint filed by a third party in a civil lawsuit against the Applicant.

**LICENSING BOARDS: AUTHORITY TO REGULATE
PROCEEDINGS**

The Licensing Board declines to utilize its general authority to shape the course of a proceeding, 10 C.F.R. § 2.718(e), as foundation to accept a proposed late-filed contention or to consider what is in essence a motion to reopen the record, in the face of explicit Commission standards governing those situations.

RULES OF PRACTICE: CONTENTION, ADMISSIBILITY OF

The specificity and basis requirements for a proposed contention, 10 C.F.R. § 2.714(b), are satisfied where the contention is based upon allegations in a sworn complaint filed in a judicial action (notwithstanding that the allegations are contested), and the applicable passages therein are specifically identified. Further basis is found in several documents, although they may be subject to multiple interpretations.

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS

In balancing the five factors considered in determining the admissibility of late-filed contentions, 10 C.F.R. § 2.714(a), a licensing board must consider all five factors but need not give the same weight to each factor; where a proponent demonstrates "good cause" for late filing, the showing required on the other factors is diminished.

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

Where proposed new contentions were proffered prior to close of the record in the segment of the proceeding in which the matters were litigated, but the ruling upon the contentions takes place subsequent to the record's closing, the choice of governing standards is based upon the status of the record at the time the proposed contentions were first offered: whether the contention was timely proffered, and whether it presents important information regarding a significant issue.

MEMORANDUM AND ORDER

(Ruling on Motions Arising from Dow Litigation)

On July 14, 1983, Dow Chemical Co. filed suit in the Circuit Court for the County of Midland, Michigan against Consumers Power Co. (hereinafter CPC or Applicant), seeking a declaratory judgment and monetary relief arising out of a contract under which the Applicant agreed to supply Dow with steam to be produced by the Midland facility. During our first hearing session in Midland, Michigan following that filing, Ms. Barbara Stamiris and Ms. Mary Sinclair, Intervenors in this consolidated proceeding, each filed a motion based on the Dow lawsuit. Ms. Stamiris seeks to litigate in the OM proceeding three contentions based on Dow's complaint (Dow contentions). Ms. Sinclair seeks to

hold open the OM/OL record pending the completion of the Dow lawsuit.

The Applicant opposes litigation of all three of the Dow contentions. The NRC Staff would have us litigate all three of them. Both the Applicant and Staff oppose Ms. Sinclair's motion.

For reasons hereinafter set forth, we admit for litigation two of the three contentions proposed by Ms. Stamiris and decline to admit the third. We also deny Ms. Sinclair's motion, but without prejudice to her moving to supplement or reopen the record should the Dow lawsuit uncover information of significance to this proceeding and not a part of the existing record or the record to be developed hereafter.

I. STAMIRIS MOTION

A. Ms. Stamiris' motion was presented orally on July 28, 1983 (Tr. 19,358-65) and was followed by a written motion dated August 8, 1983 (corrected on August 12, 1983). As set forth in the written motion, Ms. Stamiris is seeking to litigate the following three contentions derived from the Dow lawsuit:¹

1. Consumers misrepresented its time schedule for completion of the Midland plants to the NRC, including the NRC Staff and this Licensing Board. *See* paragraphs 20, 37, 39-48.
2. Consumers used and relied on U.S. Testing test results to fulfill NRC regulatory requirements while knowing that these test results were invalid. *See* par. 24, 35.
3. Consumers knowingly represented to the NRC that the single test boring taken near the diesel generator building demonstrated that unmixed cohesive fill had been used as a foundation for safety-related structures at the site even though this test boring actually indicated that random fill had been improperly used in these areas. *See* par. 27.²

¹ The July 14, 1983 complaint was dismissed by the Court *sua sponte* for procedural reasons on July 15, 1983, with directions to Dow to file a complaint complying with specified procedures within 10 days. Dow filed a First Amended Complaint on July 18, 1983. Paragraph references in the proposed contentions refer to paragraphs of the initial July 14, 1983 complaint (which is considerably more detailed than the First Amended Complaint).

² This third contention was later restated as follows:

Consumers knowingly misrepresented to the NRC that a single test boring taken near the diesel generator building indicated that unmixed cohesive fill had been used, or alternatively, did not disclose to the NRC that the single test boring demonstrated the use of random, improperly compacted fill in the area and constituted evidence of site-wide problems.

Second Supplemental Memorandum, dated October 5, 1983.

Ms. Stamiris further sought discovery on these contentions, both in the form of new discovery and as a claim that certain documents referenced in the Dow complaint had not been turned over to her in response to earlier discovery requests which, she claims, called for production of such documents.

On August 17, 1983, the Applicant filed a response (corrected on August 18, 1983) which offered to make available to parties the documents which it had provided to Dow ("Dow documents") and to which reference was made in the Dow complaint. The Applicant urged that we defer ruling on the contentions pending examination by the Intervenor of the Dow documents, and that, if Ms. Stamiris found it appropriate, she should thereafter supplement or resubmit her motion. On the merits, however, the Applicant set forth its grounds for opposing all three contentions.

In a telephone conference call on August 25, 1983, we heard arguments of all parties concerning the Applicant's response and we adopted the Applicant's suggestion that we defer ruling on Ms. Stamiris' proposed contentions and request for discovery until such time as all parties had had a chance to review the Dow documents. We also requested the Applicant to make available certain other documents. Memorandum and Order (Memorializing Telephone Conference Call of 8/25/83), dated August 29, 1983. On or about August 25, 1983, the Applicant made available the Dow documents; on September 14, 1983 it provided the additional documents identified by the Board.

Thereafter, on September 21, 1983, Ms. Stamiris filed a Supplemental Memorandum which, as a result of time constraints (Tr. 20,792), was limited to the first of her contentions. On the same day, we held oral argument on all of her contentions, in which all parties participated (Tr. 20,791-873). At that time, the Staff took the position that all three should be accepted (Tr. 20,805-06). On October 5, 1983, with leave of the Board granted on September 23, 1983 (Tr. 21,202), Ms. Stamiris filed a Second Supplemental Memorandum, in support of her second and third proposed contentions. The Applicant filed a written response on October 14, 1983 (corrected on October 17, 1983). We heard further argument on those contentions on October 31 (Tr. 21,297-305).

During the early part of April 1984, counsel for the Applicant and NRC Staff each telephoned the Board to advise us that each would be filing additional information bearing on the Dow contentions and to suggest that we defer our ruling on those contentions (which was then

imminent) until we had received the additional information.³ We have followed that suggested course of action.

The first communication we received was a Board Notification from the Staff (BN 84-091), dated April 27, 1984, advising that an allegation regarding misrepresentation of soils data provided to NRC had been received, that it could be material and relevant both to QA/QC issues before us and to the proposed Dow contentions, and that the allegation was being referred to the Office of Investigations (OI) for evaluation. No additional identifying information was set forth, but we presume (from the reference to "soils data") that the information would have a bearing on the second or third proposed contention.

The second communication we received was a letter from the Applicant, dated April 30, 1984, advising that CPC had become aware of discrepancies in records of several borings made during the 1977 investigation of the settlement of the administration building. This information has a potential relevance to proposed contentions 2 and 3.⁴

Finally, by letter also dated April 30, 1984, the Applicant advised us that document discovery in the CPC-Dow litigation had brought to light certain Bechtel documents bearing on Bechtel Forecast 6 which, according to the Applicant, may be inconsistent with its response to Ms. Stamiris' motion. (This is the information about which the Applicant had earlier notified us.) The Applicant further advised that the Bechtel documents are subject to a protective order in the Dow litigation and cannot be released at this time. CPC suggests that we rule on the "Dow" issues without regard to the newly discovered information (although it offers to initiate the process under the protective order for disclosure of the documents, if we deem it necessary).

B. In proposing her contentions, Ms. Stamiris asserts that all three of them bear on her already-admitted management attitude contentions and that, accordingly, the record should be supplemented or reopened to incorporate the newly developed information brought out by the Dow complaint. In her written motion, she asserts that, in considering her proposals, we should act under our inherent authority to shape the course of proceedings over which we preside (*citing, inter alia, Offshore Power Systems* (Floating Nuclear Power Plants), ALAB-489, 8 NRC 194, 201-08 (1978); 10 C.F.R. § 2.718(e); and 5 U.S.C. § 556(c)).

In contrast, the Applicant regards the first contention as a new contention and thus subject to the requirements for late-filed contentions set

³ The Applicant confirmed its telephone communication by letter dated April 17, 1984, which has been circulated to all parties.

⁴ Apparently this is not the information which the Applicant advised us by telephone was forthcoming.

forth in 10 C.F.R. § 2.714(a). With respect to the second and third contentions, the Applicant would utilize the standards for reopening a record. In asserting that we should consider all three new issues, the Staff does not definitively spell out what standards we should utilize.

We recognize that Ms. Stamiris has raised a number of management-attitude issues in this proceeding and that her first issue here bears ultimately on that subject. Nonetheless, the subject matter of her other management-attitude contentions — *i.e.*, “providing information [to NRC] relevant to health and safety standards with respect to resolving the soil settlement problems” (OM Contention 1), and implementation of the QA program with respect to soil settlement issues (OM Contention 3) — is far removed from the scheduling representations on which the first proposed contention is founded. In admitting Ms. Stamiris’ earlier management-attitude contentions, we explicitly limited their managerial-attitude aspects “to factors which could be said to bear upon the Applicant’s managerial attitude in resolving [soil settlement] issues.” Prehearing Conference Order, dated October 24, 1980, at 4 (unpublished). The management attitude alleged in the first proposed contention (as well as in the material false statement alleged in the Modification Order) may be analogous to (and hence have some bearing on) the attitude alleged in OM Contentions 1 and 3, but the technical subject matter is disparate enough that the first proposed contention must properly be deemed a new contention.

That being so, we seriously doubt whether we could employ our general authority to shape the course of a proceeding as the foundation for accepting such a new contention, particularly since the Commission has in place explicit standards for dealing with new “late-filed” contentions. 10 C.F.R. § 2.714(a).⁵ We thus will apply the standards for late-filed contentions in determining whether the first proposed contention should be accepted.

As for the second and third contentions, both raise allegedly new information bearing on issues already litigated. Ms. Stamiris’ motion for us to consider this information is in substance a motion to reopen the record on such issues. Because the Commission has explicit standards governing the reopening of the record of a proceeding to consider new information on issues already litigated, we decline to use our general authority to shape the course of a proceeding as the foundation for considering what in essence is a motion to reopen the record. We will instead

⁵ A “late-filed” contention is any contention filed after 15 days prior to the first special prehearing conference which (in the OM proceeding) was held in September 1980. 10 C.F.R. § 2.714(b); *see Consumers Power Co. (Midland Plant, Units 1 and 2)*, LBP-82-63, 16 NRC 571, 576 (1982).

consider the second and third contentions under standards for reopening the record.⁶

The allegedly new information in these contentions was proffered prior to the close of the record on the segment of the proceeding in which the matters were litigated. For that reason, we will evaluate these contentions on the basis of the same standards we spelled out in ruling on motions of Ms. Stamiris and the Applicant earlier in this proceeding — *i.e.*, whether the motion was timely and whether it presents important information regarding a significant issue. See Memorandum and Order (Denying Motion to Reopen Record on Containment Cracks), LBP-83-50, 18 NRC 242, 246-48 (1983); Applicant's Motion to Reopen and Supplement the Record on Sinclair Contention 14, dated October 28, 1983, at 1-3 (ruled upon favorably by Licensing Board at Tr. 22,655-56).⁷ See also p. 1296, *infra*.

C. We now turn to each of Ms. Stamiris' proposed contentions.

1. Inasmuch as we are considering Ms. Stamiris' first contention — which alleges that Consumers misrepresented to the NRC the time schedule for completion of the facility — as a late-filed contention, we must initially consider whether the contention meets normal contention requirements. If so, we must additionally consider the factors for late-filed contentions set forth in 10 C.F.R. § 2.714(a) — *i.e.*:

- (i) Good cause, if any, for failure to file on time.
- (ii) The availability of other means whereby the petitioner's interest will be protected.
- (iii) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.
- (iv) The extent to which the petitioner's interest will be represented by existing parties.
- (v) The extent to which the petitioner's participation will broaden the issues or delay the proceeding.

In applying these factors, we must determine whether application of all of the five factors, on balance, favors admission of the contention. *Duke Power Co. (Catawba Nuclear Station, Units 1 and 2)*, CLI-83-19,

⁶ The Applicant would also have us apply the standards for reopening a record to the first contention (response at 6-7, 28-29). If we regarded the contention as adding new information to matters already litigated, we would have done so (but would not apply standards for late-filed contentions). Since we regard the first proposed contention as a new contention, and since (as Ms. Stamiris points out, Tr. 20,838) the OM record was not closed at the time it was filed, we decline to apply the standards for reopening a record to that contention.

⁷ The circumstance that our ruling here follows the closing of the record of a major segment of the OM/OL proceeding does not alter the governing standards, which are based on the status of the record at the time the proposed contentions were first offered. *Cf. Houston Lighting and Power Co. (South Texas Project, Units 1 and 2)*, LBP-84-13, 19 NRC 659, 716 n.43 (1983).

17 NRC 1041 (1983); see also *Consumers Power Co.* (Midland Plant, Units 1 and 2), LBP-82-63, 16 NRC 571, 576-78 (1982). In balancing the factors, however, we are not necessarily required to give the same weight to each one of them. *Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Unit 2), ALAB-420, 6 NRC 8, 22 (1977) (cited approvingly by the Commission in *Catawba*, CLI-83-19, *supra*, 17 NRC at 1046); *Midland*, LBP-82-63, *supra*, 16 NRC at 577. Where a proponent demonstrates "good cause" for late filing, the showing required on the other factors is decreased. *St. Lucie*, ALAB-420, *supra*, 6 NRC at 22; *Wisconsin Public Service Corp.* (Kewaunee Nuclear Power Plant), LBP-78-24, 8 NRC 78, 83 (1978); cf. *Nuclear Fuel Services, Inc.* (West Valley Reprocessing Plant), CLI-75-4, 1 NRC 273, 275 (1975).

Turning first to whether the normal contention requirements have been satisfied, the Commission's rules require that there be filed "contentions which petitioner seeks to have litigated * * *, and the bases for each contention set forth with reasonable specificity." 10 C.F.R. § 2.714(b). The Applicant claims that Ms. Stamiris has not satisfied the basis and specificity requirements (response at 28).

The basis asserted by Ms. Stamiris is primarily the first Dow complaint. The Applicant asserts that Ms. Stamiris should back up her accusations "with something more substantial than allegations made in a complaint" (*id.*). Back of this claim is its view that a complaint represents no more than unproved allegations — *i.e.*, what a party hopes to prove — and may not be regarded as "new evidence" (*id.* at 14). At oral argument, the Applicant portrayed the complaint as "a lawyer's document * * * an advocate's piece" (Tr. 20,841). The Applicant also emphasizes that it has denied the allegations of the complaint (response at 17). In short, the Applicant appears to be asserting that a complaint in a judicial action cannot serve as a basis for a contention, at least where its allegations have been denied.

We disagree. Under a long line of NRC holdings, we should not attempt to ascertain, prior to admitting a contention, the validity or merit of its bases, only whether the bases have been set forth with adequate specificity. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542 (1980); *Alabama Power Co.* (Joseph M. Farley Nuclear Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 216, *rev'd on other grounds*, CLI-74-12, 7 AEC 203 (1974); *Duquesne Light Co.* (Beaver Valley Power Station, Unit 1), ALAB-109, 6 AEC 243, 244-45 (1973). Ms. Stamiris has not only identified the basis (the Dow complaint, which is a sworn document) but has identified the particular paragraphs of the Dow complaint which she asserts support

her contention. She thus has set forth her basis with reasonable specificity.⁸

Moreover, in her first supplemental memorandum, Ms. Stamiris has pointed to several of the Dow documents which, she claims, support her contention. She discussed these documents during oral argument, pointing to how, in her opinion, they demonstrated that Consumers was not telling the full truth to NRC (Tr. 20,792-98). By doing so, she has supplied additional bases for her contention. Moreover, although we cannot rule now on the sufficiency of those documents, we do note that they include information which, in our view, at least represents a "showing * * * sufficient to require reasonable minds to inquire further" (*cf. Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519, 554 (1978)).

In particular, we note that Bechtel Forecast 6, presented to CPC in January 1980, calculated the fuel load date for Unit 2 (scheduled as the first to be completed) to be April 1984.⁹ A review of the Bechtel Forecast by a CPC staff team, dated May 5, 1980 ("Review Report"), analyzes several completion possibilities and concludes that, "even though we take minor exception to various sections of the estimate as presented, we generally agree with Bechtel both on schedule and cost, and are recommending a total project estimate based on the premise" (document 0014312, at 2). The document includes the statement (at 1 of transmittal letter) that "[n]o distribution of the CPCo F/C #6 Review Report is being made outside of the Company."

Notwithstanding the recommendation of its staff, CPC management decided to retain July 1983 as the target fuel load date for Unit 2 (document 0013524, also attachment 8 to Applicant's response). CPC also attempted to convince the NRC to structure its OL review on the basis of that target (document 00358). Whether the justifications advanced for that target date (*e.g.*, documents 00234 and 00237) were reasonable is an appropriate topic for litigation. In addition, as Ms. Stamiris points out, some documents suggest that CPC may have maintained two schedules — one for internal use and another for others, including NRC (*e.g.*, document 009546). Further, whether the Staff was aware of CPC's

⁸ In an earlier proceeding involving CPC, a Licensing Board considered allegations from a complaint in a suit filed in a U.S. District Court in determining whether to reopen the record. In denying the motion to reopen the record, the Board considered the allegations in the complaint in the light most favorable to the petitioner, without raising any question as to the propriety of relying on such allegations. CPC apparently did not raise any objections to consideration of the substance of the allegations of the complaint. *Consumers Power Co. (Midland Plant, Units 1 and 2)*, LBP-75-6, 1 NRC 227, 229, *aff'd*, ALAB-283, 2 NRC 11 (1975), *clarified*, ALAB-315, 3 NRC 101 (1976).

⁹ The Licensing Board and then-parties were first informed of Bechtel Forecast 6 by letter dated February 8, 1980.

Review Report when it made its scheduling determinations in 1980, and whether (assuming it not to have had access to the report at that time) information in the report could have altered its scheduling determinations, are also appropriate subjects for litigation. The Bechtel documents about which CPC recently advised us also may be pertinent to this contention.

We recognize that, as the Applicant readily admits, the various documents may be subject to more than one interpretation. That being so, however, the proper way to resolve such interpretive uncertainties is through litigation of the contention. In short, we find that Ms. Stamiris' proposed Contention 1 sets forth appropriate bases with adequate specificity and hence satisfies the contention requirement of 10 C.F.R. § 2.714(b).

Since we regard this contention as "late-filed," we turn to the factors for late-filed contentions which we must consider (*see* p. 1291, *supra*). No party explicitly discussed these factors in its written submissions — Ms. Stamiris was relying on a different theory to support litigation of the contention and the Applicant believed it to be Ms. Stamiris' obligation to provide information in support of her contention (Tr. 20,820, 20,835). Nonetheless, through oral argument at which all parties asserted their positions, we were able to develop sufficient information in order for us to balance the five factors.¹⁰

First, Ms. Stamiris has demonstrated "good cause" for her delay in filing the contention. The contention is based primarily on the Dow complaint, and it was submitted initially only two weeks after the Dow complaint was filed. It is noteworthy that CPC's Review Report, which in our view represents important information concerning CPC's truthfulness, was first made known to the Intervenors and Board (and, as far as we know, the Staff as well) after the filing of the Dow complaint in July 1983.¹¹ This factor balances in favor of admission of the contention.

The second and fourth factors also balance in favor of admission of the contention. No other means are available for Ms. Stamiris to obtain the relief which we could grant if we were to find that Consumers did in fact knowingly misrepresent information to, or conceal information

¹⁰ Ms. Stamiris offered to submit information in support of a "late-filed" contention, if we were to reject her theory that we could admit the issue through our authority to shape the course of a proceeding (motion at 7 n.2). Although we have rejected Ms. Stamiris' theory (p. 1290, *supra*), we have a sufficient record to perform the requisite balance of factors.

¹¹ We commend the Applicant's counsel for voluntarily providing this potentially damaging document to the Board and parties, through the Applicant's response to Ms. Stamiris' motion.

from, the NRC — *i.e.*, license denial or conditions such as the replacement of particular personnel. Moreover, Ms. Stamiris probably would not have standing to intervene in the Dow-Consumers lawsuit (Tr. 20,856). Ms. Stamiris' interest will not be represented by existing parties since, absent our acceptance of the contention, there would be no issue in this proceeding raising the question of scheduling misrepresentations. Finally, although NRC's Office of Investigations could investigate alleged false statements, such an investigation (if it determined certain statements to be false) might in effect only postpone litigation of such statements. Both the Applicant and Ms. Stamiris oppose that method of resolving this issue (Tr. 20,870-72).

In our view, Ms. Stamiris' participation may reasonably be expected to assist in developing a sound record on the question of management attitude. The basic issue will be the credibility of CPC's witnesses. In the past, Ms. Stamiris' cross-examination (and that of counsel who is to represent her on this issue) has been effective on questions of this type. She has also brought to our attention many pertinent documents bearing on such issues. We expect she would do so on this contention. Indeed, she has already identified a considerable quantity of particularized information regarding the substance of this contention. The third factor accordingly balances in favor of admission of the contention.

As all parties recognize, the litigation of this contention could consume considerable time and effort. The issues in the consolidated proceeding accordingly will be somewhat broadened. (The proponent of the contention views it as somewhat narrower than does the Applicant. *See* Tr. 20,811-13.) Inasmuch as the fuel load date for Unit 2 is now estimated by the Applicant to be July 1986 (*see* letter to Board from the Applicant, dated April 12, 1984), we agree with Ms. Stamiris (Tr. 20,851) that there should be no delay in concluding the proceeding prior to the fuel load date, whether or not we admit this contention. Reflecting the broadening of the proceeding, however, this factor balances slightly — but only slightly — against admission of the contention.

Given that the first four factors balance strongly in favor of admission of the contention and the last factor balances only slightly to the contrary, we believe that the balance of the five factors favors admission of the contention. Since the requirements for a litigable contention have also been satisfied, we are accordingly admitting the contention. As we discussed with the parties (Tr. 20,861-63, 22,666), the period of time covered by the contention is to extend from the release of Bechtel's Forecast 6 in January 1980, through November 1983.

The parties discussed extensively whether the proposed contentions should be regarded as OM or OL contentions. In our view, the first

could be regarded as a part of either proceeding, but the second and third are clearly OM contentions. Given consolidation, the allocation of contentions to a particular proceeding does not make too much difference. For convenience, we are numbering the contentions we are accepting as OM contentions. The first proposed contention will become OM Contention 6. Nevertheless, we expect to render decisions covering some OM issues prior to the completion of litigation of these new contentions. Any decisions we make which could be influenced by the outcome of the new contentions will be expressly subject to change in light of that outcome. Moreover, the designation for convenience of the first contention as an OM issue is not to be taken as limiting the relief we could grant to that appropriate in the OM proceeding; relief in the OL proceeding may also be considered, to the extent appropriate (*e.g.*, to the consideration of corporate character).

2. The second proposed contention alleges that the Applicant used and relied on test results provided by U.S. Testing Company to fulfill NRC requirements while knowing that these test results were invalid. That CPC used and relied on such test results is no secret: evidence to that effect has long been a part of the record of this proceeding (*e.g.*, Stamiris Exh. 3, Attachments 9, 11 and 14; NRC Inspection Reports 78-20 and 80-32/33 (Attachments 2 and 3 to testimony of Gallagher, ff. Tr. 1754); Tr. 2438-39 (Gallagher)). The new allegation in this contention is that CPC knew that the U.S. Testing test results were invalid at the time it relied on these results before the NRC.

As we previously stated (p. 1291, *supra*), in determining whether to reopen the record as of the time the motion was submitted, we must inquire whether the motion was timely and whether it presents important information regarding a significant issue. The Applicant claims that the motion with respect to this contention is “not timely” (response at 17) but provides no elaboration of its statement. It founds its opposition largely on its argument that no “new evidence” justifying reopening of the record has been presented.

We disagree on both counts. In the first place, although the Applicant’s truthfulness has been the subject of some earlier testimony, the allegation of CPC’s knowledge of invalidity of the tests represents significant new information stemming from the filing of the first Dow complaint. The initial submission of Ms. Stamiris’ contention two weeks later clearly satisfied the timeliness requirement.

More important, for reasons we have spelled out earlier (pp. 1292-93, *supra*), we regard the Dow complaints, which are sworn documents, as valid bases for the contention. We need not determine the validity of the positions contained therein in order to rely on the complaints to

reopen the record. Both complaints allege that Consumers knowingly relied on inaccurate information before the NRC. This information has a direct bearing on the management capability and attitude which we are evaluating in this proceeding, and it appears to differ from the information previously entered into the record.

Indeed, even though Ms. Stamiris is not required to satisfy the standard because of the time she filed her motion, we believe that, if proved, the alleged misstatements of information could significantly change the end result which we might otherwise reach. Thus, not only could such false statements, if proved, warrant severe sanctions but, in addition, they could signify a lack of management character sufficient to preclude an award of operating licenses, at least as long as the responsible individuals retained any responsibilities for the project. *South Texas*, LBP-84-13, *supra*, 19 NRC at 674-75, and cases cited, particularly *Consumers Power Co.* (Midland Plant, Units 1 and 2), CLI-83-2, 17 NRC 69, 70 (1983).

The Applicant directs our attention to the circumstance that the amended complaint (¶ 12) presents this claim only on "information and belief"; it also characterizes the claim as "absurd" in postulating that it would act contrary to its own interest by relying on test results known to be inaccurate (response at 14). We decline to resolve these positions at this time, since they go to the merits of the contention. We note, however, that "information and belief" pleadings are accorded considerable judicial stature (5 C. Wright & A. Miller, *Federal Practice and Procedure: Civil* § 1224 (1969)). "[A] corporation [such as Dow] may find pleading on information and belief a useful form of allegation when its information has been received from subordinate employees within the firm" (*id.*). Further, we might also observe that what may be "absurd" from a corporate viewpoint may not necessarily be absurd from the individual viewpoint of a particular corporate official or agent.

Other information stemming from the documents provided to the parties and Board also supplies bases for this contention. For example, it appears that both CPC and Bechtel (CPC's agent) had knowledge of infirmities in certain U.S. Testing results some time around February 1978. See letter from J.F. Newgen (Bechtel) to D. Edley (U.S. Testing), dated February 1, 1978 (copy received by Consumers on February 10, 1978) (Attachment 3 to Ms. Stamiris' Second Supplemental Memorandum dated October 5, 1983). Although the document relates to tests performed for the administration building, it includes statements which could be construed as indicating Bechtel's awareness of a more pervasive failure of U.S. Testing to conform to testing specifications (Tr. 2573-74 (Gallagher)).

Nonetheless, the Applicant's testimony presented in July 1981 indicated that, on the basis of borings taken from September 27-30, 1977, the Company determined that the grade beam failure of the administration building was localized. Keeley, ff. Tr. 1163, at 5. U.S. Testing was also said to have used similar procedures for a number of its tests throughout the site (Tr. 1263 (Keeley)). But CPC, in discussions with the NRC Staff as late as the summer of 1979, appears to have continued to portray the cause of the U.S. Testing inaccuracies with respect to the administration building borings as "administrative problems" (document 7908170390), despite knowledge of more severe problems as early as the fall of 1977 (Audit Report F-77-32, Board Exh. 3; Bechtel "Administration Building" Report dated December 1977, document SB 13752). Indeed, the Staff was not even informed of the grade beam failure until December 1978, despite the fact that the NRC's investigation into the diesel generator building settlement began in October 1978 and the administration building settlement was considered by some Staff members as indicative of soils compaction deficiencies in the area of the nearby DGB (Tr. 2336, 2341, 2345-47, 2412 (Gallagher)).¹²

The Staff also testified that it had no basis for concluding that information regarding the administration building (a nonsafety structure) had been intentionally withheld from NRC (Tr. 2342, 2357 (Gallagher)). This proposed contention, if proved, could alter the record in this regard. For that reason, the information appears to be important to an issue which is also significant.¹³ Moreover, Ms. Stamiris initially filed her motion in a timely fashion, two weeks from the filing of the first Dow lawsuit. The standards for reopening the record have thus been clearly satisfied for this contention. We will admit this contention as OM Contention 7.

3. Ms. Stamiris' third proposed contention concerns a test boring taken near the DGB and analyzed by U.S. Testing Company. The analysis of this boring by U.S. Testing Company involves one or more of the tests alleged in the previous contention to have been falsified. The third contention is very close to the second in alleging that the Applicant knowingly misrepresented the results of the boring to the NRC.

To the extent that this contention is based on information in the Dow complaint, it was submitted in a timely fashion. But unlike the previous

¹² Apparently the Staff did not become aware of the February 1, 1978 letter to U.S. Testing until some time after December 1978 (Tr. 2572-73 (Gallagher)).

¹³ The information about which the Staff informed us on April 27, 1984, and that concerning which the Applicant advised us in the April 30, 1984 communication which we discuss first (p. 1289, *supra*) could also be relevant to this contention. We express no opinion on this matter at this time.

contention, there is no significant allegation here that has not been previously addressed in this proceeding. The Applicant was already charged with making a material false statement that *incorrectly* indicated the placement of random fill rather than controlled compacted cohesive fill and has agreed not to contest that issue. For its part, the NRC Staff agreed that the material false statement was not made intentionally. Joint Exh. 6; Hood, *et al.*, ff. Tr. 1560, at 4-6.

Even more important, the boring log in question has been introduced into evidence and was the subject of extensive testimony. *See* Stamiris Exh. 19; Tr. 3437-41 (Peck) and 3589-3636 (Kane). Although the soil in question is different from what the FSAR represented, it nevertheless is competent soil (Tr. 3618-19 (Kane)).¹⁴ Either type would have been acceptable if it had been compacted correctly (Tr. 4426-27 (Kane, Hood)).

In short, all of the information in the bases relied upon by Ms. Stamiris appears to have already been considered in this proceeding. The Staff asserts that we should litigate this contention because of the allegation that, at the time of the boring in 1977, CPC knew the problem was site-wide and provided the NRC with incorrect information (Tr. 20,806). An affirmative intent by the Applicant to mislead the NRC on a significant matter would, of course, be a serious indictment of the Applicant's managerial attitude. We read the contention (either in its initial or revised forms, *see* note 2, *supra*) as being based on alleged misinformation about the soil type used for plant fill. Nothing in the bases relied upon by Ms. Stamiris in both versions of this contention would indicate that the types of materials utilized for plant fill were a site-wide problem. Indeed, we do not view the log itself as indicating any problem with the soil type, as alleged in both forms of this contention. For that reason, we do not perceive that Ms. Stamiris has brought to our attention with respect to this contention any significant new information of the type which would warrant a reopening of the record.¹⁵ Since standards for reopening the record on this contention have not been satisfied, we decline to reopen on this matter.

We note that the question of the Applicant's knowledge or lack of knowledge of the site-wide nature of any soils deficiencies is a part of

¹⁴ We assume that, in giving this testimony, Mr. Kane took account of the hammer weight and fall in relying on the blow counts shown on Stamiris Exh. 19 and discussed by CPC in its letter to us of April 30, 1984. If not, we call upon the Staff to advise us promptly (with an appropriate affidavit, if necessary).

¹⁵ Unlike with respect to a new, timely filed contention, on a motion to reopen the record, we can give some consideration to the substance of the information sought to be added to the record. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523-24 (1973); *cf. Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542 (1980).

Ms. Stamiris' second contention which we are accepting. The question stressed by the Staff in supporting the third contention will thus likely be considered to some extent in our resolution of the second contention.

We also note that our ruling rejecting the third proposed contention does not take into account the information provided to us by the Applicant on April 30, 1984 (the first CPC communication of that date discussed on p. 1289, *supra*), except with respect to the matter described in note 14, *supra*. Nor does it consider the information provided to us by the Staff on April 27, 1984. Insofar as we can ascertain, we regard this new information as possibly relevant to the third proposed contention but more likely relevant either to matters heretofore litigated or, alternatively, to a potential contention comparable to the third proposed contention (*i.e.*, knowledge of site-wide deficiencies) but premised not on whether information on soil type was withheld but rather on whether information was withheld as to the degree of compaction. We trust that the Applicant and/or Staff will keep us and the parties advised of any new information of this type which may develop.

4. Ms. Stamiris has asked for discovery on her proposed contentions, both in the form of documents allegedly not turned over to her previously and new discovery. We will not determine whether any documents should have been, but were not, turned over to Ms. Stamiris earlier. We note that, upon further checking, Ms. Stamiris discovered that she had received certain of the documents she initially thought had not been turned over to her.

CPC has already voluntarily supplied many documents to the parties and Board. We believe that further discovery on the two admitted contentions is warranted, but only to the extent it seeks information or documents relevant to those contentions beyond what CPC has already supplied. The discovery we are permitting will be so limited.

In addition, to the extent we must evaluate discovery requests, we will consider, as within the proper scope of discovery, information tending to demonstrate, or leading to information that could demonstrate, whether CPC knowingly made false statements to the NRC (either the Staff or a Licensing Board). By "knowingly," we are including intentional falsehoods, intentional incomplete statements, intentional omissions, and statements made "with disregard for the truth." *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), CLI-80-32, 12 NRC 281, 291 n.4 (1980); *id.*, LBP-84-13, 19 NRC at 674-75. But whether CPC *should have known* that a statement was inaccurate or incomplete is not in itself a part of these contentions (although it may bear substantially on issues already admitted to this proceeding).

We are presently authorizing a four-month period for formal discovery, commencing on the date when the Applicant's reply findings on QA/management attitude issues are to be submitted (currently June 8, 1984). We direct that parties engaged in discovery on these two contentions send us monthly reports (either individually or collectively) on the progress of discovery. (These reports should be filed on the first Monday-workday of each month, beginning in August 1984.) Ms. Stamiris has requested four to six months for discovery (Tr. 20,813, 20,864); we will utilize these reports to determine whether additional discovery is warranted.

Bearing in mind the fact that these contentions are limited to knowing misrepresentations (as defined above), we would hope that the parties could agree (prior to trial of the issues) to a limitation of scope to matters clearly tending to demonstrate or suggest such knowing misrepresentations. We would also trust that the parties will attempt to develop methods for pre-trial settlement or dismissal of at least portions of these issues, to the extent appropriate. Such a course of action appears consistent with that favored by several parties at oral argument (Tr. 20,806, 20,814-15, 20,865-68)

II. SINCLAIR MOTION

Ms. Sinclair's motion was made orally (Tr. 19,341-46, 19,382-83) and followed by an almost identical written motion dated July 28, 1983. It seeks to have the record of this consolidated proceeding held open until the completion of the Dow lawsuit, on the ground that information may be obtained through discovery in that litigation "which will be pertinent to the issues of the OM and OL proceedings" and that it is important that "all available facts" relative to those issues be considered by us. Ms. Sinclair spells out eight areas of inquiry where, she claims, "more information can be expected."

The Applicant opposed Ms. Sinclair's motion, both through an oral response (Tr. 19,346-47) and in a written response dated August 17, 1983. The Staff also generally opposed Ms. Sinclair's motion, although it recognized one allegation of the Dow litigation (the scheduling matter) which should be litigated before us (Tr. 19,350-52, 19,356-57, 19,397). Mr. Wendell H. Marshall, another Intervenor, supported Ms. Sinclair's motion by mailgram dated July 29, 1983.

We do not believe that the relief sought by Ms. Sinclair's motion is warranted. In the first place, Ms. Sinclair is only speculating at this time that the Dow lawsuit will lead to the discovery of significant information

pertinent to the OM or OL proceeding which would not otherwise be incorporated into this record. Many of the issues in the Dow lawsuit are not particularly pertinent to matters before us. In that connection, the two new Stamiris contentions which we are accepting incorporate in our view the allegations of the Dow lawsuit most closely related to the matters at issue in the OM/OL proceeding. One of those contentions will litigate the scheduling allegation which the Staff, in commenting upon Ms. Sinclair's motion, found appropriate to consider in this proceeding.

Furthermore, if the Dow lawsuit should produce truly significant information not previously included in the record here and pertinent to the OM/OL proceeding, Ms. Sinclair could (depending on the status of this proceeding) move to supplement the record and incorporate it into this proceeding, or to reopen the record of this proceeding, or (if, all levels of review within NRC have been completed) seek consideration of the matter under 10 C.F.R. § 2.206.

Finally, the length of the Dow lawsuit, and hence the scope of relief being sought by Ms. Sinclair, is presently indeterminate. All proceedings, of course, even this one, must at some point come to an end. *See United States v. Interstate Commerce Commission*, 396 U.S. 491, 521 (1970). In our view, it would be "productive of little more than untoward delay" for us to freight the possible conclusion of the OM/OL proceeding with the uncertainties of the Dow lawsuit. *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-171, 7 AEC 37, 39 (1974); *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 747-48 (1977).

For these reasons, we are denying Ms. Sinclair's motion. This denial is without prejudice to Ms. Sinclair's seeking (to the extent appropriate) the other forms of relief which we have outlined, particularly to supplement or reopen the record before us.

III. ORDER

In light of the foregoing discussion and the entire record on the motions before us, it is, this 7th day of May 1984,

ORDERED

1. That Ms. Stamiris' motion to admit three new contentions is *granted in part* and *denied in part*. Proposed contentions 1 and 2, renumbered as OM Contentions 6 and 7, are admitted; proposed contention 3 is denied.

2. That discovery on new OM Contentions 6 and 7 is authorized to the extent indicated in part I.C.4 of this Memorandum and Order. Parties are *directed* to file reports as set forth therein (pp. 1300-01, *supra*).

3. That Ms. Sinclair's motion to hold open the record of this proceeding pending completion of the Dow lawsuit is *denied*, without prejudice to Ms. Sinclair's later seeking (to the extent appropriate) to supplement or reopen the record before us.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Charles Bechhoefer, Chairman
ADMINISTRATIVE JUDGE

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**James L. Kelley, Chairman
Dr. Richard F. Foster
Dr. Paul W. Purdom**

In the Matter of

**Docket Nos. 50-413
50-414
(ASLBP No. 81-463-06-OL)**

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

May 30, 1984

The Licensing Board grants Applicants' unopposed motion to authorize fuel loading and certain precriticality testing prior to a Board decision on safety and environmental issues. The Board finds that it is not required to decide the merits of any of the issues pending before it as a precondition to favorable action on the motion and that the proposed activities will not pose any danger to the public.

MEMORANDUM AND ORDER
**(Authorizing Issuance of a License to Load Fuel and Conduct
Certain Precritical Testing)**

On April 11, 1984, the Applicants filed a "Motion for Authorization to Issue a License to Load Fuel and Conduct Certain Precritical Testing." The motion was based on representations that "the activities

for which authorization is sought will pose no risk to public health and safety" and that "the contentions which are presently pending before this Board are not relevant to the authority being requested." The motion was supported by technical affidavits describing the activities to be conducted and their safety implications.

On April 23, 1984, the Intervenor Palmetto Alliance and Carolina Environmental Study Group filed their response to the motion. Based on the Applicants' description of the activities proposed, the Intervenor stated their belief that such activities "will pose no technical threat to the public health and safety." The Intervenor further stated that they "do not oppose the conduct of such activities," reserving their right to be heard in opposition to future requests to conduct activities at Catawba involving criticality. The Intervenor urged the Board to refrain from making findings with respect to the contentions presently in controversy, viewing such findings as unnecessary for the authority presently sought by the Applicants.

On May 1, 1984, the NRC Staff filed its response to the Applicants' motion, supported by a technical affidavit. The Staff agreed with the Applicants (and the Intervenor) that "since the activities sought to be authorized are not likely to lead to accidents affecting the health and safety of the public, the admitted contentions are not relevant to the activities for which authorization is sought." Response at 2-3. The Staff went on to explain in some detail the nature of the risks posed and their lack of safety significance to the admitted contentions. The Staff (like the other parties) concludes that "there are no factual issues in controversy which require findings based on the record of the proceeding."

As our summary of the pleadings indicates, there were no significant disagreements among the parties on the substance of the pending motion. After the pleadings were filed, therefore, the parties took the commendable course of developing a stipulation which has now been signed by all parties and submitted to the Board for approval. A copy of the "Stipulation Among the Parties," dated May 15, 1984, is attached hereto (not published) and incorporated herein. On the basis of the pleadings and affidavits before us and considering the scope of the contentions pending in this proceeding, the Board finds that the activities to be authorized, as described in the attached stipulation, pose no significant risk to public health and safety and that therefore the admitted contentions in this proceeding are not relevant to such activities. No findings on those contentions are made or implied by this Memorandum and Order.

In accordance with the foregoing, the attached Stipulation is approved and the Director of Nuclear Reactor Regulation is authorized, upon

making findings on all applicable matters specified in 10 C.F.R. § 50.57(a), to issue to the Applicants a license to load fuel and conduct certain precritical testing at the Catawba facility, as more particularly described in the attached Stipulation Among the Parties dated May 15, 1984. This authorization is subject to the conditions that (1) the Applicants shall report to the Board and parties all nonconformances or deviations occurring in authorized activities, and (2) the Intervenors shall have an opportunity to be heard with respect to any further authority for activities at Catawba where fission product and decay heat generation are involved.

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

**James L. Kelley, Chairman
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland
May 30, 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.]

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of

Docket No. 50-333
(10 C.F.R. § 2.206)

POWER AUTHORITY OF THE STATE
OF NEW YORK

(James A. FitzPatrick Nuclear
Power Plant)

May 8, 1984

The Director of the Office of Nuclear Reactor Regulation denies a petition submitted by Ellyn R. Weiss and Robert D. Pollard on behalf of the Union of Concerned Scientists requesting that operation of the James A. FitzPatrick Nuclear Power Plant be suspended pending the determination of the adequacy of the pipe supports at the facility to withstand normal operating loads and seismic events.

TECHNICAL ISSUE DISCUSSED: 10 C.F.R. PART 21

The obligation to make a Part 21 report to the NRC does not arise until it is determined that a defect within the meaning of Part 21 exists.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

I.

By letter to the Commission dated September 12, 1983, Ellyn R. Weiss and Robert D. Pollard, on behalf of the Union of Concerned Scientists (hereinafter referred to as UCS or the petitioner) requested

that immediate action be taken to suspend operation of the James A. FitzPatrick Nuclear Power Plant. UCS based its request upon correspondence it had obtained which questioned the adequacy of pipe supports at FitzPatrick. That correspondence, a letter dated June 30, 1983 from Target Technology, Ltd. to the FitzPatrick licensee, the Power Authority of the State of New York (PASNY), informed PASNY of Target's opinion that piping supports at FitzPatrick required corrective action. Target had been hired by PASNY to reanalyze a group of pipe supports at FitzPatrick following the discovery in 1979 that Stone and Webster, the facility's architect-engineer, had apparently miscalculated the seismic stresses in certain safety-related piping systems with which these supports¹ were associated.

Based on the concerns expressed by Target, the petitioner requested an immediate shutdown of FitzPatrick to enable a full NRC inspection of the questionable pipe supports. UCS asked that operation not be resumed until "commitments" made in the FitzPatrick Final Safety Analysis Report (FSAR) and requirements contained in applicable Office of Inspection and Enforcement (IE) Bulletins had been met at FitzPatrick. The petitioner further requested that the Commission initiate appropriate enforcement action regarding these issues, in particular requesting that the NRC determine whether the reporting requirements of Part 21 of the Commission's regulations were violated regarding the Target letters, or whether a material false statement was made by PASNY in certifying to the NRC that the calculated stresses of the piping supports were checked against the applicable standards. UCS's letter was referred to the staff for treatment as a petition pursuant to section 2.206 of the Commission's regulations.

By letter dated September 23, 1983, the Director of the Office of Nuclear Reactor Regulation denied the petitioner's request for immediate relief. At that time, it was determined that the pipe support systems at FitzPatrick did not pose an immediate safety hazard, based upon the licensee's reassessment of the pipe support analyses and corrective actions and the NRC's own visual assessment of a sample of the pipe supports alleged to be damaged.

Upon my request pursuant to 10 C.F.R. § 50.54(f), the licensee responded to UCS's petition by letter dated November 18, 1983. The staff has evaluated the UCS petition and other pertinent information. For the reasons stated in this decision, the petitioner's request is denied.

¹ Hereinafter designated as "affected supports."

II.

A brief historical review is helpful at this point to place the petitioner's assertions in proper perspective. In March 1979, in the course of evaluating certain piping design deficiencies at the Beaver Valley Power Station, significant discrepancies were observed between the computer code employed by Stone and Webster in the original seismic analysis of safety-related piping systems and the then currently acceptable computer code. These discrepancies were attributed to the different methods used to combine earthquake load components. It was determined that these discrepancies had the potential to cause significant adverse effects on the ability of certain piping systems to withstand seismic events. As a result, the Beaver Valley licensee suspended power operation of that facility on March 9, 1979. It was also found that four other facilities, including FitzPatrick, could anticipate similar problems because the same erroneous computer code was employed in the original designs. Consequently, the NRC ordered these plants to suspend operation until such time as all affected safety-related piping systems were reanalyzed for seismic events using the acceptable computer code. If the reanalyses indicated components which deviated from applicable American Society of Mechanical Engineers (ASME) Code requirements, suspension of operation was to continue until such deviations were rectified. The Show-Cause Order suspending operation of FitzPatrick was issued on March 13, 1979. *See* 44 Fed. Reg. 16,510 (1979).

In response to the findings at Beaver Valley, IE Bulletin 79-07, "Seismic Stress Analysis of Safety-Related Piping," was issued to all power reactor licensees on April 14, 1979. This bulletin requested licensees to identify all safety-related piping systems for which seismic analyses were performed using the erroneous modal-response combination technique, and to submit a plan of action and estimated schedule for seismic reanalyses of these systems. Licensees were also requested to conduct a preliminary assessment of safety impacts. The bulletin also specified that all reanalyses should reflect the existing or "as-built" configurations of the piping systems and associated supports. On July 2, 1979, IE Bulletin 79-14, "Seismic Analysis for As-Built Safety-Related Systems," was issued to all licensees in order to address the subject of nonconformance with design documents, as reflected in "as-built" piping system configurations, and the impact of these nonconformances on the validity of seismic analyses performed as part of the original design. This bulletin requested that licensees undertake an inspection program to verify conformance to design documents, and to consider the need for seismic reanalyses where nonconformances were identified.

The NRC lifted the suspension of facility operation imposed by the March 13th order on August 14, 1979 upon finding that the licensee had shown cause why operation of the FitzPatrick plant should not remain suspended, and that "FitzPatrick could safely withstand the effects of seismic events should they occur." See 44 Fed. Reg. 49,530 (1979). At this point in time, the licensee had completed reanalyses of all affected supports inaccessible during normal operation as well as many of the accessible supports.² The August 14th order required the licensee to complete reanalyses of the remaining supports and to propose a schedule for implementation of any needed modifications within 60 days of startup. The licensee also continued its efforts to respond to the action items contained in IE Bulletins 79-07 and 79-14. Staff reviews later found the licensee's responses to 79-07 and 79-14 acceptable and these bulletins were subsequently closed out for FitzPatrick.³

Target Technology, Ltd. was retained by the licensee in 1979 to perform pipe support calculations for 348 supports at FitzPatrick. These supports were identified by the licensee as possibly requiring modifications as a result of the seismic reanalyses performed in connection with IE Bulletins 79-07 and 79-14 and the Show-Cause Order. In a September 3, 1980 letter from Target to the licensee, Target indicated that its effort was nearing completion and that the calculations performed so far were limited to meeting the acceptance criteria for the combination of normal plus seismic loads. Target proposed a follow-on task of determining whether the 348 supports also satisfied the acceptance criteria for normal operating loads only. An estimated scope of work and proposed cost for this task were provided in the letter.

In a subsequent letter dated December 20, 1982 from Target to the licensee, Target stated that the pipe support evaluations performed in 1979-80 were not in complete compliance with the licensee's FSAR commitments because the supports were not evaluated against normal load acceptance criteria. Furthermore, Target stated that "there may be supports which will require modification to bring the plant to FSAR compliance" and that it considered this matter to be a safety concern as well as a potentially reportable item under 10 C.F.R. Part 21. On January 3, 1983, Target provided the licensee, at the latter's request, with a sample list of twenty supports which, according to Target, had the potential of not meeting Code-allowable limits for normal operating loads. The licensee referred this list to Stone and Webster for evaluation and

² Modifications to these supports, where indicated by the reanalyses were completed prior to startup.

³ See NRC Inspection Reports 50-333/81-09, 50-333/81-12, and 50-333/84-04.

concurrently initiated its own evaluation to determine whether a reportable defect under 10 C.F.R. Part 21 existed.

In a third letter from Target to the licensee dated June 30, 1983, Target documented its comments on a meeting which took place on June 27th among the licensee, Stone and Webster, and Target to discuss the pipe support matter. In this letter, Target stated that some supports included in its January 3, 1983 list of twenty supports "clearly exhibit physical signs of structural damage from normal operating loads and have safety implications for the plant."⁴ Furthermore, Target alleged that "because the as-built condition of the plant did not match the piping configurations which were initially analyzed," the support loads changed dramatically for many supports. In addition, Target stated that the design code actually employed for pipe supports at FitzPatrick was not consistent with design code commitments contained in the Final Safety Analysis Report (FSAR).

To assess the allegations made by Target regarding pipe support deficiencies at FitzPatrick, the licensee retained United Engineers and Constructors. United Engineers' effort, which commenced during the summer 1983 refueling outage, consisted of a review of Stone and Webster's analytical methodology, procedures and calculation packages for pipe support design at FitzPatrick. United Engineers also performed field inspections of selected pipe supports to verify that piping system/support design configurations were reflected by the as-built condition of pipe supports. While United Engineers' field inspections identified certain dimensional discrepancies in several supports, none of the supports showed any evidence of physical damage.

III.

The petitioner's request for initiation of enforcement action was based upon five concerns the petitioner believed Target raised in its June 30, 1983 letter to the licensee. See Petition at 2. These issues are discussed below.

1. Ability of FitzPatrick Pipe Supports to Withstand Normal Operating Loads

In questioning the adequacy of a large number of pipe supports to withstand normal operating loads, the petitioner relies upon alleged evi-

⁴ Target did not specifically identify which supports, or how many, exhibited damage.

dence of physical damage to various supports, as reported by Target. In addition, UCS alleges that discrepancies exist between as-built piping system configurations and the configurations used in many of the original design calculations. See Petition at 2.

Assessment of this concern has been the focal point of independent inspections conducted by the licensee, the NRC, and United Engineers and Constructors. The licensee performed a visual inspection of eighteen of the twenty supports⁵ identified by Target as having a seismic loading component of less than 33% of the total load. This loading component is significant in that it raised the possibility that Code-allowable limits for normal operating loads alone may not be met. The inspection, which was conducted in July 1983 during FitzPatrick's refueling outage, revealed damage to only one of the supports. The damage, which was confined to a structural steel I-beam located above a trunnion on a main steam line, consisted of a localized deformation of the beam's lower flange and cracked concrete surrounding the base-plate embedment to which the beam was welded. The licensee had been aware of the flange deformation since 1979 when it was discovered during field walkdown activities related to IE Bulletin 79-14. An evaluation of the bent flange conducted by Stone and Webster and the licensee at the time of its discovery in 1979 indicated that the support was still capable of withstanding normal operating loads. The cracked concrete, however, was not identified in 1979 because the area (a main steam tunnel wall) was covered with insulation and the embedment was not considered to be within the inspection boundary of the pipe support under IE Bulletin 79-14.

A subsequent inspection by the NRC during the summer 1983 outage of a sample of the group of twenty supports called into question by Target, including the single support identified by the licensee as being damaged, showed no other evidence of damage. In addition, both the NRC and United Engineers inspected supports other than those called into question by Target during the summer 1983 outage and after restart in autumn 1983. These inspections focused on supports located in high-energy, large-diameter piping systems, located near critical components

⁵ Of the two remaining supports, one was modified and relocated within the torus during the 1981-82 refueling outage and the other was modified during the summer 1983 outage. These modifications were the result of the Mark I Containment Long-Term Program (for all Mark I licensees) and provided an increased safety margin to the subject supports.

and penetrations. No other evidence of pipe support damage was identified.⁶

Assessment of the impact of discrepancies between as-built and as-designed piping system data on the validity of piping and support analyses has been addressed by the licensee in response to IE Bulletin 79-14. It should be emphasized that both IE Bulletins 79-14 and 79-07 were directed at potential nonconservatisms in only the seismic portion of the pipe stress analyses performed for safety-related systems.⁷ Bulletin 79-07 addressed an error discovered in the method employed to combine earthquake load components. This error, which led to the five-plant shutdown in March 1979 and subsequently to the issuance of 79-07, therefore had no bearing on the normal loads portion of the piping system analyses or on the associated normal loads acting on the supports.

IE Bulletin 79-14 regarding nonconformances to design documents, however, did have a potential effect on the normal loads portion as well as the seismic portion of the piping system analyses, even though the bulletin itself addressed only the latter. Identification of nonconformances at FitzPatrick was conducted concurrently with the licensee's efforts with respect to IE Bulletin 79-07, which specified that any reanalyses reflect as-built data, and the Show-Cause Order. As a result, any significant nonconformances, as they were discovered, were factored into the reanalyses which, as stated above, consisted of both a seismic load and a normal load analysis. Therefore, both the seismic and normal support loads computed during the 1979 reanalysis effort reflected as-built data. Modifications were made to those supports where a potential safety concern could have existed, as identified by the reanalyses and resulting from the computer code error and/or as-built nonconformances. These modifications resulted in increased support strength, and were intended to enhance the ability of the affected supports to withstand earthquake loads.

The 1983 inspections performed by NRC and United Engineers also included an assessment of nonconformances in safety-related piping systems. United Engineers' field inspections of a sample group of supports, and a subsequent inspection by the licensee, identified certain

⁶ The specific scope, support sampling rationale, and findings of the inspections performed by the licensee, NRC, and United Engineers have been documented in the following references: Letter from J.P. Bayne (PASNY) to D.B. Vassallo (NRC) (September 21, 1983); NRC Inspection Report 50-333/83-18; NRC Inspection Report 50-333/83-24; Letter from R.W. Barton (United Engineers) to J.P. Bayne (PASNY) (December 19, 1983).

⁷ Pipe stress analysis entails computation of the responses from both normal operating and earthquake loadings. Resulting loads at support locations are computed as part of these analyses.

dimensional discrepancies in several supports.⁸ These supports, however, showed no evidence of physical damage. The discrepancies consisted of undersized or missing fillet welds and dimensional deviations in structural steel members. Although these discrepancies would not contribute to support damage under normal plant operation, and were of a nature such that invalidation of piping stress analyses would not be expected, Stone and Webster reevaluated the affected supports using the as-built data to ascertain analytically whether these discrepancies challenged the ability of the supports to withstand normal operating loads. Stone and Webster concluded, on the basis of this reevaluation and from the lack of visual evidence of damage, that the integrity of the supports under normal loading conditions was not compromised.⁹ The staff performed an audit of Stone and Webster's reevaluation effort, including the methodology employed and a representative sampling of calculations, and found it to be acceptable.¹⁰

An assessment by the NRC of the damage to the main steam line support attributes the cause of the damage to improper installation resulting in insufficient clearances to accommodate normal thermal expansion of the main steam piping. This conclusion is supported by the staff's examination of photographs of the damaged support provided by the licensee and taken during the summer 1983 outage. This examination indicated that the local deformation evident on the lower flange of the I-beam as well as the visible pattern of concrete damage is consistent with the directions and points of application of the forces and moments that would be induced by restraint of thermal growth. Examination of photographs of a mirror image support on another main steam line of identical configuration and subject to the same design loadings showed no evidence of physical damage.

To correct the deficiency arising from the damage to the main steam line support, the licensee modified the support prior to plant restart in September 1983 to eliminate the need for the load resisting capacity of the damaged embedment. Although the loads induced by thermal restraint will still exist at the modified support, their magnitudes should

⁸ See letter from R.W. Barton (United Engineers) to J.P. Bayne (PASNY) (November 11, 1983); Letter from J.P. Bayne (PASNY) to D.B. Vassallo (NRC) (December 19, 1983).

⁹ See letter from J.P. Bayne (PASNY) to D.B. Vassallo (NRC) (December 19, 1983); Letter from J.P. Bayne (PASNY) to D.B. Vassallo (NRC) (January 20, 1984).

¹⁰ To determine whether the integrity of the supports under seismic loading was compromised, Stone and Webster also performed a seismic loading reevaluation of the affected supports and concluded that the discrepancies identified by United Engineers and the licensee did not result in an inability of the supports to withstand earthquake loadings. In addition, the staff audited Stone and Webster's seismic load reevaluation for the affected supports. This audit, which was similar in scope to the normal loads audit, found Stone and Webster's effort to be acceptable.

now be significantly reduced because of the additional clearance created by the locally deformed lower flange. Nevertheless, as part of NRC's continuing inspection program, the staff plans to inspect this support during the next outage to verify the adequacy of the modifications.

Based on the above considerations, the petitioner's concern that a large number of supports at FitzPatrick may not be able to withstand normal operating loads appears unfounded.

2. Lack of Consideration of Normal Operating Loads

UCS relies upon Target's June 30, 1983 letter as the basis for its concern that design calculations were never performed for normal operating loads during the 1979 seismic reevaluation effort ordered by the NRC. UCS appears to be concerned that many of the supports at FitzPatrick, particularly those subjected to a relatively low seismic loading component, would not meet the normal load criterion. The technical issue inherent in this concern is whether the support designs at FitzPatrick meet the acceptance criteria for normal loads, and whether a loss of support integrity can result under normal operating conditions if these criteria are not met. See Petition at 3.

Piping stress analysis entails the computation of pipe wall stresses at various locations in a piping system as caused by pressure, deadweight loads, other sustained mechanical loads, thermal expansion, and occasional loads including those due to earthquakes. This information is used in design of the piping itself. In addition, the results of the piping analysis provide input to the support analysis for each of the designated loading conditions. The pipe support stresses are then calculated and compared to allowable stresses specified in the acceptance criteria for each loading condition.

The loading conditions and allowable stress limits applicable to support design for FitzPatrick are as follows:

$$DL + THER + SRSS (DBE, OCC) \leq 1.33 \times ALLOWABLE$$

(seismic loading condition, allowable limit)

$$DL + THER + OCC \leq ALLOWABLE$$

(normal loading condition, allowable limit)

where

DL	=	Deadweight Load
THER	=	Thermal Load
DBE	=	Design Basis Earthquake Total Load
OCC	=	Occasional Transient Loads
SRSS	=	Square Root of Sum of Squares (of quantities in parentheses)
ALLOWABLE	=	American Institute of Steel Construction (AISC) Code Stress Basis Allowable

These loads, load combinations, and allowable limits are part of a design specification developed by the licensee in order to comply with the American Institute of Steel Construction (AISC) Code. It is the second criterion, pertaining to normal operating loads, that concerns the petitioner.

UCS is particularly concerned by Target's allegation that Target was told by the licensee and Stone and Webster in 1979 not to consider the second criterion pertaining to normal operating loads as part of the support evaluation effort. Whether or not Target was told not to conduct a normal loads evaluation has little, if any, bearing on the ability of the pipe supports to withstand those loads. As noted earlier, the major issue in the five-plant shutdown and the issuance of IE Bulletins 79-07 and 79-14 was the validity of the seismic portion of the design basis pipe stress analysis and, consequently, the ability of the supports to withstand earthquake loads, as determined by meeting the seismic acceptance criterion set forth above. The March 1979 Show-Cause Order and Bulletins 79-07 and 79-14 did not specifically request the licensee to determine whether the facility's supports met the normal load acceptance criterion. Furthermore, the codes applicable to pipe support design for FitzPatrick do not explicitly state the load combinations to be met for subsequent pipe support changes, including whether normal loads needed to be calculated.¹¹

No threat to public health and safety would result from the case in which supports satisfying the seismic condition allowable limit were not

¹¹ However, the staff would require the licensee to perform and document a normal loads evaluation for plant modifications when the lack of a normal loads evaluation would impact the technical specifications or result in an unreviewed safety question. See 10 C.F.R. § 50.59. Neither of these situations arose from the pipe support design procedures used by the licensee during the FitzPatrick seismic reevaluation effort.

checked against the normal load condition allowable limit. This conclusion is based on the following considerations. In the worst case, where the seismic load component (DBE) in the first condition was zero, the allowable stress limits would be exceeded by a maximum of 33%. Because of the safety factors employed in defining the allowable limits, an increase of this amount would not result in the material yield stress being exceeded with an attendant loss of support integrity. As a result of the reanalyses performed in 1979, the as-built piping system configurations were reflected in both the normal load and seismic load terms appearing in these conditions.

Furthermore, the licensee performed a normal loads evaluation in August 1983, using the second condition for each of 342 supports within the scope of Target's original work to determine if the Code-allowable for normal loads was, in fact, exceeded. Based on this analysis, 337 supports were found to be within the allowable limits. The limits were exceeded for five supports. Further detailed evaluation of these five supports revealed the use of many conservatisms in the original design computations. By use of more realistic assumptions, the licensee was able to demonstrate that normal load limits would, in fact, not be exceeded. The staff audited the normal loads evaluation performed by the licensee, including the calculation packages for the five supports that exceeded Code-allowable limits. This audit, which comprised an evaluation of the methodology employed and an examination of a representative sampling of calculations, found the licensee's effort to be acceptable. Additionally, Stone and Webster performed and documented a normal load reevaluation of all affected supports for which it was the engineer-of-record, which included the twenty supports identified by Target, and determined that the normal loads condition was met in all cases. The staff performed a similar audit of Stone and Webster's reevaluation effort and found the Stone and Webster reevaluation to be acceptable. The total number of supports evaluated by the licensee and by Stone and Webster comprise all the affected supports at FitzPatrick. Therefore, the staff concludes that the normal loads acceptance condition has been satisfied for all affected supports and that no structural modifications to these supports are necessary.

3. Use of Appropriate Code Regarding Earthquake Stresses

The petitioner relies upon Target's understanding of the FitzPatrick FSAR to question whether the proper standard was used in designing the pipe supports to withstand seismic loads. It is asserted that in the FSAR the licensee stated it would use ANSI Code B31.1.0 - 1967 in

designing the FitzPatrick pipe supports. In fact, stated Target, the FitzPatrick architect-engineer used the AISC Code in designing the supports. Consequently, the petitioner is concerned that supports found acceptable using the AISC Code could exceed the allowable limits for seismic loads under ANSI B31.1.0. *See* Petition at 3-4.

According to the licensee, both the ANSI B.31.1.0 and AISC Codes were utilized in the design of supports at FitzPatrick.¹² Integrally welded or bolted attachments to piping and standard catalog items such as hangers and spring cans were designed in accordance with ANSI B31.1.0, whereas the AISC Code was employed for supplementary steel support members. Use of the AISC Code for the design of these members is consistent with section 120.2.4 of ANSI B31.1.0, which states that "supplementary steel shall be designed in accordance with the standards prescribed by the American Institute of Steel Construction (AISC) or the equivalent." In sum, the petitioner's allegation appears to stem from a misinterpretation regarding proper application of the design codes.¹³

4. Failure to Take Action on Problems Identified by Target Technology

In its June 30, 1983 letter, Target expressed its concern to the licensee that activities Target viewed as necessary to comply with IE Bulletins 79-02, 79-07 and 79-14 had not been completed. Target noted that it had informed PASNY in letters dated September 3, 1980 and December 20, 1982, of the necessity for additional action.¹⁴ The petitioner uses this information to assert that the licensee has been on "written notice . . . since at least September of 1980" of the need for additional action. Accordingly, the petitioner views the licensee's failure to take action on the "defect" identified by Target until July 1983 as a violation of 10 C.F.R. Part 21 for which enforcement action is appropriate. *See* Petition at 4-5, 7.

Part 21 of the Commission's regulations, which implements section 206 of the Energy Reorganization Act, requires:

¹² *See* letter from J.A. Gray (PASNY) to H.R. Denton (NRC) (November 18, 1979).

¹³ The petitioner questions whether the licensee made a material false statement "in certifying to NRC that all calculated stresses were checked against the allowables specified in ANSI Code B31.1." when in fact an AISC Code was also utilized. *See* Petition at 7. The statement at issue in the FitzPatrick FSAR is not false or misleading. The ANSI standard which the licensee stated in the FSAR would be used for piping elements (*see* Final Safety Analysis Report, James A. FitzPatrick Nuclear Power Plant, Vol. 8 at C.12.5-16 (July 1982)), sanctions use of the AISC standard for supplementary steel support members. Thus, the licensee complied with ANSI B31.1.0 in designing the FitzPatrick pipe supports.

¹⁴ In Target's view, the additional action to be taken was a normal loads evaluation of the piping supports.

[a]ny individual director or responsible officer of a firm constructing, owning, operating or supplying the components of any facility or activity which is licensed or otherwise regulated pursuant to the Atomic Energy Act . . . who obtains information reasonably indicating: (a) that the facility, activity or basic component . . . fails to comply with the Atomic Energy Act . . . or any applicable rule, regulation, order or license of the Commission relating to substantial safety hazards or (b) that the facility, activity, or basic component . . . contains defects, which could create a substantial safety hazard, to immediately notify the Commission of such failure to comply or such defect, unless [the responsible officer or individual director] has actual knowledge that the Commission has been adequately informed of such defect or failure to comply.

10 C.F.R. §§ 21.1, 21.21(b) (emphasis added). The obligation to make a Part 21 report to the NRC does not arise until it is determined that a defect within the meaning of Part 21 indeed exists. Accordingly, each entity, including a facility licensee, subject to Part 21 is required to adopt appropriate procedures to evaluate deviations to determine whether a defect within the meaning of Part 21 exists. Licensees and other affected entities are also required to adopt appropriate procedures to assure that, if a defect is found to exist, a director or responsible officer is informed of that defect. See 10 C.F.R. § 21.21(a).

Target's letter of September 3, 1980 cannot reasonably be construed as containing information that would indicate a deviation which would require PASNY to conduct an evaluation to determine whether the deviation was indeed a defect within the meaning of Part 21. Target stated that "the purpose of this letter is to follow-up our recent discussion regarding the status of the pipe support design calculations performed by Target . . . with respect to long term FSAR and Code compliance requirements." To trigger a Part 21 evaluation, a deviation must be cast in terms of a safety concern. Target's September 3, 1980 letter falls short in this regard. Target did not state or otherwise indicate that a reportable defect might exist, nor call a potential safety concern to PASNY's attention. The letter is more appropriately viewed as correspondence between a contractor and licensee suggesting that follow-up work be considered. Since normal loads calculations were not explicitly required by the NRC, the staff would not have expected that the licensee undertake a Part 21 evaluation in response to Target's 1980 letter. It was in Target's second letter, dated December 20, 1982 that Target identified its concern as being a potential deficiency reportable under Part 21.

Upon receipt of Target's December 20, 1982 letter, the licensee took action to determine whether a reportable defect existed. PASNY solicited from Target, and received on January 3, 1983, a sample list of affected pipe supports. The sample list, along with Target's December 20th letter, was referred to Stone and Webster for evaluation to determine if Target's concerns were valid. While awaiting a response from Stone and

Webster, PASNY commenced a formal Part 21 evaluation. Based upon its review, PASNY determined that a Part 21 reportable defect was not likely, because even if Target's concerns were correct about not performing the calculations, the maximum overstress above any support's design would be 33%. Given the conservatisms used in designing the supports, exceeding the allowables by 33% would not compromise the integrity of any support. This initial determination has been subsequently confirmed by the NRC, PASNY, and United Engineers. Accordingly, no Part 21 reporting violation occurred with respect to Target's December 20, 1982 letter.

5. Generic Implications of Concerns Regarding Normal Operating Loads

Given the concerns Target raises regarding calculation of normal operating loads at FitzPatrick, the petitioner is concerned that pipe supports at the other four plants shut down with FitzPatrick in 1979 may also be overstressed under normal operating loads. As stated by the petitioner: "[S]ince pipe supports which may be overstressed for normal operating loads have been found at . . . FitzPatrick . . . and since Stone and Webster was the architect-engineer and constructor of all five plants, the Beaver Valley Unit 1, Surry Units 1 and 2 and Maine Yankee plants may have similar conditions of safety significance." See Petition at 6.

As noted earlier, the error discovered in the seismic computer code used by Stone and Webster, which led to the 1979 five plant shutdowns and subsequently to the issuance of IE Bulletins 79-07 and 79-14, had no bearing on the validity of the original normal loads calculations or the ability of the supports to withstand normal operating loads. Stone and Webster's error involved the method used to combine seismic load components and, as such, had no effect on the magnitude of the normal loads employed in the pipe support calculations. Modifications made to supports, as deemed necessary by the seismic reanalyses, provided an enhanced ability of the supports to withstand earthquake loads. Moreover, the pipe support damage at FitzPatrick was limited to a single support in the main steam system. This damage appeared to result from a site-specific problem with improper installation of that particular support. Hence, the results of the seismic and normal loads reanalysis at FitzPatrick do not indicate a substantial safety problem warranting NRC action at the other plants.

Based on this damage assessment, on the inspections performed by the licensee, NRC, and United Engineers of numerous supports at Fitz-

Patrick, and on the staff's audits of normal loads evaluations performed by the licensee and by Stone and Webster for all affected supports at FitzPatrick, there appears to be no basis on which to question the validity of the normal loads calculations performed for supports at FitzPatrick or any indication of a generic overstress condition affecting the supports at FitzPatrick or the other plants mentioned by the petitioner.

IV.

Based upon the foregoing discussion, the petitioner's request is denied. A copy of this decision will be filed with the Secretary for the Commission's review in accordance with 10 C.F.R. § 2.206(c) of the Commission's regulations. As provided in 10 C.F.R. § 2.206(c), this decision will constitute the final action of the Commission 25 days after the date of issuance unless the Commission on its own motion institutes review of this decision within that time.

Harold R. Denton, Director
Office of Nuclear Reactor
Regulation

Dated at Bethesda, Maryland,
this 8th day of May 1984.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

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

In the Matter of

Docket No. 50-322-OL

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

June 5, 1984

The Commission responds to a certification to it by the Appeal Board of two issues concerning (1) the relative scope of the terms "important to safety" and "safety-related" for the purpose of evaluating the acceptability of quality assurance programs established under 10 C.F.R. Part 50; and (2) the conditions under which NEPA would require the Commission to prepare a separate environmental impact statement (EIS) for low-power operation. The Commission declines to reach any final decision on the first, finding that it would be more suitably addressed by rulemaking. It answers the second by ruling that where an EIS for full-power operation has been prepared and adjudicated, the pendency of an adjudication on the emergency planning issue material to full-power operation does not form a basis for an additional NEPA obligation to prepare a separate environmental evaluation of a proposal to issue a low-power operating license to that plant where that issue does not constitute a significant changed circumstance.

NEPA: ENVIRONMENTAL ANALYSIS (LOW-POWER LICENSE)

In the usual case, NEPA does not require any separate environmental analysis of a proposal to issue a low-power operating license. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-728, 17 NRC 777, 793-95 (1983), *aff'd*, CLI-83-32, 18 NRC 1309 (1983). It is well-established NEPA law that separate environmental statements are not required for such intermediate, implementing steps where an environmental impact statement has been prepared for the entire proposed action and there have been no significant changed circumstances. *Environmental Defense Fund, Inc. v. Andrus*, 619 F.2d 1368, 1377 (1980) (and cases cited therein).

MEMORANDUM AND ORDER

The Atomic Safety and Licensing Appeal Board for this proceeding has certified two issues to the Commission:

- I. The relative scope of the terms "important to safety" and "safety-related" for the purposes of evaluating the acceptability of quality assurance programs established under 10 C.F.R. Part 50; and
- II. The conditions under which the National Environmental Policy Act (NEPA) would require the Commission to prepare a separate environmental impact statement for low-power operation.

ALAB-769, 19 NRC 995 (1984).

These questions raise significant issues of law and policy. However, for the reasons discussed below, the Commission declines to reach any final decision on the first issue finding that it would be more suitably addressed by rulemaking and need not be finally resolved for the purposes of this proceeding.

Because the NEPA issue has been briefed and argued below, the Commission finds no need to request yet another round of briefs or argument.

I.

The Appeal Board certified the following questions regarding the Commission regulations on quality assurance:

1. Are the terms "important to safety" and "safety-related" to be deemed synonymous for the purpose of establishing an acceptable quality assurance program in accordance with GDC 1 of Appendix A and Appendix B to 10 C.F.R. Part 50?
2. How should the outcome of Question 1 be applied to the operating license application proceeding before us?

Id. at 1010.

The material already in the record of this proceeding shows that the issue presented by Question 1 requires further consideration in a forum broad enough to encompass the far-reaching ramifications of any decision on this issue. As the Appeal Board found, the history of the use of the terms "important to safety" and "safety-related" is tortuous and somewhat inconsistent. A comprehensive analysis of this history will be more accurate if it has the benefit of the institutional memories of as many individuals as possible. The application of such an analysis could result in a decision having significant consequences for the NRC's regulatory program. This potential for significant decision warrants broad public participation. Accordingly, the Commission will initiate a rulemaking proceeding on this issue.

In the interim, the Boards are to continue to proceed on a case-by-case basis in accordance with current precedent. *Cf. Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-729, 17 NRC 814 (1983).

The Commission understands current precedent to hold that the term "important to safety" applies to a larger class of equipment than the term "safety-related." However, this does not mean that there is a pre-defined class of equipment at every plant whose functions have been determined by rule to be "important to safety" although the equipment is not "safety-related." Rather, whether any piece of equipment has a function "important to safety" is to be determined on the basis of a particularized showing of clearly identified safety concerns for the specific equipment, and the requirements of General Design Criterion 1 (GDC 1) must be tailored to the identified safety concerns.

II.

The Appeal Board certified the following question regarding the Commission's compliance with NEPA:

Is some form of environmental evaluation under NEPA required as a precondition to issuance of a license for low power operation in this proceeding if such issuance is otherwise warranted?

ALAB-769, *supra*, 19 NRC at 1010.

For the reasons discussed below, the Commission finds that NEPA does not require the Commission to prepare an Environmental Impact Statement (EIS) or any other form of environmental evaluation on a proposal to issue a low-power license for the Shoreham facility.

NEPA requires the NRC to prepare an environmental impact statement for every proposed major Federal action which would significantly affect the quality of the human environment. 42 U.S.C. § 4332(2)(C). The Commission's regulations implementing NEPA do not explicitly require the preparation of an EIS for a proposal to issue a low-power operating license. 10 C.F.R. § 51.20(b).

The Commission's regulations also recognize that some proposed Federal actions either may not be major or may not have significant impacts on the human environment. 10 C.F.R. § 51.21. For such other proposals, the Commission determines on a case-by-case basis whether to prepare an EIS or some other appropriate environmental documentation, *i.e.*, either an environmental impact appraisal and negative declaration or no statement at all. 10 C.F.R. § 51.25. Part 51 does not explicitly address a proposal to issue a license to operate a power reactor at less than full power or at less than the design capacity.

The Commission has determined that in the usual case NEPA does not require any separate environmental analysis of the proposal to issue a low-power operating license. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-728, 17 NRC 777, 793-95 (1983), *aff'd*, CLI-83-32, 18 NRC 1309 (1983). This is because the low-power license is simply a small component of or intermediate step to the full-power license and the environmental evaluation for low-power operation is subsumed within the environmental impact statement for full-power operation. Low-power operation presents no environmental impacts different in kind from those considered in an EIS for full power. Any environmental impacts of low-power operation are a small subset of the set of impacts from full-power operation and, thus, are intrinsically considered in the full-power EIS. It is well-established NEPA law that separate environmental statements are not required for such intermediate, implementing steps where an EIS has been prepared for the entire proposed action. *Environmental Defense Fund, Inc. v. Andrus*, 619 F.2d 1368, 1377 (1980) (and cases cited therein).

Low-power operation is also not an alternative to full-power operation. Accordingly, low-power operation is not a reasonably foreseeable alternative requiring separate environmental analysis on this basis.

Suffolk County (County) contends that the proposed low-power operating license for Shoreham presents an unusual case because it believes that an offsite emergency plan cannot be developed for this plant. This circumstance, in the County's view, makes low-power operation without subsequent full-power operation a reasonably foreseeable alternative for the purposes of NEPA. Accordingly, the County believes that a separate EIS or environmental evaluation is necessary for the proposed low-power license for Shoreham.

Suffolk County's position is based on its speculation on the outcome of the adjudication of offsite emergency planning issues. The appropriateness of such speculation in this proceeding has already been addressed by the Commission in response to an earlier certified question by the Licensing Board. In LBP-83-21, 17 NRC 593 (1983), the Licensing Board suggested that a low-power license should not be issued where there is no reasonable assurance that a full-power license will ever be issued.

The Commission rejected this suggestion. The Commission found that 10 C.F.R. § 50.47(d) established unqualified authorization to issue a low-power license without the need for a predictive finding of reasonable assurance that a full-power license will eventually issue. CLI-83-17, 17 NRC 1032, 1034 (1983). Accordingly, the Commission declined to speculate on whether offsite emergency planning issues would be resolved satisfactorily for the purposes of a full-power license.

The Commission's earlier decision did not explicitly address Suffolk County's NEPA argument. However, that decision does implicitly suggest that uncertainty about the ultimate disposition of contested offsite emergency planning issues is too speculative to be cognizable as a changed circumstance for the purposes of finding that a supplementary environmental evaluation is required by NEPA. Uncertainty over offsite emergency planning is not a changed circumstance. In any contested full-power proceeding there is uncertainty over the outcome of full-power licensing issues. Controversy over offsite planning is not some new, recent development in this case or, for that matter, distinguishable from controversy over other contested full-power issues. Accordingly, the Commission finds that the pendency of a contested issue related to full-power operation may not be considered as changed circumstances for the purposes of NEPA.

For these reasons, the Commission finds that where an EIS for full-power operation of a nuclear power plant has been prepared and adjudicated, the pendency of an adjudication on the emergency planning issue material to full-power operation does not constitute a basis for an additional NEPA obligation to prepare a separate environmental evaluation of a proposal to issue a low-power operating license to that plant. Therefore, the Commission finds that NEPA does not require a separate environmental evaluation or separate EIS for the proposed low-power operation of Shoreham.

The separate views of Commissioners Gilinsky and Asselstine are attached. They dissent in part from this decision.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 5th day of June 1984.

**SEPARATE VIEWS OF COMMISSIONER GILINSKY
(SHOREHAM – CERTIFIED QUESTION REGARDING NEPA)
6/5/84**

I agree with the views expressed by Commissioner Asselstine. In the particular circumstances of this case, where there is a substantial question about whether commercial operation of the reactor will ever be allowed, it is irresponsible to permit the plant to become irradiated without evaluating the costs and benefits of the low-power testing program.

**SEPARATE VIEWS OF COMMISSIONER ASSELSTINE
(SHOREHAM – CERTIFIED QUESTIONS)**

I have voted to disapprove that portion of the Commission's order dealing with whether the Commission must perform an environmental

evaluation before it can issue a low-power (5%) license to the owners of Shoreham. Normally the Commission need not consider the environmental effects of, or do a cost-benefit balance for, the issuance of a 5% license. The environmental effects of the issuance of a low-power license are subsumed in the consideration of the full-power license, and a separate or supplemental EIS is not required for each component action — *i.e.*, each step leading to a full-power license. *Environmental Defense Fund, Inc. v. Andrus*, 619 F.2d 1368 (9th Cir. 1982). However, if circumstances change subsequent to the issuance of the EIS sufficiently to suggest that the EIS does not adequately discuss a specific component action or its alternatives and if the component action viewed alone constitutes a major federal action, NEPA requires the preparation of an environmental evaluation. 619 F.2d at 1377; *Save Our Sycamore v. MARTA*, 576 F.2d 573, 576 (5th Cir. 1978).

In this case there is a reasonable likelihood, which is much more likely than when the EIS was completed, that Shoreham might never receive a full-power license because the state and local governments have refused to participate fully in emergency preparedness. Given this change in circumstances, the Commission should perform an environmental evaluation, including a cost-benefit balance, of the issuance of only a low-power license. The Commission should at least weigh the costs of contaminating a plant which would never go above 5% power against whatever benefits the 5% license would produce. By refusing to do so, the Commission is, in effect, saying that no evaluation is necessary because there is no reasonable possibility that Shoreham will not get its full-power license.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gilinsky¹
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal

In the Matter of

Docket No. 50-142-OL
(Proposed Renewal of
Facility License)

THE REGENTS OF THE UNIVERSITY
OF CALIFORNIA
(UCLA Research Reactor)

June 8, 1984

The Commission declines to grant a staff request to initiate a rulemaking proceeding which would propose to amend 10 C.F.R. § 73.40(a) by adopting the staff's interpretation of that section and thereby modify effectively the Licensing Board's ruling that the section requires the licensee in this facility license renewal proceeding to take some measures to protect the facility from potential sabotage.

ORDER

This proceeding concerns the University of California's application to renew the license for its Argonaut research reactor at the Los Angeles campus (UCLA). In the course of this proceeding, the Atomic Safety

¹ Commissioner Gilinsky has recused himself from this proceeding.

and Licensing Board held that 10 C.F.R. § 73.40(a) requires UCLA to take some measures to protect the reactor from potential sabotage. LBP-83-25A, 17 NRC 927 (1983) and LBP-83-67, 18 NRC 802 (1983). The extent of those measures is an issue in the current adjudication.

The NRC staff, a party to this proceeding, believes that the Licensing Board's interpretation is contrary to NRC licensing practice. Therefore, the staff has requested Commission approval to initiate a rulemaking proceeding which would amend 10 C.F.R. § 73.40(a) to explicitly incorporate the staff's interpretation of that requirement. Such Commission approval could be taken as the Commission's tentative adoption of staff's interpretation.

The Committee to Bridge the Gap (CBG), the intervenor in this proceeding, contends that the staff's proposal is an *ex parte* communication and an impermissible interlocutory appeal which bypasses the NRC's normal adjudicatory procedures.

The staff has lodged a response to CBG. Staff believes that the opportunity to comment in a rulemaking proceeding provides CBG an adequate opportunity to comment to the Commission. Staff also claims that the rule is necessary to prevent placing other reactor licenses in jeopardy.

This situation raises some difficult issues regarding the interplay between the staff's participation as a party to an adjudication and its obligation to recommend to the Commission the resolution of issues by rulemaking. We need not reach those issues today. It is sufficient to note that the staff has made no showing as to why the available adjudicatory procedures are inadequate to address the Licensing Board's decision.

Accordingly, the Commission declines the staff's request to initiate a rulemaking proceeding to modify the Licensing Board's decision in LBP-83-25A and LBP-83-67. To eliminate any *ex parte* connotation, staff is instructed to provide copies of SECY-83-500 and SECY-83-500A to the parties to this proceeding. If the staff continues to believe that the Licensing Board's interpretation of 10 C.F.R. § 73.40(a) requires prompt Commission attention, then the staff should avail itself of the available adjudicatory procedures.²

² These procedures include: (1) a motion requesting the Licensing Board to certify the issue to the Appeal Board pursuant to 10 C.F.R. §§ 2.718(i) and 2.730(f); or (2) a motion to the Appeal Board to certify this issue to itself pursuant to 10 C.F.R. § 2.718(i).

Chairman Palladino's dissenting views are attached.
It is so ordered.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 8th day of June 1984.

DISSENTING VIEWS OF CHAIRMAN PALLADINO

I disagree with that portion of the Commission's order that declines to initiate rulemaking because "the staff has made no showing as to why the available adjudicatory procedures are inadequate to address the Licensing Board's decision." Order, p. 1331, *supra*.

The Commission majority appears concerned that rulemaking may short-circuit the adjudicatory process. However, it appears that rulemaking was proposed by the NRC staff at the Licensing Board's suggestion. See NRC Staff Response to Board Order Concerning Contention XX at 5 (Dec. 13, 1983). Thus, it does not appear to me that the intent of the staff was to short-circuit the adjudicatory process.

Adjudication can address what NRC regulations require, but it is not a way to modify the regulations. Assuming that the staff first pursues its adjudicatory options as the majority suggests, the Licensing Board's interpretation of the regulations might be upheld on review. At that point under the majority's approach, the staff could apparently request rulemaking to amend the regulations and the Commission might conclude that rulemaking would be appropriate. Thus, I question what is to be gained by forcing the staff first to pursue adjudication before proposing rulemaking. On the contrary, delay in addressing the question of rulemaking may create unnecessary uncertainty for other licensees.

I believe that the better course would be for the Commission to consider rulemaking now and propose an amendment to the rules if there exists a sound supporting technical basis.

I do not intend these views to intimate a judgment on my part on any issue in the UCLA proceeding. I have reached no such judgment.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

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

In the Matter of

Docket No. 50-322-OL
(Emergency Planning)

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

June 13, 1984

Upon appeal of a Licensing Board order requiring that the Federal Emergency Management Agency (FEMA) release to an intervenor in this operating license proceeding certain agency documents concerning FEMA's emergency preparedness determinations for the facility, the Appeal Board reverses, determining that the documents are privileged under the executive or deliberative process privilege and the intervenor has not made a showing of need sufficient to override the privilege.

RULES OF PRACTICE: DISCOVERY

Pursuant to 10 C.F.R. § 2.740(b)(1) of the Commission's regulations, parties may generally obtain discovery regarding any matter, not privileged, which is relevant to the subject matter involved in the proceeding.

OPERATING LICENSE(S): EMERGENCY PREPAREDNESS

Under Commission regulations, no full-power 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).

OPERATING LICENSE(S): EMERGENCY PREPAREDNESS (FEMA FINDINGS)

With regard to the adequacy of offsite emergency measures, the NRC must base its findings 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 they can be implemented. 10 C.F.R. § 50.47(a)(2).

OPERATING LICENSE(S): EMERGENCY PREPAREDNESS (FEMA FINDINGS)

Under a Memorandum of Understanding entered into by the Commission and FEMA in 1980, FEMA has the responsibility for reviewing emergency plans and agrees to provide the NRC with findings and determinations on the current status of emergency preparedness around particular plant sites for use in NRC licensing proceedings. 45 Fed. Reg. 82,713 (1980).

OPERATING LICENSE(S): EMERGENCY PREPAREDNESS (FEMA FINDINGS)

In connection with applications for operating licenses, the NRC reviews FEMA findings and determinations on the status of emergency planning around a plant and then makes its own decisions with regard to the overall state of emergency preparedness.

RULES OF PRACTICE: EXECUTIVE PRIVILEGE

The executive (or deliberative process) privilege protects from public disclosure governmental documents reflecting advisory opinions, recommendations, and deliberations comprising part of a process by which governmental decisions and policies are formulated. *Carl Zeiss Stiftung v. V.E.B. Carl Zeiss, Jena*, 40 F.R.D. 318 (D.D.C. 1966), *aff'd*,

384 F.2d 979 (D.C. Cir.), *cert. denied*, 389 U.S. 952 (1967). See also *NLRB v. Sears, Roebuck & Co.*, 421 U.S. 132, 150 (1975); *United States v. Leggett & Platt, Inc.*, 542 F.2d 655, 658-59 (6th Cir. 1976), *cert. denied*, 430 U.S. 945 (1977).

RULES OF PRACTICE: EXECUTIVE PRIVILEGE

The executive privilege may be invoked in NRC proceedings. *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), CLI-74-16, 7 AEC 313 (1974); *Consumers Power Co.* (Midland Plant, Units No. 1 & 2), ALAB-33, 4 AEC 701 (1971).

RULES OF PRACTICE: EXECUTIVE PRIVILEGE (QUALIFIED)

The executive privilege is qualified and can be overcome by an appropriate showing of need. A balancing test is applied to determine whether a litigant's demonstrated need for a document outweighs the asserted interest in confidentiality. *Carl Zeiss Stiftung, supra*, 40 F.R.D. at 327.

RULES OF PRACTICE: EXECUTIVE PRIVILEGE (BURDEN OF PROOF)

The government agency bears the burden of demonstrating that the executive privilege is properly invoked, but the party seeking the withheld information has the burden of showing that there is an overriding need for its release. *Smith v. FTC*, 403 F. Supp. 1000, 1016 (D. Del. 1975); *United States v. AT&T*, 86 F.R.D. 603, 610 (D.D.C. 1979).

RULES OF PRACTICE: EXECUTIVE PRIVILEGE (SCOPE)

The executive privilege is not limited to policymaking, but may attach to the deliberative process that precedes most decisions of government agencies. *Russell v. Dep't. of the Air Force*, 682 F.2d 1045, 1047 (D.C. Cir. 1982).

RULES OF PRACTICE: EXECUTIVE PRIVILEGE (SCOPE)

The executive privilege does not protect purely factual material unless it is inextricably intertwined with privileged communications, or the disclosure of the factual material would reveal the agency's decisionmaking

process. *Sterling Drug Inc. v. Harris*, 488 F. Supp. 1019, 1024 (S.D.N.Y. 1980); *Russell, supra*, 682 F.2d at 1048.

RULES OF PRACTICE: EXECUTIVE PRIVILEGE (SCOPE)

The executive privilege protects both intra-agency and inter-agency documents and may even extend to outside consultants to an agency. *Lead Industries Ass'n v. OSHA*, 610 F.2d 70, 83 (2d Cir. 1979), *citing Soucie v. David*, 448 F.2d 1067, 1078 n.44 (D.C. Cir. 1971); *Wu v. National Endowment for Humanities*, 460 F.2d 1030, 1032 (5th Cir. 1972), *cert. denied*, 410 U.S. 926 (1973). *Cf. National Small Shipments Traffic Conference, Inc. v. ICC*, 725 F.2d 1442, 1449 (D.C. Cir. 1984) (“[b]ecause . . . consultants operate as the functional equivalent of regular staff, they constitute agency insiders”).

APPEARANCES

Stewart M. Glass, New York, New York, (with whom **George Jett**, **Spence W. Perry**, and **Lorri L. Jean**, Washington, D.C., were on the brief) for the Federal Emergency Management Agency.

Karla J. Letsche, Washington, D.C. (with whom **Martin B. Ashare**, **Hauppauge**, New York, and **Herbert H. Brown**, **Lawrence Coe Lanpher**, and **Christopher M. McMurray**, Washington, D.C., were on the brief) for Suffolk County, New York.

Donald P. Irwin, Richmond, Virginia, (with whom **Lee B. Zeugin**, Richmond, Virginia, was on the brief) for the Long Island Lighting Company.

Edwin J. Reis (**David A. Repka** on the brief) for the Nuclear Regulatory Commission staff.

DECISION

Pursuant to 10 C.F.R. § 2.740(b)(1) of the Commission’s regulations, parties may generally obtain discovery “regarding any matter, not privileged, which is relevant to the subject matter involved in the proceeding” The Federal Emergency Management Agency (FEMA)

appeals from a Licensing Board decision ordering production of various documents in connection with the ongoing litigation of emergency planning issues in this operating license proceeding involving Long Island Lighting Company's (LILCO) Shoreham nuclear facility. FEMA opposed intervenor Suffolk County's request for production of the documents on the ground that they are exempt from discovery under the executive or deliberative process privilege. In our view, the privilege is validly invoked here and the County has not made the requisite showing of need for the documents at this stage of the litigation. Accordingly, we reverse the Licensing Board's decision.

BACKGROUND

Under Commission regulations, no full-power 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.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."²

FEMA is an independent agency within the Executive Branch established pursuant to Reorganization Plan No. 3 of 1978.³ Its director is appointed by the President with the advice and consent of the Senate.⁴ In response to the recommendations of the Kemeny Commission on the accident at Three Mile Island, President Carter directed that FEMA

¹ See 10 C.F.R. § 50.47(a)(1). By virtue of 10 C.F.R. § 50.47(d), the Commission has ruled that a license authorizing fuel loading and low-power testing at Shoreham may be issued in the absence of an approved *offsite* emergency plan. See CLI-83-17, 17 NRC 1032 (1983).

² 10 C.F.R. § 50.47(a)(2). This provision reads, in part, as follows:

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.

³ 43 Fed. Reg. 41,943 (1978). FEMA was activated by Exec. Order No. 12,127, 44 Fed. Reg. 19,367 (1979).

⁴ 43 Fed. Reg. 41,943 (1978). See also Exec. Order No. 12,148, 44 Fed. Reg. 43,239 (1979).

assume lead responsibility for all offsite nuclear emergency planning and response.⁵

To facilitate coordinated planning, FEMA and the Commission entered into a Memorandum of Understanding in January 1980 delineating the respective responsibilities and undertakings of the two agencies.⁶ That Memorandum was superseded later in 1980.⁷ Under the Memorandum now in effect, FEMA has the responsibility for reviewing emergency plans and agrees to provide the NRC with findings and determinations on the current status of emergency preparedness around particular plant sites for use in NRC licensing proceedings. FEMA also agrees to make expert witnesses available at such proceedings, including related discovery proceedings, to support its findings and determinations. The NRC then reviews the FEMA findings and determinations and makes decisions with regard to the overall state of emergency preparedness in connection with applications for operating licenses.⁸

FEMA relies on Regional Assistance Committees (RACs) to review emergency plans and prepare the FEMA findings and determinations. These committees are set up in each region to assist state and local officials in the development of emergency plans, and to review the adequacy of those plans.⁹ They generally consist of representatives from the NRC, the Environmental Protection Agency, the Departments of Health and Human Services, Energy, Transportation, Agriculture, and Commerce, and other Federal departments or agencies as appropriate.¹⁰ Each RAC is chaired by the FEMA Regional Representative.

Pursuant to a request from the NRC, FEMA arranged for a RAC to review the LILCO emergency plan, referred to as the LILCO Transition Plan.¹¹ Representatives from six federal agencies, plus two FEMA consultants, conducted the review of Revisions I and III of the plan. Their individual comments evolved into a single plan review document that was the subject of a RAC meeting at the FEMA offices in New

⁵ See Exec. Order No. 12,241, 45 Fed. Reg. 64,879 (1980) and Memorandum of Understanding Between NRC and FEMA to Accomplish a Prompt Improvement in Radiological Emergency Planning and Preparedness, 45 Fed. Reg. 5847, 5848 (1980).

⁶ 45 Fed. Reg. 5847 (1980).

⁷ 45 Fed. Reg. 82,713 (1980).

⁸ The establishment of day-to-day procedures for carrying out the arrangements in the Memorandum is in the hands of an NRC/FEMA Steering Committee comprised of equal numbers of FEMA and NRC representatives. Steering Committee decisions must be unanimous and, in the event of disagreement, issues are referred to NRC and FEMA management for resolution.

⁹ 44 C.F.R. § 350.6(b).

¹⁰ See 44 C.F.R. § 351.10.

¹¹ See Memorandum in Support of FEMA's Appeal of an Order of the Atomic Safety and Licensing Board and Request for a Stay (May 21, 1984) (affidavit of Louis O. Giuffrida at 2).

York City on January 20, 1984.¹² The final review document was submitted to the NRC on March 15, 1984.¹³

FEMA submitted its findings and determinations in the form of testimony on April 18. It consisted of textual material prepared by four witnesses, including the RAC Chairman, plus several attachments, including the RAC Final Report. Two days later, intervenor Suffolk County served on FEMA a request that it produce various documents. The County requested:

All documents that were produced in connection with, or in any way relate to the FEMA Regional Assistance Committee ("RAC") review of the Lilco Transition Plan for the Shoreham Nuclear Power Station, including, but not limited to . . . [a]ll memoranda, correspondence, questions, comments, reports, evaluations, ratings, summaries, notes, . . . drafts, . . . and transcripts, minutes, summaries or notes of meetings, discussions or conferences including telephone conferences, among RAC members or others relating to the RAC review. . . .¹⁴

On May 8, Suffolk County filed with the Licensing Board a motion to compel a response to its request for the production of documents. Informal discussions led to the release of some material but, during a conference among the parties and the Licensing Board on May 9, FEMA indicated that it would assert the executive or deliberative process privilege with respect to thirty-seven documents. This privilege protects from public disclosure governmental documents reflecting advisory opinions, recommendations, and deliberations comprising part of a process by which governmental decisions and policies are formulated.¹⁵

The Licensing Board established a schedule for the filing of a list of the documents, the submission of briefs, and *in camera* Board examination of the documents themselves. Following the receipt of all materials and inspection of the documents, the Licensing Board, during a telephone conference call on the afternoon of May 18, announced its ruling ordering the release of thirty of the thirty-seven items. The Board followed up its oral ruling with a memorandum and order issued later that day.¹⁶

The Board found, as a threshold matter, that FEMA had made a *prima facie* showing of executive privilege.¹⁷ In this connection, the Board

¹² *Id.* (affidavit of Roger B. Kowieski at 6).

¹³ *Id.* (affidavit of Louis O. Giuffrida at 2).

¹⁴ See Suffolk County Request for Production of Documents by FEMA (April 20, 1984) at 2.

¹⁵ *Carl Zeiss Stiftung v. V.E.B. Carl Zeiss, Jena*, 40 F.R.D. 318 (D.D.C. 1966), *aff'd*, 384 F.2d 979 (D.C. Cir.), *cert. denied*, 389 U.S. 952 (1967).

¹⁶ Memorandum and Order Ruling on Suffolk County Motion to Compel Production of Documents by FEMA (May 18, 1984) (unpublished) (hereafter Memorandum and Order).

¹⁷ *Id.* at 6.

rejected the County's assertion that the material consisted of purely factual matter not subject to the privilege. "[T]he thrust of these documents," the Board found, "is that they contain evaluations, advisory opinions, recommendations and deliberations which fall within 'executive privilege.' We also find that the FEMA findings . . . as adopted from the RAC Report, involve the decision making process of government which is protected by executive privilege."¹⁸

The Board nevertheless determined that the County's need for the documents "is greater than the harm or 'chilling effect' which such release will have on decision making in the future."¹⁹ The Board found it significant that the RAC Report was part of the FEMA findings and determinations to be submitted formally into evidence at the hearing, and determined that "it would be unfair to deny the County access to the underlying documents and processes by which the RAC Report achieved its final form."²⁰ The Board ordered FEMA to turn over the documents by close of business on May 21.

On the afternoon of May 21, FEMA filed an appeal from the Licensing Board's order, accompanied by a motion for a stay of the Board's decision. Later that afternoon, we entered an *ex parte* emergency stay to protect our jurisdiction and, following the submission of written responses to the FEMA motion and oral argument held on May 23, we continued the stay pending expedited consideration of FEMA's appeal on the merits.²¹ Briefs addressing the merits of FEMA's claim were filed on June 1, supplemental briefs were filed on June 5,²² and we heard oral argument on June 7.

ANALYSIS

1. *Legal Principles*

The legal principles governing the issues under review may be stated simply and, as the Licensing Board observed and both FEMA and Suf-

¹⁸ *Ibid.*

¹⁹ *Id.* at 7-8.

²⁰ *Id.* at 8.

²¹ Memorandum and Order of May 24, 1984 (unpublished).

²² On May 30, we specifically requested that the parties address the permissibility and advisability of one federal agency's ordering the disclosure of documents by another agency. We asked that the issue be addressed generally, and with specific reference to the Memorandum of Understanding establishing procedures for FEMA's participation in NRC licensing proceedings. Order of May 30, 1984 (unpublished). This issue was the subject of the June 5 supplemental briefs. The briefs, prepared under a tight deadline, have been quite helpful. All parties are in agreement that in appropriate circumstances the Licensing Board has authority to order the release of the documents.

folk County acknowledge,²³ are largely uncontroverted. (As we shall discuss later, application of these principles to the facts of this case produces the disagreement among the parties.) The deliberative process privilege protects from discovery governmental documents reflecting advisory opinions, recommendations and deliberations comprising part of a process by which governmental decisions and policies are formulated.²⁴ The privilege may be invoked in NRC proceedings.²⁵ It is a qualified privilege, however, which can be overcome by an appropriate showing of need.²⁶ A balancing test must be applied to determine whether a litigant's demonstrated need for the documents outweighs the asserted interest in confidentiality. In this respect, the government agency bears the burden of demonstrating that the privilege is properly invoked,²⁷ but the party seeking the withheld information has the burden of showing that there is an overriding need for its release.²⁸

2. *Weighing and Balancing Competing Interests*

Following consideration of supporting affidavits filed by the Director of FEMA and other FEMA officials, and after *in camera* review of the documents, the Licensing Board found that FEMA had adequately demonstrated that the privilege is properly invoked in this case. We agree. Suffolk County claims that the privilege does not apply because the documents contain technical findings that have nothing to do with FEMA policymaking.²⁹ The privilege is not limited to policymaking, however. Rather, it may attach to "the deliberative process that precedes most decisions of government agencies."³⁰ The Licensing Board was cor-

²³ Memorandum and Order at 3-4; Suffolk County Brief in Opposition to FEMA's Appeal of the May 18 ASLB Order Compelling Production of Documents by FEMA (June 1, 1984) at 13 (hereafter Suffolk County Brief); Memorandum in Support of FEMA's Appeal of an Order of the Atomic Safety and Licensing Board at 7 (hereafter FEMA Brief).

²⁴ *NLRB v. Sears, Roebuck & Co.*, 421 U.S. 132, 150 (1975); *United States v. Leggett & Platt, Inc.*, 542 F.2d 655, 658-59 (6th Cir. 1976), *cert. denied*, 430 U.S. 945 (1977); *Carl Zeiss Stiftung, supra*, 40 F.R.D. at 324.

²⁵ *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), CLI-74-16, 7 AEC 313 (1974); *Consumers Power Co.* (Midland Plant, Units No. 1 & 2), ALAB-33, 4 AEC 701 (1971).

²⁶ *Carl Zeiss Stiftung, supra*, 40 F.R.D. at 327. Suffolk County indicates that the privilege can be overcome "by a showing of compelling need." Suffolk County Brief at 13.

²⁷ *Smith v. FTC*, 403 F. Supp. 1000, 1016 (D. Del. 1975).

²⁸ *United States v. AT&T*, 86 F.R.D. 603, 610 (D.D.C. 1979).

²⁹ Suffolk County Brief at 16-17.

³⁰ *Russell v. Dep't of the Air Force*, 682 F.2d 1045, 1047 (D.C. Cir. 1982). Although the *Russell* case involved a request under the Freedom of Information Act (FOIA), 5 U.S.C. § 552, it is relevant to a consideration of the scope of the deliberative privilege because FOIA Exemption 5 incorporates civil discovery privileges. *Renegotiation Board v. Grumman Aircraft Engineering Corp.*, 421 U.S. 168, 184 (1975).

rect in determining that it applies to the decisional process by which FEMA arrives at its findings and conclusions.³¹

We recognize that purely factual material must be segregated and released unless “inextricably intertwined” with privileged communications,³² or the disclosure of such factual material would reveal the agency’s decisionmaking process.³³ The Licensing Board rejected Suffolk County’s claim that the documents contained discrete factual information. We have reviewed the documents ourselves and agree that the statements of fact cannot be segregated.

Playboy Enterprises, Inc. v. Dep’t of Justice,³⁴ relied on by the County,³⁵ does not require a contrary result. In that case, the court concluded that whether material is considered factual or deliberative is determined in part by the context in which the material was prepared. Factual material included in case summaries was protected against disclosure where prepared “for the sole purpose of assisting the . . . [decisionmaker] to make a complex decision in an adjudicatory proceeding.”³⁶ Such material was contrasted with that “prepared only to inform the Attorney General of facts which he in turn would make available to members of Congress.”³⁷ The *Playboy* case is consistent with the well-recognized distinction between memoranda prepared in order to assist a decisionmaker in arriving at a decision and those — such as postdecisional memoranda — that are not.³⁸ Cases decided after *Playboy* have approved the withholding of “the raw materials that went into the formulation” of an agency commissioner’s remarks³⁹ as well as “a preliminary draft of . . . [an] official document.”⁴⁰

Having found that the privilege was properly asserted, the Licensing Board went on to find that, under a balancing test, the County’s need for the documents was sufficient to override the privilege claim. Ordinarily, we would accord deference to the Board’s ultimate balance.

³¹ See *Renegotiation Board, supra* (privilege applies to predecisional documents which are used as part of a process to determine whether certain profits by government contractors were excessive); *Machin v. Zuckert*, 316 F.2d 336 (D.C. Cir.), *cert. denied*, 375 U.S. 896 (1963), *cited with approval in United States v. Weber Aircraft Corp.*, 52 U.S.L.W. 4351, 4352 (U.S. March 20, 1984) (privilege applies to accident reports where disclosure would hamper the efficient operation of the Air Force flight safety program).

³² *Sterling Drug Inc. v. Harris*, 488 F. Supp. 1019, 1024 (S.D.N.Y. 1980).

³³ *Russell, supra*, 682 F.2d at 1048.

³⁴ 677 F.2d 931 (D.C. Cir. 1982).

³⁵ App. Tr. 148.

³⁶ *Playboy Enterprises, supra*, 677 F.2d at 936.

³⁷ *Ibid.*

³⁸ *Renegotiation Board, supra*, 421 U.S. at 184.

³⁹ *ITT World Communications v. FCC*, 699 F.2d 1219, 1236-37 (D.C. Cir. 1983), *rev’d on other grounds*, 52 U.S.L.W. 4507 (U.S. April 30, 1984).

⁴⁰ *Russell, supra*, 682 F.2d at 1047.

In the instant case, however, we find that the Board improperly evaluated the relevant factors and its ultimate balance is therefore tainted.

As far as we are able to tell, the thirty documents now in dispute were part of omnibus requests made by Suffolk County, both through discovery and under the Freedom of Information provisions of the Administrative Procedure Act, 5 U.S.C. § 552. Numerous documents have been released to the County voluntarily.⁴¹ In addition, FEMA has agreed to make four witnesses available for deposition, three of whom participated in the RAC process. Suffolk County was offered an opportunity to depose these witnesses together or separately and has chosen to do so separately.⁴² While we can understand the County's desire to review the undisclosed documents in the interest of obtaining the maximum amount of background information — and, indeed, the County would be entitled to do so in the absence of the invocation of the privilege — Commission⁴³ and judicial⁴⁴ precedent requires some overriding need or special circumstances in order to overcome a valid claim of privilege. In our view, the County has not demonstrated — at least at this juncture — that currently available sources are inadequate to permit a genuine probing of the bases for the FEMA findings and the RAC's collegial conclusions.

Essentially, we cannot agree with the Board that the County has as yet made out a convincing case that it cannot obtain relevant information elsewhere. Obviously, the County is entitled to probe the FEMA findings, explore their bases, assess their accuracy, and determine what reliance should be placed on them. To that end, FEMA will make its sponsoring witnesses available for deposition and cross-examination.

⁴¹ LILCO states that FEMA has produced "over 1100 pages of documents relative to its review of Shoreham in response to an FOIA request . . . forty of these documents have been identified by FEMA as bearing on the RAC Review." LILCO Brief at 5. FEMA indicates that it has produced "numerous other documents . . . and identified at least fifty of those released documents that were directly responsive to Suffolk County's motion to compel production of documents relating to the RAC review." FEMA Brief at 11. Suffolk County acknowledges that 40 or 50 documents were made available. App. Tr. 120.

⁴² LILCO Brief at 5-6.

⁴³ *North Anna*, *supra*, 7 AEC at 313 (Advisory Committee on Reactor Safeguards documents ordered disclosed where withheld information necessary to a proper decision, information not reasonably obtainable elsewhere, the safety issue discovered after original proceedings concluded, and existence of serious allegations that the licensee had intentionally withheld information for several years). *Cf. Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-715, 17 NRC 102 (1983) (exceptional circumstances for issuance of subpoena to additional staff witnesses found where there may be a genuine scientific disagreement on a central decisional issue).

⁴⁴ *Carl Zeiss Stiftung*, *supra*, 40 F.R.D. at 328-29 (privileged Department of Justice documents containing internal opinions, advice, and recommendations immune from discovery in civil litigation between private parties where other documents were made available by the government and no showing of need). *See also United States v. Nixon*, 418 U.S. 683 (1974) (due process rights of criminal defendants to obtain relevant evidence outweigh the President's interest in maintaining confidentiality of privileged communications).

They may be examined as to the soundness and reliability of the scientific assumptions or professional judgments underlying the FEMA findings. While the County may well find it helpful to have predecisional materials — for impeachment purposes or to reveal soft spots in the final testimony, for example — it has not shown that its right to explore the underpinnings of the FEMA findings and determinations cannot be satisfied without the documents it seeks.

During the course of oral argument there was substantial conjecture over precisely what information FEMA's sponsoring witnesses would provide and whether such information would turn out to be adequate for the County's needs. Not surprisingly, counsel for FEMA argued that the agency's witnesses will be forthcoming and the substantive bases or professional judgments underlying FEMA's findings will be subjected to scrutiny. FEMA appears interested primarily in protecting the identity of those RAC participants who articulated certain views, rather than the existence or substance of those views.⁴⁵ Counsel for the County disavows any particular interest in the names of individuals putting forth specific views; she seeks only the bases for the RAC conclusions.⁴⁶ She nonetheless claims that she simply does not know precisely how far she would be permitted to examine the witnesses before FEMA will interpose an objection.⁴⁷ What we have before us at the moment is little more than speculation regarding what may occur as the discovery or hearing process unfolds. Such conjecture cannot constitute the requisite showing of need sufficient to override FEMA's invocation of the privilege.

There are other, equally compelling considerations that dictate that the Licensing Board for the moment should have stayed its hand. If FEMA is correct that sufficient information will be forthcoming, there will be no need to order the requested documents to be released. Such result would, of course, avoid any confrontation with FEMA's legitimate interest in protecting the integrity of its internal processes. Were we to order release of the documents now, however, and it should turn out that release is not genuinely required, we may have needlessly compromised FEMA's operations. If the County is right, there may, of course, be an eventual need to order release of the documents. That can be done at a later stage, albeit with some compromise in efficiency and additional delay.

⁴⁵ App. Tr. 162-68.

⁴⁶ "Now, with respect to the individual views of . . . [RAC] members, I want to emphasize that we — our discovery request was not please tell us who said what — our discovery request was give us the documents that form the basis of the . . . [RAC] conclusions." App. Tr. 123.

⁴⁷ App. Tr. 132, 138-41.

3. *Additional Observations*

Although we need go no further to dispose of FEMA's appeal, we believe it useful to offer some general observations to assist the parties and the Licensing Board in the event the issue of disclosure of the documents should reemerge.

In reaching its determination that the County had shown the requisite need for the documents, the Licensing Board relied on five factors, as follows:

(1) importance of the documents to the Suffolk County case; (2) the unavailability elsewhere of this information; (3) the philosophy of broad discovery under NRC rules of procedure; (4) our prior decision in the dispute between LILCO and New York State where we found that LILCO's need for the documents outweighed New York's claim of harm resulting from disclosure; and (5) the fact that in most cases here, the authors of the documents in question are not subordinates of the persons to whom the documents are addressed and therefore the possibility of any "chilling effect" of disclosure is lessened.⁴⁸

The Board properly began its inquiry with a reference to the importance of the documents and the likely availability elsewhere of information equivalent to that contained in the documents. These are plainly key considerations.⁴⁹ But the Board's analysis of these factors is somewhat sketchy and, in our view, faulty.

To begin with, we do not share the Board's perspective regarding the importance of the withheld documents. The Board indicated:

We are most impressed with the fact that the FEMA RAC Report now constitutes FEMA's findings for purposes of 10 C.F.R. § 50.47. In this regard, the RAC is clearly distinguishable from [the] ACRS. Moreover, three members of the RAC will testify for FEMA. The FEMA testimony incorporates numerous references to the RAC Report. Under these circumstances, it would be unfair to deny the County access to the underlying documents and processes by which the RAC Report achieved its final form.⁵⁰

The Board appears to have been strongly influenced by the fact that the RAC Report has become part of the final testimony. But virtually all pre-decisional material, like a good deal of privileged matter such as an attorney's work product, are produced during an evolutionary process leading up to, and may ultimately be incorporated into, the presentation of some publicly available information such as testimony. To conclude that

⁴⁸ Memorandum and Order at 4.

⁴⁹ See *Leggett & Platt, supra*, 542 F.2d at 659.

⁵⁰ Memorandum and Order at 8.

mere incorporation of deliberative material into a final product demonstrates a compelling need for the material would essentially render the privilege meaningless.⁵¹

It is also important to place in perspective the significance of the FEMA findings: First of all, it is the ultimate institutional findings and determinations by FEMA, not the predecisional opinions of various members of the RAC, that are centrally important.⁵² Moreover, although these findings constitute a rebuttable presumption under the Commission's regulations,⁵³ the applicant bears the ultimate burden of demonstrating that the emergency plans are satisfactory and, on the basis of all the information submitted, the Licensing Board must be able to conclude that the state of emergency preparedness provides "reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency."⁵⁴ As we pointed out in our *San Onofre* opinion,

[t]he fact that a final FEMA finding is entitled to a rebuttable presumption does not convert that agency into a decisionmaker in Commission licensing proceedings.⁵⁵

A failure by the four FEMA witnesses adequately to defend the FEMA findings and determinations deprives them of whatever reliability, and hence whatever presumptive effect, they might otherwise have.

We also believe, contrary to the Licensing Board's suggestion and the County's argument,⁵⁶ that the mere fact that all RAC members are not subordinates of the persons to whom the documents are addressed is not necessarily significant. The privilege protects both intra-agency and *inter-agency* documents and may even extend to outside consultants to an agency.⁵⁷ While there may be added reason to protect opinions given

⁵¹ Suffolk also contends that the privilege has been waived because FEMA has affirmatively placed into controversy the matters that were the subject of its deliberations. Suffolk cites no authority for its assertion. More important, we believe its argument is a variant of its more general assertion that the deliberative privilege fails simply because matters discussed ultimately evolve into some form of public presentation.

⁵² *Cf. Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-717, 17 NRC 346, 365-68 (1983) (collegial document requires sponsoring witness who need not be the author).

⁵³ 10 C.F.R. § 50.47(a)(2).

⁵⁴ 10 C.F.R. § 50.47(a)(1).

⁵⁵ *San Onofre*, *supra*, 17 NRC at 378-79.

⁵⁶ Suffolk County Brief at 17-18.

⁵⁷ *Lead Industries Ass'n v. OSHA*, 610 F.2d 70, 83 (2d Cir. 1979), *citing Soucie v. David*, 448 F.2d 1067, 1078 n.44 (D.C. Cir. 1971); *Wu v. National Endowment for Humanities*, 460 F.2d 1030, 1032 (5th Cir. 1972), *cert. denied*, 410 U.S. 926 (1973). *Cf. National Small Shipments Traffic Conference, Inc. v. ICC*, 725 F.2d 1442, 1449 (D.C. Cir. 1984) ("[b]ecause . . . consultants operate as the functional equivalent of regular staff, they constitute agency insiders").

by subordinates to their supervisors, the basic reason behind the privilege — *i.e.*, the encouragement of frank discussion in government decisionmaking — can apply as well to non-FEMA RAC members and consultants.

We are also concerned that the Board may have underestimated the value of the free and candid exchange of ideas leading up to FEMA's expert evaluation of emergency plans. Roger B. Kowieski, the chairman of Region II's RAC, states that

by releasing the RAC individual comments which are predecisional, my ability to operate the Regional Assistance Committee will be [severely weakened]. The RAC members, in fact, may be very reluctant to provide me with written material which could be disclosed later at the ASLB hearing or other proceedings. Some of these comments may be sensitive in nature and their disclosure could have a negative impact on our relationship with the states, and local governments and utilities.⁵⁸

Given the existence of the collaborative arrangement between the NRC and FEMA — which presumes due regard for the other agency's responsibilities — and FEMA's independent role with regard to offsite nuclear emergency planning and response, we believe Mr. Kowieski's judgment is entitled to a high degree of deference.

We nonetheless confess to some uneasiness over the blanket assertion by FEMA that release of any or all portions of the thirty documents will have a chilling effect on its operations. To begin with, it appears that some material can be released once identifying details, such as the names of the reviewers, are deleted.⁵⁹ Certain of the documents, moreover, were prepared by consultants who will now testify at the hearings. Although the fact that they are consultants does not render the privilege inapplicable, we find some merit in the Licensing Board's judgment that the candor of their informal advice to FEMA during preparation of the FEMA findings may not be seriously affected by disclosure of their original reports because they will be required to justify their views during cross-examination. Should this issue reemerge, we believe FEMA has some obligation to provide a more particularized explanation of precisely how release of underlying documents will have a "chilling effect" on the advice received from its non-FEMA members or consultants.⁶⁰

⁵⁸ Memorandum in Support of FEMA's Appeal (May 21, 1984) (affidavit of Roger B. Kowieski at 6).

⁵⁹ See App. Tr. 87.

⁶⁰ The Licensing Board noted that the "chilling effect" on FEMA's operation as a result of disclosure of the underlying documents "will be less than those cases where we have previously withheld discovery." Memorandum and Order at 8. Some elaboration of this conclusion would likewise be helpful.

We can appreciate the Board's view, strongly endorsed on appeal by the County, that FEMA documents should be ordered to be disclosed because the County and the State of New York have been required to disclose supposedly similar deliberative documents. But we do not share the Board's opinion that disclosure is warranted simply in the interest of equity or fairness. Neither the County nor the State appealed from earlier decisions ordering disclosure, so we must assume that they did not believe that their governmental functions would be unduly impaired by disclosure. FEMA takes a different view and it is plainly entitled to press that view. More importantly, each disclosure decision ultimately turns on a careful weighing of the need for the information against the adverse effect disclosure would likely produce. On earlier occasions, the Licensing Board ordered some information released but refused to order disclosure of other documents.⁶¹ While we strongly encourage FEMA to re-evaluate its governmental needs with a view toward disclosing documents to the maximum extent feasible, we cannot conclude that the determination by either Suffolk County or the State not to appeal the Board's earlier decisions, or those decisions themselves, are tantamount to a need sufficient to override FEMA's claim of privilege.

4. Conclusion

We emphasize the preliminary nature of our conclusion and the narrowness of our holding. Upon deposition or cross-examination of the sponsoring witnesses, or the review of documents voluntarily released, it may appear that there are good and sufficient reasons to warrant disclosure, such as significant differences of opinion among members of the RAC on important issues affecting the adequacy of LILCO's plan. It may turn out that the sponsoring witnesses are unable to defend or explain adequately the underlying bases for FEMA's determinations or reveal that they have relied to an inordinate degree on the views of others. In such circumstances (and, perhaps, in others), the County may well be able to establish a sufficiently compelling need for the underlying documents.

⁶¹ See, for example, LBP-83-72, 18 NRC 1221 (1983) and LBP-82-82, 16 NRC 1144 (1982).

The Licensing Board's decision is *reversed* and the case is *remanded* with instructions to deny the County's motion for production of the remaining thirty documents.

It is so ORDERED.

FOR THE APPEAL BOARD

Barbara A. Tompkins
Secretary to the
Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Gary J. Edles, Chairman
Dr. John H. Buck
Christine N. Kohl

In the Matter of

Docket No. 50-289-SP
(Management Phase)

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

June 19, 1984

The Appeal Board denies the motion of an intervenor to reopen the record in the management phase of this special proceeding. It finds that the information on which the motion is predicated is insufficient to warrant reopening under the well-established, three-part test for reopening a closed record.

RULES OF PRACTICE: FILING OF DOCUMENTS

The filing of a document in NRC licensing proceedings is deemed to be complete as of the time of deposit of the document in the mail or with a telegraph company. 10 C.F.R. § 2.701(c).

RULES OF PRACTICE: REOPENING OF RECORD

The three-part test for reopening a closed record considers whether (1) the motion is timely, (2) it addresses significant safety (or environmental) issues, and (3) a different result might have been

reached had the newly proffered material been considered initially. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980).

ATOMIC ENERGY ACT: MATERIAL FALSE STATEMENT

Under section 186a of the Atomic Energy Act, any license may be revoked for, among other things, any material false statement in the application or any statement of fact required under section 182 of the Act. 42 U.S.C. § 2236a. This provision of the statute can be violated by omission as well as by an affirmative statement. *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), CLI-76-22, 4 NRC 480, 489 (1976), *aff'd sub nom. Virginia Electric and Power Co. v. NRC*, 571 F.2d 1289 (4th Cir. 1978).

RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES

Adjudicatory boards have long required parties in proceedings before them to inform the boards and other parties of any new information that is "relevant and material to the matters being adjudicated." *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 & 2), ALAB-143, 6 AEC 623, 625 (1973). *See also Tennessee Valley Authority* (Browns Ferry Nuclear Plant, Units 1, 2 and 3), ALAB-677, 15 NRC 1387, 1394 (1982).

ATOMIC ENERGY ACT: MATERIAL FALSE STATEMENT

The term "material" in "material false statement" means material in the traditional evidentiary sense — *i.e.*, whether it is "capable of influencing a decisionmaker, not whether the statement would, in fact, have been relied on." *North Anna, supra*, 4 NRC at 487.

RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES

In case a licensee or an applicant has a reasonable doubt concerning the materiality of information in relation to its Board Notification obligation or duties under section 186 of the Atomic Energy Act, *supra*, the information should be disclosed for the board to decide its true worth. *McGuire, supra*, 6 AEC at 625 n.15; *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-691, 16 NRC 897, 914 (1982), *review declined*, CLI-83-2, 17 NRC 69 (1983).

RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES

Before submitting information as a Board Notification or under section 186 of the Atomic Energy Act, *supra*, an applicant or a licensee generally is entitled to a reasonable period of time for internal corporate review of the documents under consideration. An obvious exception exists for reports and the like that could have an immediate effect on matters currently being pursued at hearing, or that disclose possible serious safety or environmental problems requiring immediate attention. An applicant or a licensee is obliged to report the latter to the NRC staff without delay, pursuant to myriad regulatory requirements. *See, e.g.*, 10 C.F.R. § 50.72.

ATOMIC ENERGY ACT: LICENSEE'S CHARACTER

Deliberate planning by a licensee or an applicant to make a material false statement, even where not carried to fruition, would be evidence of bad character. *See Midland, CLI-83-2, supra*, 17 NRC at 70. A party, however, has a right to assert a reasonable position in opposition to any claimed obligation.

APPEARANCES

Joanne Doroshow and Louise Bradford, Harrisburg, Pennsylvania, for intervenor Three Mile Island Alert, Inc.

Ernest L. Blake, Jr., and Deborah B. Bauser, Washington, D.C., for licensee Metropolitan Edison Company.

Mary E. Wagner for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

On May 24, 1984, we issued ALAB-772, 19 NRC 1193, in which we reopened the management phase of this proceeding and remanded to the Licensing Board for further hearing on several specified issues, including the adequacy of licensee's training program. Subsequent to the issuance of that decision, we received another motion to reopen from in-

tervenor Three Mile Island Alert, Inc. (TMIA).¹ TMIA seeks reopening on two grounds as a result of recently released reports by the NRC's Office of Investigations (OI): (1) alleged training irregularities by licensee dating back to 1976, and (2) licensee's alleged failure to provide to the NRC staff, the Commission, and this Board, in a timely fashion, two reports on its management by outside consulting firms. TMIA contends that both OI reports raise serious questions about the integrity of licensee's management. Licensee and the NRC staff oppose the motion. For the reasons explained below, we deny the motion to reopen.

I. BACKGROUND

The OI investigation of the alleged training irregularities was an outgrowth of the staff's review of the record in the post-TMI-2 accident litigation between licensee's parent corporation and the manufacturer of the TMI reactors, Babcock & Wilcox (B&W). See *General Public Utilities Corp. v. Babcock & Wilcox Co.*, No. 80-CIV-1683 (S.D.N.Y. filed March 25, 1980) ["*B&W* trial"]. One of the documents in that record was a 1976 memorandum written by the former Supervisor of Training at TMI, Alexis Tsaggaris, to other licensee officials. The memorandum discussed a number of problems with licensee's requalification training program for licensed operators and suggested that the company was in violation of NRC training regulations. After discovery last year of this memorandum in the *B&W* trial record, OI was requested to investigate the matter further. That investigation was recently terminated and resulted in Report No. Q-1-84-004, which is the basis for TMIA's motion to reopen on the training issue. After interviewing the principal licensee managers involved in training at the time of the memorandum and shortly afterward (many of whom are no longer employed by licensee GPU Nuclear), OI reported:

This investigation has not produced any information to indicate that the TSAGGARIS memorandum was in reference to actual conditions of noncompliance with any requirements of the requalification program, nor was there any testimony to indicate that the licensee willfully concealed information concerning noncompliances from the NRC. Additionally, an NRC Region I inspection performed within several months of the TSAGGARIS memorandum did not identify any instances of non-compliance which should have been reported.

¹ TMIA's motion was actually *served* (and thus filed) on May 23, before the issuance of ALAB-772. See 10 C.F.R. § 2.701(c). Thus, we have jurisdiction over the motion to reopen.

OI Report No. Q-1-84-004 at 6. OI therefore terminated its investigation. The report and underlying documents were served on the parties and us last month.

With respect to the two consultants' reports, in 1982 licensee requested Basic Energy Technology Associates, Inc. (BETA), to examine manpower utilization and expenditures at its TMI and Oyster Creek nuclear facilities. Licensee also requested Rohrer, Hibler & Replogle, Inc. (RHR), to assess operator attitudes at these same facilities. BETA issued its report, "A Review of Current and Projected Expenditures and Manpower Utilization for GPU Nuclear Corporation," on February 28, 1983, and RHR issued "Priority Concerns of Licensed Nuclear Operators at TMI and Oyster Creek and Suggested Action Steps" on March 15, 1983. At an April 1983 meeting with NRC regional personnel, Henry Hukill, Director of TMI-1, mentioned both reports as examples of positive steps licensee had taken to improve the management of TMI-1. In response to the request of regional staff, Hukill provided copies of the two reports. Per Hukill's request, the reports were returned. A subsequent regional staff request for the reports was honored as well, under the same condition — that they be returned when review was completed.

In May 1983 during conference calls among regional and headquarters NRC staff (including legal counsel) and licensee officials and counsel, the NRC staff for the first time raised questions concerning the relevancy and materiality of the reports and licensee's corresponding obligation to make them public through the Board Notification process. Staff counsel urged that the documents be submitted to the parties in this proceeding and to us. But both licensee's management and counsel expressed reluctance in making the documents public. They asserted that the reports were not material to the matters under litigation and that they feared misinterpretation of them. Within a few days, however, licensee served the reports, along with letters from BETA and RHR clarifying the intended purpose of each.

Subsequently, the NRC's Director of Nuclear Reactor Regulation (NRR) requested the Executive Legal Director (ELD) to provide a legal opinion on licensee's obligation to disclose the reports. The ELD concluded that licensee could "be considered to have failed to meet its duty to make Board notifications and its obligations under section 186 [of the Atomic Energy Act, 42 U.S.C. § 2236, prohibiting material false statements to the agency] by failing to provide the BETA and RHR reports in a more timely fashion." Memorandum from Guy H. Cunningham, III, to Harold R. Denton (June 14, 1983), attached to Memorandum from William J. Dircks to the Commission (June 22,

1983).² Consequently, OI was asked to investigate this matter further. In the report for Case No. 1-83-013, OI found no deliberate attempt or conscious decision by licensee to withhold the BETA and RHR reports from the NRC. OI noted, however, that licensee officials remain confused concerning their obligations in this regard and that the responsibility for making such a decision within licensee's management structure is not clear. OI Report No. 1-83-013 at 4.

We have previously touched on both of the matters on which TMIA seeks reopening. TMIA earlier sought to reopen this record on, among other things, unspecified disclosures in the *B&W* trial record and the timeliness of licensee's disclosure of the BETA and RHR reports. In ALAB-738, *supra* note 2, 18 NRC at 197, we denied those requests, noting that it was premature to reopen the record on those items before the investigation of each was completed. We also noted that, when they were completed, TMIA could seek again to satisfy the requirements for reopening the record. TMIA has accepted that invitation through the filing now before us.

II. DISCUSSION

As we have had so much occasion to do lately, we set forth the three-part test for reopening a closed record:

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

Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980). Our focus here is on the last two criteria, the significance and outcome-determinative effect of the new information.³

² In opposing TMIA's motion here, the staff acknowledges its prior legal opinion in this regard, but argues that licensee's actions were not willful and thus do not reflect negatively on its integrity. The staff's earlier legal opinion is all the more curious in light of its own continuing problem in submitting Board Notifications on a timely basis. For example, we recently received Board Notification BN-84-109 (June 5, 1984), concerning the findings of a *July 1983* inspection of TM1.

We are also curious as to the status of the inquiry into the timeliness of licensee's disclosure of the Faegre & Benson Report. See Memorandum from William J. Dircks to the Commission (June 29, 1983), attached to Letter from Jack R. Goldberg to Appeal Board (July 12, 1983); ALAB-738, 18 NRC 177, 197 n.38 (1983).

³ Licensee contests the timeliness of TMIA's motion insofar as it seeks reopening on training, pointing out that some of the documents to which TMIA (and OI Report No. Q-1-84-004) refers have been publicly available for some time. The motion, however, is clearly tied to the recently released OI report, as
(Continued)

A. Training Irregularities

The OI report and supporting documents show what, by this time, should not be news to anyone — that there were significant shortcomings, to say the least, in licensee's training program before the 1979 TMI-2 accident. Indeed, a fundamental assumption underlying the Commission's TMI-1 shutdown order and this entire proceeding was that training, among other things, required special attention and improvement. See CLI-79-8, 10 NRC 141, 144-45 (1979); CLI-80-5, 11 NRC 408 (1980). Thus, the adequacy of licensee's training program consumed an enormous amount of hearing time below. See ALAB-772, *supra*, 19 NRC at 1208. That inquiry, however, was directed primarily to post-accident improvements in that program, with a view toward determining licensee's ability to operate TMI-1 safely in the future, should restart be authorized. This proceeding was not instituted to provide a forum in which to litigate directly all possible errors of the past. *Id.* at 1206 n.7, 1212 n.15.

The "new" information discussed in TMIA's motion and the OI report simply provides additional support for one of the underlying assumptions of this proceeding. It is redundant and, as such, its significance is questionable.⁴ It follows that it would not have likely affected the Licensing Board's decision on training — or, for that matter, ours in ALAB-772 — in any significant respect.

To the extent that anything revealed by the OI investigation might be construed as shedding new light on the adequacy of licensee's *existing* training program, we have already reopened the record on that score. Such matters can be pursued in accordance with the hearing we have outlined in ALAB-772, *supra*, 19 NRC at 1233-39. Insofar as the information contained in the OI investigation report may indicate possible violations of NRC training regulations *before* the TMI-2 accident, that would be an enforcement matter, which, as noted above, is beyond the scope of this particular proceeding.

we suggested was appropriate in ALAB-738, *supra*, 18 NRC at 197. In that circumstance, we cannot dismiss TMIA's motion as untimely. Neither licensee nor the staff challenges the timeliness of the motion with respect to the BETA and RHR reports.

⁴ Among the matters revealed by the OI investigation were that classroom attendance was often poor, there was inordinate delay in returning makeup material, and too little time was actually spent in the control room. OI Report No. Q-1-84-004 at 1. The hearing before the Special Master showed that similar problems continued after the accident. See *generally* LBP-82-34B, 15 NRC 918, 1014-20 (¶¶ 238-251) (1982); LBP-82-56, 16 NRC 281, 355-66 (¶¶ 2321-2351) (1982).

B. The BETA and RHR Reports

It is important at the outset to stress what the precise issue is in this regard. TMIA does *not* argue that this proceeding be reopened on the basis of the substantive content of the BETA and RHR reports. Indeed, in ALAB-738, *supra*, 18 NRC at 198-99, we addressed that very issue.

Given the limitations in both reports [as discussed above in ALAB-738] and — more important — the fact that the ground covered therein (including the criticisms) was well traversed at the hearing below, we are unable to conclude that any of the matter called to our attention might have made a difference in the Licensing Board's decision. Further, we would not want to discourage any licensee from undertaking such reviews of its management and operations (and disclosing their results) for fear of reopening a closed record. Our perusal of the BETA Report, in particular, shows it to be an extremely useful document, upon which licensee can rely to improve its operation overall.

There is no basis provided here for us to alter that view.

Instead, TMIA contends that licensee's failure to submit the BETA and RHR reports earlier and without reluctance shows a lack of integrity on the part of licensee's management. The necessary predicate of such a conclusion, however, is that licensee was legally obligated to release the materials more promptly and "voluntarily" than it, in fact, did. We are unable to reach such a conclusion on the facts of this case.

This legal obligation, as pertinent here, could arise from two sources. First, section 186a of the Atomic Energy Act provides:

Any license may be revoked for any material false statement in the application or any statement of fact required under section 182, or because of conditions revealed by such application or statement of fact or any report, record, or inspection or other means which would warrant the Commission to refuse to grant a license on an original application. . . .

42 U.S.C. § 2236a. In *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), CLI-76-22, 4 NRC 480, 489 (1976), *aff'd sub nom. Virginia Electric and Power Co. v. NRC*, 571 F.2d 1289 (4th Cir. 1978), the Commission held that this provision of the statute could be violated by omission as well as by an affirmative statement.⁵ Second, we have long required parties to our proceedings to inform the adjudicatory boards and other parties of any new information that is "relevant and material to the matters being adjudicated." *Duke Power Co.* (William B.

⁵ The Commission recently released a policy statement, however, in which it announced that it is reconsidering its earlier views on what constitutes a material false statement. 49 Fed. Reg. 8583, 8584 (1984).

McGuire Nuclear Station, Units 1 & 2), ALAB-143, 6 AEC 623, 625 (1973). See also *Tennessee Valley Authority* (Browns Ferry Nuclear Plant, Units 1, 2 and 3), ALAB-677, 15 NRC 1387, 1394 (1982).⁶

There can be little doubt that both the BETA and RHR reports are of some relevance to the broad issue of licensee's management competence, as explored in this proceeding. See ALAB-772, *supra*, 19 NRC at 1202-06. The BETA report considered licensee's management in many of the same areas as did the hearing below (e.g., maintenance), although from an efficiency, rather than a safety, perspective. The RHR report took up the matter of operator attitudes, an issue that arose particularly in the reopened hearing on cheating.

In *North Anna, supra*, 4 NRC at 487, the Commission defined "material" in the traditional evidentiary sense — i.e., whether it is "capable of influencing a decisionmaker, not whether the statement would, in fact, have been relied on." Whether either the BETA or RHR report can be properly characterized as material evidence is a question not readily answered.⁷ In such cases of reasonable doubt, however, we have held — with regard to both the Board Notification obligation and section 186 — that the information should be disclosed for the board to decide its true worth. *McGuire, supra*, 6 AEC at 625 n.15; *Midland, ALAB-691, supra* note 6, 16 NRC at 914.

Thus, even though licensee disputed staff counsel's claim that the material should be submitted via a Board Notification, the proper course was to disclose the reports. That is exactly what licensee did, within a matter of days from being confronted squarely with the issue by the staff. The question then is whether licensee's expressed reluctance to do

⁶ We recognize that, with respect to issues in adjudication, there exists some overlap in these obligations, inasmuch as both focus on the materiality of the new information. A review of our case precedents, however, shows that the "Board Notification obligation" of an applicant or a licensee seems to pertain more to matters that could affect the course of the litigation, such as a change in the license application or an event that would moot or resolve some issue. Section 186a, on the other hand, is more often invoked with regard to previously undisclosed information that appears to raise a serious safety or environmental question, contrary to an applicant's or a licensee's interest. Compare *McGuire, supra* (modification of applicant's quality assurance organization), and *Browns Ferry, supra* (modification of application to store low level radioactive waste), with *North Anna, supra* (discovery of new seismic information), and *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 & 2), CLI-82-1, 15 NRC 225 (1982) (statements concerning independence of consultant performing seismic reverification program). See generally *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-691, 16 NRC 897, 912-13 (1982), *review declined*, CLI-83-2, 17 NRC 69 (1983); *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 406 n.26 (1976).

⁷ Both reports perhaps might have been "capable" of influencing the Licensing Board to some degree at an early stage of this proceeding. But by the time the reports came into existence, much of the significant information contained in them, as we noted above in ALAB-738, was similar to or duplicative of that already generated in the hearing record. The reports were also limited in scope. See ALAB-738, *supra*, 18 NRC at 198.

so and failure to provide the reports even earlier constitute culpable conduct. We think not.

As to the latter point, an applicant or a licensee is entitled to a reasonable period of time for internal corporate review of documents like reports prepared by outside consultants.⁸ Indeed, it is during such time that an applicant or a licensee should also review the document in the context of its reporting responsibilities. The time during which licensee reviewed the RHR and rather comprehensive BETA reports, before any mention or disclosure of them to the NRC, is in our view such a reasonable time.⁹

We also believe that an applicant or a licensee — indeed, any party — has a right to assert a reasonable position as to any claimed obligation — including the disclosure of ostensibly material information. Nothing in the OI report or its underlying documents gives us a reasonable basis upon which to doubt licensee's motives in openly resisting for a limited time the full public disclosure of the BETA and RHR reports. *See Midland, CLI-83-2, supra* note 6, 17 NRC at 70 (deliberate planning to make material false statement, even where not carried to fruition, would be evidence of bad character). Licensee explained its reluctance to the staff but eventually and promptly (by any standard) disclosed the material. The fact that licensee may still disagree in principle as to the scope of its obligation to disclose cannot reasonably outweigh licensee's *actions* here. Nor should it be overlooked that it was the current Director of TMI-1 who *initially* and voluntarily revealed the documents' existence to NRC regional personnel.

This situation bears a strong resemblance to that confronting the Commission in *United States Department of Energy* (Clinch River Breeder Reactor Plant), CLI-82-22, 16 NRC 405 (1982). There the Commission stated:

the Applicants on May 9, 1977 informed the staff of their objections with regard to providing the information and the format of the response; that the staff in a May 27, 1977 letter to the Applicants adhered to its position on the need for information and for it to be in the format requested; and that eventually the Applicants provided the answers to the staff's questions.

⁸ The obvious exceptions are for reports and the like that could have an immediate effect on matters currently being pursued at hearing, or that disclose possible serious safety or environmental problems requiring immediate attention. An applicant or a licensee is obliged to report the latter to the NRC staff without delay, pursuant to myriad regulatory requirements. *See, e.g.,* 10 C.F.R. § 50.72.

⁹ We note OI's finding that licensee remains confused as to its responsibilities in this regard. *See* OI Report No. 1-83-013 at 4. To avoid such problems in the future, we urge licensee to establish some means for inhouse review of similar reports and studies for reportability, perhaps within its law department.

These documents demonstrate that there is no foundation for Petitioners' allegation that the Applicants intended to conceal information. Rather, the documents show that the Applicants objected to, but finally acceded to, the NRC's request for information and the requested format. We find nothing here that warrants further inquiry or other action.

Id. at 408 (footnotes omitted). We believe that the same reasoning pertains here. We therefore find no improper action by licensee with regard to the reporting of the BETA and RHR studies and, accordingly, no basis for reopening the record on that count.

TMIA's motion to reopen the record on (1) licensee's past training irregularities, and (2) the timeliness of licensee's submission of the BETA and RHR reports, is *denied*.¹⁰

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

¹⁰ TMIA complains about the adequacy of the OI investigations. Given the bases for our denial of the motion, however, the adequacy *vel non* of those investigations is not a controlling factor.

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)**

June 28, 1984

Determining that the standards to reopen the record have not been satisfied, the Appeal Board denies the motions of joint intervenors to reopen the record in this operating license proceeding on the issues of design quality assurance, construction quality assurance, and the applicant's character and competence to operate the Diablo Canyon facility.

RULES OF PRACTICE: REOPENING OF RECORD

The proponent of a motion to reopen a closed record must satisfy a three-part test: the motion must be timely, addressed to a significant safety or environmental issue, and establish that a different result would have been reached initially had the material submitted in support of the motion been considered. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-756, 18 NRC 1340, 1344 (1983). *See also Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973); *Georgia*

Power Co. (Alvin W. Vogtle Nuclear Plant, Units 1 and 2), ALAB-291, 2 NRC 404, 409 (1975); *Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear-1), ALAB-227, 8 AEC 416, 418 (1974).

**RULES OF PRACTICE: REOPENING OF RECORD
(TIMELINESS)**

For a reopening motion to be timely presented, the movant must show that the issue sought to be raised could not have been raised earlier. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973). See *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC 1760, 1764-65 (1982).

**RULES OF PRACTICE: REOPENING OF RECORD
(SIGNIFICANT SAFETY ISSUE)**

In order for new evidence of asserted (design or construction) quality assurance deficiencies to raise a significant safety issue for the purpose of reopening a record, the evidence must establish that uncorrected errors endanger safe plant operation, or that there has been a breakdown of the quality assurance program sufficient to raise legitimate doubt as to the plant's capability of being operated safely. *Diablo Canyon*, ALAB-756, *supra*, 18 NRC at 1345.

**RULES OF PRACTICE: REOPENING OF RECORD
(SPECIFICITY)**

At a minimum, the new material in support of a motion to reopen must be set forth with a degree of particularity in excess of the basis and specificity requirements contained in 10 C.F.R. 2.714(b) for admissible contentions.

**RULES OF PRACTICE: REOPENING OF RECORD
(DETERMINATIVE EFFECT OF EVIDENCE)**

To satisfy the requirement that new evidence must be capable of affecting a previous decision, the proponent of a motion to reopen must submit evidence that is relevant, material, and reliable in support of the motion. Embodied in this requirement is the notion that evidence presented in affidavit form must be given by competent individuals with

knowledge of the facts or by experts in the disciplines appropriate to the issues raised.

RULES OF PRACTICE: REOPENING OF RECORD (NATURE OF SUPPORTING EVIDENCE)

Because the competence (or even the existence) of unidentified individuals is impossible to determine, statements of anonymous persons — so-called anonymous affidavits — cannot be considered as evidence to support a motion to reopen a closed record.

APPEARANCES

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

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.

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

MEMORANDUM AND ORDER

1. On March 20, 1984, we issued ALAB-763 containing our findings of fact and conclusions of law with respect to the adequacy of the applicant's current design quality assurance program and the sufficiency of its design verification efforts to establish the efficacy of the design of the Diablo Canyon facility.¹ The operating license proceeding had been reopened on the motion of the joint intervenors,² and the trial of the

¹ 19 NRC 571.

² In addition, the Governor of California filed a motion to reopen the record on the issue of the adequacy of the applicant's design quality assurance program and that motion was also granted.

issues involved consumed fifteen hearing days. In ALAB-763, we concluded that

[t]he applicant's verification efforts provide adequate confidence that the Unit 1 safety-related structures, systems and components are designed to perform satisfactorily in service and that any significant design deficiencies in that facility resulting from defects in the applicant's design quality assurance program have been remedied. Accordingly, we conclude that there is reasonable assurance that the facility can be operated without endangering the health and safety of the public. As a result, the license authorization previously granted . . . remains in effect . . .³

Previously in ALAB-756, issued December 19, 1983,⁴ we detailed the reasons underlying our earlier order denying, after four days of hearing, the joint intervenors' motion to reopen the record on the issue of the asserted inadequacy of the applicant's construction quality assurance program.⁵ In denying that motion, we found that the joint intervenors had failed to present new evidence of a significant safety issue.⁶

We now have before us two additional motions of the joint intervenors to reopen the record in the Diablo Canyon operating license proceeding. The first, filed February 14, 1984, again seeks to reopen on the issue of the adequacy of the applicant's design quality assurance program.⁷ The second, filed February 22, 1984, seeks to reopen on the issues of the adequacy of the applicant's construction quality assurance program and the applicant's character and competence. Both motions are accompanied by the affidavits of several individuals currently working, or previously employed, at the Diablo Canyon facility. The affidavits and supplementary documentary exhibits fill hundreds of pages and set forth, by the joint intervenors' count, some 200 charges of purported inadequacies in the design, construction, or quality assurance practices at the plant.

³ 19 NRC at 619.

⁴ 18 NRC 1340.

⁵ See Order of October 24, 1983 (unpublished).

⁶ ALAB-756, *supra*, 18 NRC at 1354-55.

⁷ The joint intervenors' motion is phrased in the alternative. They first endeavor to augment the evidentiary hearing record of the reopened design quality assurance proceeding with the materials accompanying the motion. Alternatively, they seek to reopen the record for further hearing. The joint intervenors attempt to augment the hearing record based on a colloquy between applicant's counsel and us at the end of the evidentiary hearing concerning the formal closing of the record. See Tr. D-3246. They have misapprehended the import of those remarks. Our comment was intended to accommodate, as a matter of administrative convenience, such matters as a party's belated motion to admit an exhibit that had been marked for identification at trial but, through an oversight, had not been moved into evidence. We did not (and could not properly) provide for the wholesale augmentation of the evidentiary record now sought by the joint intervenors. Supplementing the record with the materials proffered by the joint intervenors would require, at a minimum, the consent of all parties. Accordingly, the motion to augment the record is denied and we shall treat the motion solely as one to reopen the record.

Further, the joint intervenors supplemented each reopening motion with additional material after the motions were filed.⁸

The applicant and the NRC staff filed lengthy responses opposing both reopening motions.⁹ The responses contain numerous detailed affidavits and voluminous documentary materials addressing the allegations in the joint intervenors' filings. Thereafter, the joint intervenors filed a reply to the applicant's response to the motion concerning design quality assurance,¹⁰ and then filed a second supplement to that motion¹¹ to which both the applicant and the staff responded.¹² By order of May 23, 1984, we provided the joint intervenors with an opportunity to reply to the applicant's and the staff's final responses to both motions.¹³ The order stated that any reply must be accompanied by the affidavits of qualified individuals and clearly establish, for the matters raised by the joint intervenors' filings, why the responses of the applicant and the staff are insufficient. It also indicated that the joint intervenors must demonstrate the significance to plant safety of their assertions as well as identify each remaining issue of disputed material fact with regard to their charges. The joint intervenors filed their reply on June 12.

2. Our earlier decision denying joint intervenors' motion to reopen the record on the issue of the adequacy of the applicant's construction quality assurance program reiterated the three-pronged standard the proponent of a reopening motion must satisfy:

“[t]he motion must be both timely presented and addressed to a significant safety or environmental issue. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973); . . . *Georgia Power Co.* (Alvin W. Vogtle Nuclear Plant, Units 1 and 2), ALAB-291, 2 NRC 404, 409

⁸ See Joint Intervenors' Supplement to February 14, 1984 Motion to Augment or, in the Alternative, to Reopen the Record (March 1, 1984); Joint Intervenors' Supplement to February 22, 1984 Motion to Reopen the Record on the Issues of Construction Quality Assurance and Licensee Character and Competence (March 3, 1984).

⁹ See Pacific Gas and Electric Company's Answer in Opposition to Joint Intervenors' Motion to Augment or, in the Alternative, to Reopen the Record (March 6, 1984); NRC Staff's Answer to Joint Intervenors' Motion to Augment or, in the Alternative, to Reopen the Record (March 15, 1984); Pacific Gas and Electric Company's Answer in Opposition to Joint Intervenors' Motion to Reopen the Record on the Issue of Construction Quality Assurance and Licensee Character and Competence (March 19, 1984); NRC Staff's Answer to Joint Intervenors' Motion to Reopen the Record on Construction Quality Assurance and Licensee Character and Competence (April 11, 1984).

¹⁰ See Joint Intervenors' Reply to Answer of Pacific Gas and Electric Company to Motion to Augment or, in the Alternative, to Reopen the Record (March 15, 1984).

¹¹ See Joint Intervenors' Supplement to Motion to Augment or, in the Alternative, to Reopen the Record (April 6, 1984).

¹² See Answer of Pacific Gas and Electric Company to Joint Intervenors' Supplement to Motion to Augment or, in the Alternative, to Reopen the Record (April 23, 1984); NRC Staff Response to Joint Intervenors' Supplement to Motion to Augment, or in the Alternative, to Reopen the Record (April 25, 1984).

¹³ See Order of May 23, 1984 (unpublished).

(1975). Beyond that, it must be established that 'a different result would have been reached initially had [the material submitted in support of the motion] been considered.' *Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear-1), ALAB-227, 8 AEC 416, 418 (1974)."¹⁴

We previously have held that, for a reopening motion to be timely presented, the movant must show that the issue sought to be raised could not have been raised earlier.¹⁵ In ALAB-756, we highlighted what constitutes a "significant safety issue" for motions predicated on asserted deficiencies in a construction quality assurance program. We stated there that

perfection in plant construction and the facility . . . quality assurance program is not a precondition for a license under either the Atomic Energy Act or the Commission's regulations. What is required instead is reasonable assurance that the plant, as built, can and will be operated without endangering the public health and safety. . . .

. . . In order for new evidence to raise a "significant safety issue" for purposes of reopening the record, it must establish either that uncorrected . . . errors endanger safe plant operation, or that there has been a breakdown of the quality assurance program sufficient to raise legitimate doubt as to the plant's capability of being operated safely. . . .¹⁶

Although the focus of ALAB-756 was a motion to reopen on the issue of construction quality assurance, what we said there is equally applicable to reopening motions directed to the issue of design quality assurance.

Further, the Commission has emphasized in this very proceeding that the proponent of a reopening motion must present " 'significant new evidence . . . that materially affects the decision,' " not "bare allegations or simple submission of new contentions."¹⁷ At a minimum, therefore, the new material in support of a motion to reopen must be set forth with a degree of particularity in excess of the basis and specificity requirements contained in 10 C.F.R. 2.714(b) for admissible contentions. Such supporting information must be more than mere allegations; it must be tantamount to evidence. And, if such evidence is to affect materially the previous decision (as required by the Commission), it must possess the attributes set forth in 10 C.F.R. 2.743(c) defining admissible evidence

¹⁴ ALAB-756, *supra*, 18 NRC at 1344.

¹⁵ *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973). See *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC 1760, 1764-65 (1982).

¹⁶ ALAB-756, *supra*, 18 NRC at 1345 (citations omitted).

¹⁷ CL1-81-5, 13 NRC 361, 362-63 (1981).

for adjudicatory proceedings. Specifically, the new evidence supporting the motion must be "relevant, material, and reliable."¹⁸

The joint intervenors' new motions to reopen on the issues of the adequacy of the applicant's design and construction quality assurance programs, like their earlier motion denied in ALAB-756, fail to meet these standards. We have carefully examined each of the joint intervenors' charges with their supporting materials and the responses of the applicant and the staff. Our scrutiny of the motions leads us to conclude that the joint intervenors have failed to present new evidence of any significant safety issue that could have an effect on the outcome of the licensing proceeding.¹⁹ Among other things, the movants have not presented evidence that establishes uncorrected design or construction errors that endanger safe plant operation. Nor have they demonstrated that there has been a breakdown of the applicant's quality assurance program that raises legitimate doubt that the facility can operate safely.²⁰

¹⁸ In other words, only facts raising a significant safety issue, not conjecture or speculation, can support a reopening motion. The facts must be relevant to the proposition they support, and probative of the safety issue presented. General statements are of no value. Similarly, although hearsay may be admissible in NRC proceedings, it must be shown to be reliable if it is to be considered as support for the motion.

Also embodied in the reliability requirement of 10 C.F.R. 2.743(c) is the notion that evidence presented in affidavit form must be given by competent individuals with knowledge of the facts or experts in the disciplines appropriate to the issues raised. Because the competence (or even the existence) of unidentified individuals is impossible to determine, statements of anonymous persons — so-called anonymous affidavits — cannot be considered as evidence to support a motion. For adjudicatory proceedings, *in camera* filings and requests for protective orders are available in appropriate circumstances to protect the legitimate interests of a party or other person. This situation should be contrasted to the staff's responsibilities outside the adjudicatory arena where even anonymous charges receive attention. The staff has, in fact, investigated a vast number of such allegations with respect to Diablo Canyon.

¹⁹ The joint intervenors' reply to the applicant and staff responses filed pursuant to our May 23, 1984 order was accompanied by numerous supporting affidavits. Despite our instruction that the reply address why the responses of the applicant and staff are insufficient for "each matter raised . . . [or] asserted," the joint intervenors' reply "do[es] not individually address all of . . . the matters raised." Reply at 5. Further, in some instances, the reply raises entirely new issues. Although joint intervenors indicate that they had insufficient time to comply with our order, no request for an extension of time was filed. In any event, the joint intervenors concede that "few [of the noted] deficiencies will be demonstrably 'significant' if considered individually." Reply at 6. The movants are apparently content, therefore, to rely on the cumulative significance of the numerous purported deficiencies, none of which individually has been shown to be safety significant.

²⁰ For example, a number of the allegations focus on deficiencies in the methodology, practices, and quality assurance associated with the computer design of small bore (less than 2" diameter) pipe supports. The staff also found the number of errors occurring in this type of calculation to be higher than expected (NRC Staff's Answer to Joint Intervenors' Motion to Augment or in the Alternative, to Reopen the Record (March 15, 1984), Knight Affidavit at 14). A staff-imposed license condition required the applicant to redo all computer-based small bore pipe support calculations — including additional physical effects not addressed in the original analyses. Transcript of May 9, 1984 Meeting between NRC staff and applicant at 15-23, 247. We note that the result of this program, with the reanalysis of all but 15 of 357 supports completed, shows that all of the supports meet design criteria, and no modifications are necessary. Letter from J. Schuyler to D. Eisenhut (June 11, 1984) (DCL-84-223), attachment at 1-5. Thus, errors in the small bore pipe support computer calculations, though numerous, have had no effect on the design adequacy of the supports.

Moreover, our searching review of the motions reveals nothing that causes us to question the continuing validity of the conclusions we reached in ALAB-756 and ALAB-763 — conclusions that followed extensive evidentiary explorations of construction and design quality assurance at Diablo Canyon. For these reasons, the motion to reopen on the issue of the applicant's design quality assurance program is denied and, with the reservation discussed in note 21, the motion to reopen on the issue of the applicant's construction quality assurance program is also denied.²¹

As previously indicated, the number of diverse allegations of purported deficiencies contained in the joint intervenors' motions is very large. Even discounting the substantial repetition in the two motions, the affidavits and other documentary materials proffered as new evidence in support of the movants' charges are extensive.²² When the applicant and staff responses and supporting materials are added to the joint intervenors' filings, the papers run well over a thousand pages. Individual treatment of each of the movants' varied charges — matters that do not readily lend themselves to being grouped together — would consume many pages but have no practical precedential value. Such a decision would add little of consequence to the already expansive administrative record of this proceeding.

²¹ We reserve ruling on one matter raised by the joint intervenors' reopening motion on the issue of construction quality assurance until we receive further information from the applicant. In its February 22, 1984 motion at page 12, the joint intervenors charge that the applicant improperly used, as studs for the containment liner, A307 hardware bolts with the heads removed. According to an affidavit accompanying the applicant's response, the use of such bolts was permissible. Pacific Gas and Electric Company's Answer in Opposition to Joint Intervenors' Motion to Reopen the Record on the Issue of Construction Quality Assurance and Licensee Character and Competence, *supra* note 9, Attachment C at 12-13. As an exhibit to their June 12, 1984 reply, the joint intervenors have attached a May 31, 1984 Pullman Power Products "Interoffice Correspondence" memorandum dealing with this issue. That memorandum is addressed to "Distribution" from "H. Karner" and concerns the subject of "*Acceptable Stud Materials for Carbon Steel Welding (Ref: DR 5891)*." The memorandum states, *inter alia*, that "(A-307 bolts with the heads removed are *NOT* acceptable)," and is signed by Harold W. Karner, QA/QC Manager.

The applicant shall inform us by July 6, 1984 why, in the words of the Pullman memorandum, A-307 bolts with the heads removed are not acceptable. The applicant's explanation shall be accompanied by appropriate affidavits of qualified experts and shall address the movants' charge, the applicant's prior response to that charge, and the recent Pullman memorandum.

²² Not only does some of the same material accompany both motions, there is substantial repetition within the supporting materials accompanying each of the joint intervenors' motions. Additionally, the material purportedly supporting each motion is lumped together in a manner that lacks essential organization. Further, some of this material consists of anonymous statements. See note 18, *supra*. The movants have also included in their filings considerable material that is irrelevant and immaterial to many of their claims. Thus, the unorganized nature of the supporting material, combined with the massive amount of irrelevant matter in movants' filings, has made our task of analyzing joint intervenors' claims extremely time-consuming and difficult. Indeed, the very nature and manner of presentation of the joint intervenors' filings provide grounds for denying the motion. Rather than follow that course, we have painstakingly plowed through all of movants' papers. If we have missed some pertinent fact buried in the midst of their filings, the movants should not now be heard to complain: the movants failed to separate the wheat from the chaff and to present the material in an organized and persuasive manner.

3. The joint intervenors' second reopening motion (dated February 22, 1984) also seeks to reopen the record on the issue of the applicant's "demonstrated lack of corporate character and competence . . . to manage and operate the Diablo Canyon project."²³ In support of this portion of their motion, the joint intervenors recite a number of instances of purported applicant misconduct dating from 1967 to mid-1983. They claim that these historical examples demonstrate the applicant's deficient character and lack of competence to design, construct, and operate the facility.

To these historical examples, the joint intervenors add a lengthy list of alleged deficiencies in the applicant's design and construction quality assurance programs from their most recent motions to reopen the record. They argue that these new charges and supporting materials, combined with their previously recited historical evidence, in effect, create a pattern and practice of deficient character and incompetence on the part of the applicant that constitute significant new evidence to support reopening the record on this issue.

The joint intervenors' motion to reopen the record on the issue of the applicant's character and competence is denied. The movants' historical examples of alleged applicant misconduct are not timely presented. Moreover, the movants' new list of purported deficiencies fails to present evidence of a significant safety issue that could have an effect on the outcome of the proceeding.

The past incidents of alleged applicant misconduct relied upon by the joint intervenors occurred too long ago to be properly considered in a motion to reopen the record without a showing why this issue could not have been raised earlier. No such showing has even been attempted by the movants. Nor can the tardy presentation of these historical examples be saved by bootstrapping them to a series of more recent charges. Indeed, all of the movants' examples are matters of public record and most of them have been used previously by the movants to support earlier reopening motions on other issues, or have been used already as evidence in the Diablo Canyon operating license proceeding.²⁴ Moreover,

²³ Joint Intervenor's Motion to Reopen the Record on the Issues of Construction Quality Assurance and Licensee Character and Competence at 1.

²⁴ Two of the major historical examples relied upon by the joint intervenors involve claims that the applicant failed to conduct adequate geological studies resulting in an improperly located Diablo Canyon facility, and the applicant's poor management practices and policies led to the alleged inadequate redesign of the facility. We note, however, that these items have been thoroughly aired in these proceedings. The early geologic studies are treated in LBP-79-26, 10 NRC 453 (1979) and ALAB-644, 13 NRC 903 (1981). Similarly, management's involvement in the seismic redesign of the Diablo Canyon facility following the discovery of the Hosgri fault is dealt with in ALAB-763, *supra*, 19 NRC at 612-13.

taken in proper context, none of these historical examples, singularly or in combination, establishes that the applicant's character and competence are insufficient to design, construct and operate the Diablo Canyon facility. Similarly, the joint intervenors' new charges of quality assurance program deficiencies do not establish that the applicant lacks the requisite character and competence to operate the plant. As we have already indicated, none of the new charges raises a significant safety issue.

For the foregoing reasons, the joint intervenors' motions to reopen the record, with one reservation,²⁵ are *denied*.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

²⁵ See note 21, *supra*.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

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

In the Matter of

Docket Nos. 50-275-OL
50-323-OL

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

August 8, 1984

ORDER

On June 28, 1984, we denied, with one exception, the joint intervenors' motion to reopen the record in the Diablo Canyon operating license proceeding on the issue of the adequacy of the applicant's construction quality assurance program. *See* ALAB-775, 19 NRC 1361. We reserved ruling on the joint intervenors' allegations that the applicant improperly used A307 hardware bolts with the heads removed as studs for the containment liner and ordered the applicant to provide us with certain additional information on this matter. We have now received that information.

Having reviewed the joint intervenors' motion and supporting material, the applicant's and NRC staff's answers, and the applicant's most recent filing in response to our order, we deny the reopening motion with respect to this matter as well. The joint intervenors' allegation concerning the studs used for the containment liner (singularly or

in combination with the other charges raised in the reopening motion) does not present new evidence of a significant safety issue that could have an effect on the outcome of the licensing proceeding. The motion is therefore *denied*.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

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)**

June 29, 1984

Upon the appeals of the applicant and the NRC staff, the Appeal Board vacates the condition on the Licensing Board's authorization of a full power operating license for the Diablo Canyon facility that the staff first must obtain the "final" findings of the Federal Emergency Management Agency (FEMA) on the adequacy of state offsite emergency response plans. The Appeal Board rules that the interim findings on the adequacy of the state plan presented by a FEMA expert witness at the hearing fully satisfy the requirements of the Commission's regulations.

**EMERGENCY PLANNING: FEMA FINDINGS (NEED FOR
FINAL FINDINGS)**

The Commission's regulations do not require the staff to obtain from FEMA "final" findings of the adequacy of state offsite response plans before a full power operating license can issue. *See Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3),

ALAB-717, 17 NRC 346, 380 (1983); *Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit No. 1), ALAB-727, 17 NRC 760, 775 (1983); *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-730, 17 NRC 1057, 1066 (1983). Rather, preliminary FEMA reviews and interim findings presented by FEMA witnesses at licensing hearings are sufficient as long as such information permits the Licensing Board to conclude that offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. 10 C.F.R. 50.47(a)(1). See *San Onofre, supra*, 17 NRC at 38 n.57; *Zimmer, supra*, 17 NRC at 775 n.20.

EMERGENCY PLANNING: FEMA FINDINGS

With respect to the adequacy of offsite emergency capabilities, the NRC must base its finding on a review of FEMA findings and determinations as to whether state and local emergency plans are adequate and whether there is reasonable assurance that they can be implemented. 10 C.F.R. 50.47(a)(2). In any Commission licensing proceeding, a FEMA finding constitutes a rebuttable presumption of adequacy and ability to implement. *Id.*

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.¹

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.

¹ 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.

DECISION

On August 31, 1982, the Licensing Board issued an initial decision² authorizing a full power operating license to Pacific Gas and Electric Company for the Diablo Canyon facility.³ All parties to the operating license proceeding filed exceptions to the initial decision. In this decision, we deal with the appeals of the applicant and the NRC staff. In a subsequent decision, we will determine the appeals of the joint intervenors and the Governor of California.

I.

A. Among the issues litigated before the Licensing Board was the joint intervenors' contention challenging the adequacy of emergency response planning for the Diablo Canyon facility. Following an evidentiary hearing on this and other issues, the Board issued its decision⁴ concluding, *inter alia*, that emergency plans and preparedness for Diablo Canyon complied with the Commission's regulations.⁵ The Board further found that onsite and offsite emergency preparedness for Diablo Canyon provides "reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency" and concluded that the activities authorized by the license can be conducted without endangering the health and safety of the public.⁶ The Board, however, also placed a number of conditions on its license authorization. In particular, it required that the staff "secure FEMA [Federal Emergency

² LBP-82-70, 16 NRC 756.

³ The most recent twists in the extended tale of the Diablo Canyon facility, including the authorization of the low power license, license suspension, and reopening of the proceeding, are recounted in ALAB-728, 17 NRC 777 (1983), and ALAB-763, 19 NRC 571 (1984).

⁴ 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 internal inconsistencies within the four corners of the decision. To some extent that has occurred here.

⁵ *Id.* at 797-98.

⁶ *Id.* at 761, 854.

Management Agency] findings on the adequacy of the State [of California] Emergency Response Plan.”⁷

After the issuance of LBP-82-70, the applicant sought clarification of the decision from the Licensing Board.⁸ The applicant’s motion pointed out that the decision included explicit conclusions of law regarding the adequacy of *onsite* emergency response plans and preparedness⁹ but that the Board had not made similar explicit conclusions of law exclusively concerning *offsite* plans and preparedness. In response to the applicant’s motion, the Board stated that such conclusions of law were already implicit in its decision. Nevertheless, it added a specific conclusion regarding the adequacy of offsite plans and preparedness.¹⁰

Similarly, the staff, joined by the applicant, sought clarification from the Licensing Board of the condition on license authorization that the staff obtain FEMA findings on the adequacy of the state plan.¹¹ The staff’s motion stressed that the hearing record already contained the necessary FEMA findings called for by the Commission’s regulations concerning the adequacy of local and state emergency response plans and, therefore, nothing more was required. The Board rejected the staff’s position in an order stating that

[w]hile there is reasonable assurance on the record that the State plan is substantially completed, Section 50.47 explicitly requires FEMA findings of adequacy before an operating license may issue. The record does not contain such findings. The Board has concluded that the interim findings of FEMA do not meet that requirement.¹²

B. Both the applicant and the staff have appealed the Licensing Board’s imposition of this condition. They first argue, in effect, that there is only one internally consistent interpretation of those portions of the Board’s initial decision dealing with the adequacy of the State of California Emergency Response Plan and the Board’s subsequent order rejecting the staff’s motion for clarification: *i.e.*, the “findings” that the Board states the staff must obtain from FEMA can mean only FEMA’s

⁷ *Id.* at 854.

⁸ See Motion for Clarification of the Licensing Board’s Initial Decision dated August 31, 1982 (September 24, 1982).

⁹ See LBP-82-70, *supra*, 16 NRC at 853.

¹⁰ See Memorandum in Response to PG&E’s Motion for Clarification of the Licensing Board’s Initial Decision Dated August 31, 1982 (October 26, 1982) (unpublished).

¹¹ See Motion for Clarification of the Licensing Board’s Initial Decision Dated August 31, 1982 (September 17, 1982).

¹² LBP-82-85, 16 NRC 1187, 1187-88 (1982). The Board went on to state that “[t]he fact is that testimony in the record shows that a FEMA review was to take place in July of this year, subsequent to the hearing.” *Id.* at 1188.

“final” or “formal” findings — so-called Part 350 findings — which are made by that agency after it has conducted its formal review of local and state offsite plans pursuant to the procedures set forth in FEMA’s regulations, 44 C.F.R. Part 350. The applicant and the staff argue that such final FEMA findings are not required by the Commission’s regulations, 10 C.F.R. 50.47, and that interim FEMA findings are sufficient.¹³ Further, they assert that the Board’s condition is violative of the procedures for litigating the adequacy of offsite emergency response plans adopted by the Commission in a Memorandum of Understanding with FEMA.¹⁴

On the other hand, the joint intervenors and the Governor assert that the language of the Commission’s regulations must be given a more literal interpretation. They argue that the regulations proscribe the authorization of any license until (1) the complete state and local offsite emergency response plans have been submitted to FEMA, (2) the FEMA review process has been completed and FEMA has issued its final, formal findings on the adequacy of the offsite plans and (3) the parties to any licensing proceeding have been given a meaningful opportunity to rebut the final FEMA findings. Thus, they assert that, although the Licensing Board was correct in conditioning its license authorization upon the issuance of FEMA findings, no license can issue until the parties are given an opportunity to rebut the final FEMA findings on the adequacy of the state emergency response plan.¹⁵

II.

From the arguments of the applicant and the staff, as well as those of the joint intervenors and the Governor, it appears all agree that the Licensing Board was referring to final FEMA findings in conditioning its license authorization on the staff’s first obtaining FEMA “findings” on the adequacy of the State of California Emergency Response Plan. The applicant and the staff are correct that this interpretation of the Board’s condition is internally consistent with those portions of the initial decision concerning the state response plan and the Board’s statements

¹³ See Brief of Pacific Gas and Electric Company in Support of Exception to Initial Decision of August 31, 1982 (November 8, 1982) at 2-4; NRC Staff Brief in Support of Exception to Initial Decision (November 12, 1982) at 5-13.

¹⁴ See p. 1379, *infra*.

¹⁵ See Joint Intervenors’ Response to Pacific Gas and Electric Company and NRC Staff Briefs in Support of Exception to August 31, 1982 Initial Decision (December 20, 1982) at 4-11; Joint Intervenors’ Brief in Support of Exceptions (November 8, 1982) at 11-20; Brief of Governor [of California] in Reply to PG&E and NRC Staff Briefs in Support of Exceptions (December 20, 1982) at 1-5.

rejecting the staff's motion for clarification of that condition.¹⁶ They are also correct that the Commission's regulations do not require the staff to obtain from FEMA final findings of the adequacy of state offsite response plans before the full power operating license can issue.

In three recent cases, we have rejected the same interpretation of the Commission's regulations now urged upon us by the joint intervenors and the Governor. Those cases are controlling here. In *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-717, 17 NRC 346, 380 (1983), we reviewed the emergency planning regulations and concluded that "the Commission expects licensing decisions on emergency preparedness to be made on the basis of the best available current information, and not deferred to await FEMA's last word on the matter." Next, in *Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit No. 1), ALAB-727, 17 NRC 760, 775 (1983), we held that 10 C.F.R. 50.47(a)(2) "does not require deferment of any hearing on State and local government emergency response plans to await FEMA's issuance of final findings on those plans. Rather, what that Section contemplates is a licensing decision based on the best available current information on emergency preparedness." Finally, we relied upon these two decisions in *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-730, 17 NRC 1057, 1066 (1983), stating that "it is plain from the Commission's regulatory requirements that offsite plans need not be complete, nor finally evaluated by FEMA prior to conclusion of the adjudicatory process."

Pursuant to the Commission's regulations, no full power operating license can issue unless the agency finds that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.¹⁷ With respect to the adequacy of off-site emergency capabilities, the agency 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."¹⁸ In turn, any FEMA finding "will primarily be based on a review of the plans" but may also include "[a]ny other information already available to FEMA." In any Commission licensing proceeding, a

¹⁶ We note, however, that there is no interpretation of this condition that can be completely squared with all portions of the Board's initial decision and its statements rejecting the staff's motion seeking clarification of the condition.

¹⁷ 10 C.F.R. 50.47(a)(1).

¹⁸ 10 C.F.R. 50.47(a)(2).

FEMA finding constitutes "a rebuttable presumption" of adequacy and ability to implement.¹⁹

In order to coordinate offsite emergency planning, the Commission and FEMA entered into a Memorandum of Understanding defining the respective responsibilities of the two agencies.²⁰ Under that agreement, FEMA has responsibility for formally reviewing, pursuant to FEMA's rules and regulations, state and local emergency response plans and making final findings whether such plans are adequate and capable of being implemented.²¹ But, as we stated in *San Onofre, supra*, the Memorandum also

recognizes the distinct possibility that a final FEMA finding may not always be available in a timeframe compatible with the schedule of Commission licensing proceedings. It therefore provides that FEMA will offer its preliminary views on the state of offsite emergency preparedness "based upon plans *currently* available to FEMA." 45 Fed. Reg. at 82,714 (emphasis added). The Memorandum states further that to support its findings and determinations, "FEMA will make expert witnesses available before . . . NRC hearing boards and administrative law judges." *Ibid.* The clear import of the Memorandum is that FEMA will provide Commission licensing proceedings, through FEMA witnesses, the benefit of its most current evaluation of State and local emergency planning.²²

Thus, in *San Onofre* and again in *Zimmer* we concluded that the Commission's regulations do not require final FEMA findings on the adequacy of offsite emergency plans and preparedness. Rather, preliminary FEMA reviews and interim findings presented by FEMA witnesses at licensing hearings are sufficient as long as such information permits the Licensing Board to conclude that offsite emergency preparedness provides "reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency."²³

¹⁹ *Id.*

²⁰ See 45 Fed. Reg. 82,713 (1980).

²¹ To fulfill this responsibility, FEMA adopted the procedures set forth in 44 C.F.R. Part 350. Among other things, those regulations deal with the procedures for requesting FEMA review and the FEMA formal review process culminating in final administrative approval of state and local plans. See 44 C.F.R. 350.7-.12. Although at the time of the Licensing Board hearing on the Diablo Canyon emergency response plans the FEMA regulations were only proposed rules, see 45 Fed. Reg. 42,341 (1980), FEMA was nevertheless following them. See Eldridge fol. Tr. 12,688 at 4.

²² 17 NRC at 379-80.

²³ 10 C.F.R. 50.47(a)(1). See *San Onofre, supra*, 17 NRC at 380 n.57; *Zimmer, supra*, 17 NRC at 775 n.20. See also *Fermi, supra*, 17 NRC at 1066-67.

In addition to relying upon the NRC-FEMA Memorandum of Understanding in interpreting the Commission's emergency response regulations, both *San Onofre* and *Zimmer* also relied upon a recent amendment to 10 C.F.R. 50.47(a)(2) to support the view that final FEMA findings were not necessary. The amendment added a last sentence to the section providing that the holding of emergency preparedness exercises is not required for any initial licensing decision. See 47 Fed. Reg. 30,232, 30,236 (1982).

(Continued)

At the time of the hearing before the Licensing Board on emergency preparedness, FEMA had not conducted a final review of the local emergency response plans or the State of California plan. Nor had FEMA issued its final findings on the adequacy of those plans. Thus, the Licensing Board admitted into evidence, *inter alia*, the state and local plans,²⁴ as well as FEMA's interim findings produced pursuant to the NRC-FEMA Memorandum of Understanding,²⁵ and the testimony of John Eldridge, a FEMA emergency management specialist and project representative for the Diablo Canyon plant.²⁶ On the basis of this evidence, the Board found

(1) that the State plan as it pertains to Diablo Canyon is complete but for a few SOP's [standard operating procedures], (2) that a systematic process of development and review between the State and FEMA has occurred, (3) that FEMA is aware of and keeps abreast of current developments in the plan and will review it when it is complete, and (4) that there are no obstacles to completion of the plan.²⁷

As previously indicated, the Board then found that offsite emergency preparedness for Diablo Canyon provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency,²⁸ and that emergency plans and preparedness for the facility complied with the Commission's regulations.²⁹ Even though the Board made these findings, it nevertheless imposed the condition at issue.

Our review of the record confirms that the Board's reasonable assurance finding on the adequacy of offsite emergency response is supported by the record and that the interim FEMA findings on the state plan, presented through the expert testimony of Mr. Eldridge, fully satisfy the requirements of the Commission's regulations. The Board, therefore,

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 denies the right to a hearing on a material licensing factor in contravention of section 189(a)(1) of the Atomic Energy Act, 42 U.S.C. § 2239(a)(1). Of course, in this proceeding, an emergency preparedness exercise was conducted in advance of the hearing and the exercise results formed a part of FEMA's findings. Therefore, this Court of Appeals decision does not alter the settled interpretation of the Commission's regulations that final FEMA findings are not necessary for license authorization.

²⁴ See Applicant Ex. 73, Appendix C; Applicant Ex. 80.

²⁵ See Attachment 2 to Applicant's Panel #1 Testimony, fol. Tr. 11,782 (FEMA Region IX Evaluation and Status Report on State and Local Emergency Preparedness Around the Diablo Canyon Nuclear Power Plant, November 2, 1981). See also Attachment 1 (FEMA Evaluation Findings, Diablo Canyon Nuclear Power Plant, Offsite Emergency Response Plans Exercise, August 19, 1981).

²⁶ Eldridge fol. Tr. 12,688. Counsel for the joint intervenors and the Governor each cross-examined Mr. Eldridge and also had the opportunity to present their own evidence on the local and state plans.

²⁷ LBP-82-70, *supra*, 16 NRC at 766-67 (footnote omitted). See also *id.* at 802.

²⁸ *Id.* at 761; Memorandum in Response to PG&E's Motion for Clarification of the Licensing Board's Initial Decision Dated August 31, 1982 (October 26, 1982) (unpublished).

²⁹ LBP-82-70, *supra*, 16 NRC at 797-98.

erred in attaching the condition to its license authorization requiring further, final FEMA findings.

As the Board correctly noted, at the time of the hearing the state plan was in effect³⁰ although some ten percent of the plan's standard operating procedures were still incomplete.³¹ The Board recognized that in California the emergency response function is split between the state and county: the county has the basic responsibility for the protection of life and property in the plume exposure pathway, while the state's response involves the ingestion pathway as well as recovery and reentry. Unlike the county's duties, the state's responsibilities do not require immediate action because they do not deal with imminent life threatening situations. The state is concerned with such things as the long-term flow of contaminated food through the ingestion pathway.³²

Because the state plan was substantially complete and under it no immediate state response was necessary, Mr. Eldridge testified that the state could respond adequately, with assistance from the Department of Energy and Environmental Protection Agency in any areas where state planning was not yet complete.³³ Although the written report setting forth the interim FEMA findings that was introduced into evidence did not refer explicitly to the state plan because of the primacy of the county plan,³⁴ Mr. Eldridge's testimony on the sufficiency of the state plan constitutes FEMA's finding on this subject. Additionally, this finding of adequacy meets the requirements of the Commission's regulations. Final

³⁰ In California, there is one state plan applicable to all nuclear facilities. See Applicant Ex. 73, Appendix C at 3. Because at the time of the hearing there were other licensed nuclear power plants in California, the basic state plan already was in effect. Indeed, in 1981 FEMA had found this plan adequate for offsite emergency response for the San Onofre Nuclear Generating Station, Units 2 and 3. See *San Onofre, supra*, 17 NRC at 378.

³¹ LBP-82-70, *supra*, 16 NRC at 802. See also *id.* at 766.

³² Applicant Ex. 73, Appendix C at 24-28.

³³ Eldridge fol. Tr. 12,688 at 4-5; Tr. 12,708-10.

³⁴ Tr. 12,744-45.

FEMA findings are not required and the Board's condition that the staff secure additional findings from FEMA is *vacated*.³⁵

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

³⁵ One other interpretation of the Board's license condition is possible. Instead of securing final FEMA findings, the Board may have intended that the staff simply obtain from FEMA a written conclusion on the adequacy of the state plan akin to the one FEMA produced on the county plan. In that event, the Board's condition elevates form over substance and is unnecessary. Testimony by a FEMA expert on the adequacy of the state plan is all that is required under the Commission's emergency response regulations.

We note that in the staff's response to our April 10, 1984 order inquiring whether the applicant and staff appeals of this condition were now moot, the staff attached an April 2, 1984 FEMA memorandum on the current status of offsite emergency planning at Diablo Canyon. That document, like Mr. Eldridge's earlier testimony at the hearing, concluded that the state plan (which is now in a later revision but still has not undergone "final" FEMA review) would be adequate, if needed. 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).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

John H Frye, III, Chairman
Glenn O. Bright
Emmeth A. Luebke

In the Matter of

Docket No. 50-142-OL
(Proposed Renewal of
Facility License)

THE REGENTS OF THE UNIVERSITY
OF CALIFORNIA
(UCLA Research Reactor)

June 5, 1984

Licensing Board declines to enter sanctions against counsel or pursue remedies against his client for material misrepresentation on the grounds that the misrepresentation was made against a background of confusion, was not intended to deceive, and did not benefit counsel's client. The Licensing Board holds that another party lacks standing to request a hearing on sanctions for lack of a direct palpable injury to it caused by counsel's misrepresentation and may not pursue remedies against counsel's client in the absence of a contention.

RULES OF PRACTICE: SANCTIONS AGAINST COUNSEL

Intent to deceive is relevant to the question of whether sanctions should be entered against counsel on account of a material misrepresentation.

RULES OF PRACTICE: SANCTIONS AGAINST COUNSEL

A party to a proceeding who has not suffered a direct, palpable injury as a result of counsel's misrepresentation lacks standing to request a hearing on the question of sanctions.

RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES AND COUNSEL

Parties and their counsel must adhere to the highest standards of disclosing all relevant and material factual information to the Licensing Board.

RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES AND COUNSEL

In litigation involving highly complex technology, many decisions regarding materiality of information can only be made jointly by a party and its counsel.

RULES OF PRACTICE: RESPONSIBILITIES OF COUNSEL

Counsel's obligations to disclose all relevant and material factual information to the Licensing Board under the Atomic Energy Act are not substantially different from those laid out by the ABA's Model Rules of Professional Conduct. In discharging his obligations, counsel may verify the accuracy of factual information with his client or verify the accuracy of the factual information himself.

ATOMIC ENERGY ACT: MATERIAL FALSE STATEMENT

The test of materiality is whether the information is capable of influencing the decisionmaker, not whether the decisionmaker would, in fact, have relied on it. Determinations of materiality require careful, commonsense judgments of the context in which the information appears and the stage of the licensing proceeding involved.

MEMORANDUM AND ORDER

On April 13, 1984, we issued a Memorandum and Order in which we concluded that William H. Cormier, UCLA's representative, should be

reprimanded pursuant to 10 C.F.R. § 2.713. Our conclusion was based on Mr. Cormier's statement made in an August 25, 1983, filing made in support of Staff's motion for reconsideration of LBP-83-25A, 17 NRC 927 (1983) that the UCLA Security Plan did not provide protection against sabotage. We afforded Mr. Cormier an opportunity to respond prior to issuing a reprimand.

In the April 13 Memorandum and Order, we also concluded that no basis existed to take action against Staff counsel, Colleen P. Woodhead, on account of statements made by her to the effect that Staff imposed no requirement on research reactors with less than a formula quantity of special nuclear material to provide protection against sabotage. However, we did not pass on the question of whether Staff counsel's clients were aware of these apparent misrepresentations because of our need for further information which was promised by Staff counsel in her letter of March 16, 1984.

The history of our concerns with regard to these matters is set forth in our unpublished Memoranda and Orders of April 13 and February 24, 1984. The former Memorandum and Order is published as an Attachment to this Memorandum and Order.

In this Memorandum and Order we conclude that no disciplinary action should be taken against William H. Cormier. We also conclude that no basis exists to pursue these matters with regard to the Applicant, The Regents of the University of California. We continue to hold in abeyance our conclusions with regard to the representations of the NRC Technical Staff, both those raised in our Memorandum and Order of February 24 and those referred to the Office of Inspector and Auditor by our Memorandum and Order of December 23, 1983 (unpublished), pending the receipt of further information.

RESPONSES TO THE APRIL 13 MEMORANDUM AND ORDER

In his declaration filed May 1, Mr. Cormier responds to our conclusion that he should be reprimanded. Much of this response concerns the confusion which he perceives with regard to our ruling in LBP-83-25A, the regulations, the Staff's position, and the measures espoused by Contention XX. In the light of his perception of these factors, Mr. Cormier argues that the statement in question is not false. He goes on to point out in ¶ 26 of his response that there was no advantage to be gained by his client through deceiving the Board with regard to the nature of the Security Plan and asserts that his actions indicate that he had no such intent. In ¶ 24, he points out that in making expurgations to the Plan,

he highlighted many of the provisions in question to the Board, and saw no need for further explanation. He also argues that the response procedures accompanying the Security Plan, some of which are clearly concerned with sabotage, are not considered a part of the Security Plan and were not submitted to the Staff for review, although they are kept with the Plan. He makes a similar argument with respect to a provision of the Plan which we view as concerning sabotage and which was submitted to the Staff for review.

In its separate response to the April 13 Memorandum and Order and in ¶ 25 of Mr. Cormier's declaration, UCLA answers our inquiry with regard to the review given Mr. Cormier's representations. It appears from these statements that Mr. Cormier's representations were not reviewed by any other representative of the Regents until called into question.

The Committee to Bridge the Gap (CBG), the intervenor in this proceeding, has filed a lengthy response which comments on Mr. Cormier's and UCLA's responses. CBG's response was not invited by the Board. UCLA requests the opportunity to comment on it if it is considered. We have read CBG's response and considered it only to the extent CBG requests relief, which we deny. Thus, we view the request to comment on it as moot. Nonetheless, we briefly summarize CBG's response below.

CBG's response reviews in detail the representations made to the Board by UCLA and Staff. In many respects this review appears to be more relevant to Staff's representations than UCLA's. The response next addresses what it regards as omissions from UCLA's and Mr. Cormier's responses. First, CBG notes that Glenn R. Woods and Christine Helwick have never responded to the Board with regard to their conduct. Second, CBG notes that none of the Regents of the University have responded. Third, CBG identifies UCLA faculty and NRC Staff members who, CBG maintains, should respond but have not done so. Finally, CBG finds fault with the information furnished indicating who reviewed the representations here in question.

CBG then proceeds to a detailed criticism of the defenses put forward. CBG argues that an institutional advantage did accrue to UCLA from the misrepresentation — three years of delay. CBG also asserts that it was CBG, not Mr. Cormier, which was instrumental in bringing provisions of the Plan directed toward sabotage to the Board's attention. CBG concludes that the Board should impose sanctions against Mr. Cormier under 10 C.F.R. § 2.713 and against UCLA under 10 C.F.R. § 50.100. CBG requests that, if these sanctions are not imposed, it be afforded a

hearing. CBG bases this last request on the proposition that it has been injured by these misrepresentations.

DISCUSSION

Whatever rationale Mr. Cormier advances to support his statements here under consideration, one conclusion is inescapable. UCLA has seen fit to take measures to protect the NEL against radiological sabotage. Not all of the measures which it has instituted were submitted to the Staff for review, and it appears that UCLA was acting on its own initiative in adopting most of them. We noted in our April 13 Memorandum and Order that these measures were precisely the sort of provisions which we had in mind in our holding in LBP-83-25A. It is obvious that UCLA has viewed the matter of protection against sabotage in the same way as this Board, albeit from a different perspective. In this circumstance, no conceivable advantage could flow to UCLA from the concealment of this fact.

We do not concur in CBG's view that the concealment worked to UCLA's advantage by effecting a delay in these proceedings. While some delay undoubtedly resulted, we do not perceive that that delay was in any way advantageous to UCLA. The discovery materials which have been submitted to the Board do not indicate that UCLA is faced with an insuperable burden on this Contention. While it may be that, after hearing, we may conclude that CBG has made some valid points, the discovery materials tend to indicate that any such points should be relatively easy to accommodate. In this circumstance, we do not perceive an advantage to be gained by UCLA from delay.

It also appears that the statement in question was made without the knowledge that it was false, and hence without any intent to deceive. While the lack of an intent to deceive is not relevant to a consideration of whether a material false statement has been made, it is relevant to a consideration of sanctions. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-691, 16 NRC 897, 914-15 (1982).

The lack of any advantage to be gained by UCLA and the lack of any intent to deceive on Mr. Cormier's part weigh strongly against the imposition of sanctions against either UCLA or Mr. Cormier. Further, we take note of the fact that, while Mr. Cormier did not affirmatively bring our attention to the provisions of the Plan dealing with sabotage on his discovery of them, he did not conceal them and, through his indication to us of the expurgations he wished to make to the copy of the Plan made available to CBG, he highlighted some of them.

What comes through from Mr. Cormier's declaration is the proposition that the parties have not understood the Board's rulings on protection against sabotage. Even Staff has failed to adopt a consistent position. Staff has, in this Board's opinion, in the position it espoused in this proceeding, sought to overturn the plain meaning of 10 C.F.R. § 73.40(a) improperly through informal Staff action rather than rulemaking.

With the exception of 10 C.F.R. § 73.40(a), the regulations themselves defy comprehension. CBG's recent request, which we denied, that we reconsider our ruling that 10 C.F.R. § 73.60 forms an upper bound to the requirements of 10 C.F.R. § 73.40(a), a request which clearly is not without merit, illustrates to a minor degree this difficulty. And it involves a regulation which, in comparison, is a model of clarity.

Mr. Cormier's misstatement clearly was not made with malice. No gain could possibly accrue to him or his client by it. And while it was not a true statement, it was made against a background of confusion. All of the circumstances set forth in his declaration dictate the conclusion that it was at worst a mistake in judgment, prompted by a zealotry on behalf of his client, and fed by a Staff position which not only ignored the plain meaning of 10 C.F.R. § 73.40(a), but ongoing practices within the Staff's organization. (With respect to the latter, see Staff counsel's letter to the Board of March 16, 1984.) In these circumstances, while we believe a careful approach would have prevented the making of the statement, we cannot penalize Mr. Cormier for having made it, and we can excuse his failure to have affirmatively called our attention to it last January.

We believe this situation is in some respects similar to that facing the Licensing Board in *Consumers Power Co.* (Midland Plant, Units 1 and 2), LBP-81-63, 14 NRC 1768 (1981). The conclusions of that Board, discussed at p. 1403, *infra*, of our April 13 Memorandum and Order, are similar to our own. We would part company only with its conclusion that the high standards of affirmative disclosure have not been adequately addressed by the Appeal Board or Commission. Since that Board reached that conclusion, we believe those standards have been adequately addressed by both the Commission and Appeal Board. However, that difference does not affect our conclusion that, in these circumstances, no sanction should issue.

With respect to UCLA, we believe that proper case management by it might well have revealed the error much earlier and thus avoided the difficulty. Nonetheless, the error was apparently unknown to those who might have corrected it. While we do not condone this approach, we can understand how it might come to pass. Had the error worked to UCLA's

advantage, we would be far more interested in learning in more detail the circumstances which led to it. However, it did not work to UCLA's advantage and was apparently unknown to those who were in a position to correct it. Thus UCLA's mistake appears to be at most a careless one. These circumstances do not argue for the imposition of sanctions. They do, however, serve as a stern warning that no more such mistakes should occur.

CBG has requested a hearing in the event that we do not impose sanctions against UCLA and Mr. Cormier. CBG views itself as the party injured by our failure to take such action. CBG misperceives its role in this consideration.

The sanction which we proposed to impose on Mr. Cormier was contemplated by us solely as a means of regulating his conduct before us. It stemmed from our inherent and explicit power over the conduct of attorneys and representatives appearing before us, not as the result of the complaint of another party. The Court of Appeals for the Seventh Circuit has addressed a similar problem as follows:

Preliminarily, it would be well to note that disbarment and suspension proceedings are neither civil nor criminal in nature but are special proceedings, *sui generis*, and result from the inherent power of courts over their officers. Such proceedings are not lawsuits between parties litigant but rather are in the nature of an inquest or inquiry as to the conduct of the respondent. They are not for the purpose of punishment, but rather seek to determine the fitness of an officer of the court to continue in that capacity and to protect the courts and the public from the official ministrations of persons unfit to practice. *Ex parte Wall*, 107 U.S. 265, 2 S. Ct. 569, 27 L. Ed. 552 (1882). Thus the real question at issue in a disbarment proceeding is the public interest and an attorney's right to continue to practice a profession imbued with public trust. *In re Fisher*, 179 F.2d 361 (7th Cir. 1950), *cert. denied sub nom. Kerner v. Fisher*, 340 U.S. 825, 71 S. Ct. 59, 95 L. Ed. 606 (1950).

In re Echles, 430 F.2d 347, 349-50 (7th Cir. 1970). In *Echles* the Court of Appeals agreed with respondent that the United States lacked standing to appeal a decision not to disbar respondent. The Court did, however, uphold the standing of the United States Attorney to appeal on the ground that he had received specific authority to do so from the Chief Judge of the District Court which issued the order in question.

We believe the situation presented here is similar to that presented in *Echles*. CBG brought no complaint against Mr. Cormier. Rather, this matter was initiated by the Board in order to preserve the integrity of the proceeding before it. As such, it is not in the nature of a controversy between or among the parties. While CBG claims that it has been injured by Mr. Cormier, any such injury is indirect rather than a direct, palpable

one. While there has been delay which may be attributed to Mr. Cormier's representation, which CBG apparently believes constitutes injury to its interests, CBG's substantive and procedural rights remain unscathed. And we are compelled to note that the relief which CBG seeks would only increase the delay and hence CBG's perceived injury. In these circumstances, we do not believe CBG has standing to request a hearing.

Next we address CBG's request for a hearing on the question of the imposition of sanctions against UCLA under 10 C.F.R. § 50.100. At the outset we note that this Board never proposed to impose such sanctions and called for a formal response as we did in Mr. Cormier's case. Thus there is no proceeding on the question of sanctions pursuant to § 50.100 at this time. Because we do not choose to initiate such a proceeding in the circumstances presented, there is no such proceeding in which CBG may participate, unless CBG may cause such a proceeding to commence. We know of no way in which CBG could do so short of advancing a tardy contention. CBG does not, in its filing, seek to have such a contention admitted and does not address the five factors of 10 C.F.R. § 2.714 which must be weighed if such a contention were to be admitted. Consequently we must deny its request for a hearing.

In consideration of the foregoing, it is, this 1st day of June 1984,
ORDERED

1. The charges pending against William H. Cormier pursuant to 10 C.F.R. § 2.713 are dismissed; and

2. CBG's requests for hearing on those charges and on the question of whether sanctions should be imposed against the Regents of the University of California pursuant to 10 C.F.R. § 50.100 are denied.

It is so ORDERED.

**THE ATOMIC SAFETY AND
LICENSING BOARD**

**Glenn O. Bright
ADMINISTRATIVE JUDGE**

**Dr. Emmeth A. Luebke
ADMINISTRATIVE JUDGE**

**John H Frye, III, Chairman
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland
June 5, 1984**

ATTACHMENT TO LBP-84-22

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**John H Frye, III, Chairman
Glenn O. Bright
Dr. Emmeth A. Luebke**

In the Matter of

**Docket No. 50-142-OL
(ASLBP No. 80-44-05-OL)
(Proposed Renewal of
Facility License)**

**THE REGENTS OF THE UNIVERSITY
OF CALIFORNIA
(UCLA Research Reactor)**

April 13, 1984

MEMORANDUM AND ORDER

On February 24, 1984, this Board issued a Memorandum and Order (unpublished) which directed counsel for UCLA and NRC Staff to indicate why disciplinary action should not be taken against them for apparent misrepresentations concerning whether UCLA's Security Plan provides protection against potential sabotage and whether NRC Staff required that such protection be provided.¹

¹ We also enquired whether counsels' clients were aware of these apparent misrepresentations. As indicated at the end of this Memorandum and Order, we do not deal with this aspect of our concerns here because further information is needed. Nor do we deal with the allegations raised by CBG which we referred to the Office of Inspector and Auditor in our unpublished Memorandum and Order of December 23, 1983. We will deal with both of these matters when the additional information we seek is furnished. Accordingly, this Memorandum and Order is limited solely to the representations made by counsel which were the subject of our February 24 unpublished Memorandum and Order.

Our concerns arose from the fact that, despite the contrary representations of counsel, we found that:

1. The UCLA Security Plan states that one of its purposes is to provide protection against potential sabotage and contains several provisions directed to that end;
2. All of the reports of NRC inspectors furnished by UCLA indicated on their face that Staff had inspected UCLA's compliance with such a requirement; and
3. On November 9, 1983, NRC Staff ordered UCLA to implement all provisions of its Security Plan.

UCLA COUNSELS' RESPONSE

With respect to UCLA's counsel, our concerns stemmed from a statement contained at 2-3 of UCLA's August 25, 1983, response supporting a Staff motion for reconsideration of an earlier ruling in which we held, in part, that UCLA must take steps to provide protection against sabotage:

University wishes to note that its security plan, which is not designed to provide protection against sabotage, has been approved by the Commission's safeguards branch; and that the low-power university research reactor licensees have never been required to adopt security plans designed to protect against sabotage. Surely the Commission's consistent practice in interpreting and applying its own safeguards regulations to licensees such as University is entitled to considerable weight in this proceeding.

The essentials of UCLA counsels' response are set forth in the declaration of William H. Cormier (*see* UCLA's response at 9). These are:

1. That he (Cormier) is an attorney in good standing licensed to practice law in California and a member of the staff of the Administrative Vice Chancellor of UCLA, that he has been delegated authority to represent UCLA in these proceedings by the General Counsel to the Regents of the University of California, and that he exercises this authority under the supervision of Glenn R. Woods, Associate Counsel to the Regents, and Christine Helwick, Assistant Counsel to the Regents.
2. That he made the statement quoted above, that he had authority to make that statement, and that that statement was not reviewed by Reidhaar, Woods, Helwick, or any other representative of the Regents.
3. That he briefly reviewed the Security Plan in November 1980, again in June 1982, and extensively reviewed the Plan in Janu-

ary 1984, when he and Mr. Charles E. Ashbaugh, III (Associate Development Engineer and Security Officer of the Nuclear Energy Laboratory at UCLA) spent several days preparing expurgations to the Plan and security inspection reports.

4. That he does not recall seeing the introduction to the Plan during the first two reviews of the Plan.
5. That he did note the introduction during the extensive January 1984 review, and discussed it briefly with Mr. Ashbaugh.
6. That he understood from Mr. Ashbaugh that the latter's references to protection against radiological sabotage were not meant in the same sense as his references to the same topic in the statement quoted above.
7. That he understood that Mr. Ashbaugh's references did not mean to imply that their Security Plan incorporated specific protective provisions against radiological sabotage as that term had been used by the intervenor.
8. That by the statement quoted above he intended to inform the Board that the Security Plan did not incorporate measures designed to prevent access to the reactor facility by potential saboteurs, that the prevention of access by potential saboteurs was his understanding of the meaning of the term "protection against sabotage" as that term had been used in this proceeding, and that he attempted to further clarify his meaning in UCLA's December 13, 1983, pleading at 3-6 (discussed *infra*).

Also attached to UCLA's response is the declaration of Charles E. Ashbaugh, III. It states:

1. That he (Ashbaugh) is a lecturer, Associate Development Engineer, and Security Officer at the Nuclear Energy Laboratory.
2. That he wrote the Physical Security Plan here involved.
3. That the Security Plan was UCLA's response to NRC's new safeguards requirements for non-power-reactor licensees possessing SNM of moderate strategic significance which were adopted in July 1979.
4. That in writing the Security Plan, he was assisted by the following NRC documents:
 - (a) the statement of consideration accompanying the rule (44 Fed. Reg. 43,280 (1979));
 - (b) the Draft Regulatory Guide, "Standard Format and Content for a Licensee Physical Security Plan for the Protec-

tion of Special Nuclear Material of Moderate Strategic Significance," July 1979, adopted as Regulatory Guide 5.59 in January 1980; and

- (c) the "Sample Physical Security Plan for Non-Power Nuclear Reactor Facilities Possessing Special Nuclear Material of Moderate Strategic Significance," Rev. 1, June 14, 1979, published by the Reactor Safeguards Development Branch, Division of Operating Reactors, Office of Nuclear Reactor Regulation, NRC.
5. That the Security Plan was written to satisfy the requirements of 10 C.F.R. § 73.67 as interpreted by the Regulatory Guide.
 6. That the statements in the introduction to the Security Plan were based on statements found on pages 1 and 2 of the Sample Security Plan.
 7. That in making the statements in the introduction to the Security Plan he used the term radiological sabotage, and that he took that term to mean any sabotage that involved the reactor or its associated equipment and any sabotage which could lead to radioactive contamination or release that could pose a danger to students, staff, or members of the public.
 8. That he believes the facility is well protected against theft of the reactor fuel and against deliberate attempts to damage the reactor, its equipment, or other parts of the facility, and that the basic means of providing this protection is by controlling access and detecting unauthorized entry.
 9. That the security system at UCLA includes a number of enhancements that are not strictly required, but does not provide for special measures such as armed guards, mandatory personnel searches, or explosives detection devices which the intervenor claims are necessary to protect against radiological sabotage.
 10. That the Plan was not developed with any specific design basis radiological sabotage threat in mind.
 11. That the major protection against radiological sabotage is the structure of the reactor itself, and that the crushing of the fuel will not release fission products which would endanger the public.

UCLA counsels' response is further supported by the declaration of Donald L. Reidhaar. He states:

1. That he (Reidhaar) is General Counsel to the Regents of the University of California, that his office is responsible for representing the Regents in legal proceedings, that Associate Coun-

sel Woods and Assistant Counsel Helwick are assigned to this proceeding, and that Cormier has been assigned principal operating responsibility for the Regents in this proceeding, under the supervision of Woods and Helwick.

2. That he has read this Board's February 24 Memorandum and Order and carefully reviewed the facts giving rise to this Board's concerns.
3. That he is convinced that no misrepresentation has occurred and that University's attorneys and staff have acted in good faith and in a professional manner.
4. That, although the use of the term "radiological sabotage" in the introduction to the Security Plan is unfortunate, the specific provisions of the Plan are clear and do not require the kind of precautions required of nuclear power plants.
5. That the specific provisions of the Security Plan are the type of requirements made applicable to research reactors by 10 C.F.R. § 73.67.
6. That the content of the Plan is consistent with Mr. Cormier's earlier statements.

In his declaration, Mr. Cormier states that he attempted to further clarify the meaning of the statement quoted above at pages 3-6 of UCLA's December 13, 1983, response to the Board's request regarding the issues remaining to be decided under Contention XX. He provides no further elucidation with regard to the December 13 response. We have reviewed pages 3-6 of that response. We set forth below the language from page 5 which we believe most favorable to Mr. Cormier's position:

Certainly, the security measures employed by UCLA in satisfaction of the requirements of Sec. 73.67 provide *some measure of protection against sabotage and theft*, even though the design objective of that regulation is only to detect theft or diversion of SNM. University's security precautions provide "protection against sabotage" although, University concedes, the level of protection that is provided would not satisfy the objective of *preventing* certain specific acts of sabotage such as the design basis threats defined in Part 73 of the regulations. . . . Moreover, the Board's ruling is not necessarily inconsistent with University's position concerning what actual security measures are required to be in place at the UCLA facility. (Emphasis in original.)

UCLA's response reiterates the positions taken in the declaration and in its December 13 response quoted above and adds comments on the language of the NRC security inspection reports and license amendment ordering implementation of the Plan. We do not believe the latter com-

ments are relevant to the issue here before us and consequently do not consider them.

Associate Counsel Woods and Assistant Counsel Helwick have not individually responded to our February 24 Memorandum and Order.

OUR HOLDING WITH REGARD TO SABOTAGE

In LBP-83-25A, 17 NRC 927 (1983) we held:

From the above we conclude that the provisions of § 73.40(a), which have remained unchanged over a period of almost ten years despite substantial rulemaking on the subject of physical security, are applicable to Class 104(c) licensees. Where the Commission has set down detailed requirements, we conclude that these are intended to satisfy the general requirements of § 73.40. Where no detailed requirements have been set out, *we conclude that some measures nonetheless must be taken to satisfy the § 73.40(a) general requirements.*

In the instant case, assuming that there is (or will be) less than a formula quantity of SSNM on hand at the NEL, *this means that UCLA must institute some means of providing physical protection against sabotage. Because, under this assumption, § 73.40(b), (c), and (d) and § 73.60 are not applicable, these means necessarily must be less stringent than the requirements of those regulations. What these means should be is properly a subject for the parties to address. (Emphasis supplied.)*

17 NRC at 942-43.

Clearly our holding requires some means of protecting against sabotage which is less stringent than the sabotage protection requirements which would be enforced if a formula quantity of strategic special nuclear material were on hand at UCLA. Those latter requirements place an upper bound on the general requirement of § 73.40(a). The respects in which they differ from the requirements of § 73.67(d) are set out in Appendix A (not published).

With the "upper limit" for sabotage protection in mind, a review of the specific provisions of UCLA's Security Plan which deal with sabotage is helpful. These provisions are in addition to the provisions primarily dealing with the prevention of theft, such as locks and keys, intrusion alarms, and the like. Because this review necessarily involves some discussion of protected information, we have included it in Appendix B to this Memorandum and Order which will not be publicly disclosed.

The provisions enumerated in Appendix B are precisely the kind of provisions which we had in mind when we issued LBP-83-25A. They go beyond the requirements of § 73.67(d) but fall short of the requirements of § 73.40(b), (c), and (d) and § 73.60. Whether they are sufficient can only be determined after hearing. The point here is that nowhere in his pleadings did counsel apprise us of the fact that UCLA's Security Plan

does contain extensive provisions for dealing with sabotage, provisions which go beyond the requirement of § 73.67(d) yet do not fully comply with § 73.40(b), (c), and (d) and § 73.60.

The Cormier and Ashbaugh declarations indicate that counsels' statement that the UCLA Security Plan does not provide protection against sabotage contemplated a definition of protection against sabotage quite different from that which we held to be required. On page 3 of his declaration, Mr. Cormier states that his statement "was intended to inform the Board that the UCLA plan did not employ measures, such as armed guards, mandatory personnel searches, explosive detection devices, etc., designed to *prevent* access to its reactor facility by potential saboteurs" (emphasis in original). In his declaration, Mr. Ashbaugh takes a similar position. He refers to the same measures as Mr. Cormier and states that the intervenor (CBG) claims them to be necessary. Additionally, he refers to "a number of enhancements that are not strictly required." (Ashbaugh declaration at 3.)

It is true that Contention XX argues for some measures which, given our holding in LBP-83-25A, may be beyond the "upper limit" of sabotage protection required of this facility. Nevertheless, the fact that CBG may seek to have such measures imposed does not justify the blanket statement, made in response to our holding in LBP-83-25A, that no measures dealing with sabotage are employed.

Nor do we believe that that statement is clarified by the language from UCLA's December 13, 1983, pleading quoted above. In the December 13 statement, Mr. Cormier states first, that the anti-theft provisions of § 73.67 provide some measure of protection against sabotage, and second, that UCLA's security precautions provide protection against sabotage although not enough protection to prevent sabotage. Thus in context, the statement says only that compliance with § 73.67 provides some measure of protection against sabotage. This interpretation is reinforced by the fact that Mr. Cormier notes that our holding in LBP-83-25A may not be inconsistent with UCLA's position with regard to the security measures required of it. That position clearly stated that only § 73.67, dealing with theft, was applicable. However, as noted above, the UCLA Security Plan contains provisions going beyond those required by § 73.67 which are designed to protect against sabotage.

Moreover, Mr. Cormier disclaims any recollection of the introduction to UCLA's Security Plan at the time this pleading was filed. (See Cormier's declaration, ¶ 3, at 2.) The clear inference is that he was not aware of the provisions of the Plan dealing with sabotage until January 1984. Therefore the December 1983 statements were not intended to correct the earlier August 1983 statement. Indeed, the conclusion of his

December pleading states that the only matters in controversy under Contention XX concern whether UCLA must provide protection against sabotage and theft beyond that required by § 73.67. The thrust of the December pleading, taken as a whole, is to reaffirm the statement made in the August pleading.

There is another troubling aspect to the August statement. It goes on to assert that low-power research reactor licensees have never been required to deal with sabotage. Yet in the body of each security inspection report for the years 1975 through 1979 specific reference in one form or another to sabotage-related matters is made. The reports for 1975 and 1976 criticized anti-sabotage measures in two respects which have also been identified by CBG. Both criticisms were expurgated from the copy of the reports shown to lead counsel for CBG. UCLA's response, while alluding to these inspection reports, does not address these matters.

Mr. Cormier clearly was aware of the provisions of the Plan and reports from the time he prepared the expurgations last January. Yet he made no attempt to correct his statements to the Board even though he had ample opportunity, particularly within the setting of an *in camera* session of the prehearing conference conducted at UCLA on February 8 and 9.

We find Mr. Cormier's justification for his statements unacceptable. Had he informed the Board and the parties of the true nature of the provisions of UCLA's Security Plan in a timely fashion, much time and effort might have been saved. First, this Board would not now be faced with the distasteful task of determining what action needs to be taken in light of his misrepresentation, a task which distracts us from the important substantive issues before us. Second, had we known the true state of affairs, we might well have been able to have cut short much of the procedural wrangling that has plagued the resolution of this issue.

STAFF COUNSEL'S RESPONSE

With respect to Staff counsel, our concerns stemmed from the numerous statements which she made, quoted in our unpublished February 24 Memorandum and Order, that Staff imposed no requirement to protect against sabotage on research reactor licensees possessing SNM of moderate strategic significance. When compared with the inspection reports for this facility and Staff's November 9, 1983, direction to UCLA that it fully implement all the provisions of its Security Plan, these statements appeared to be false.

In resolving the issue of Staff counsel's statements, we find it unnecessary to reach the issue of whether her statements were in fact false.

Indeed, the question of precisely what requirements were being enforced by Staff is at best the subject of some confusion.² We find, regardless of the specific requirements being enforced, that counsel made no knowingly false or misleading representations and that there is no warrant for sanctions against her.

In her affidavit attached to Staff's March 9, 1984, response to our February 24 Memorandum and Order, Staff counsel Colleen P. Woodhead states, among other things, that:

1. She (Woodhead) made no representations regarding the contents of the Security Plan other than that it had been approved by the Division of Safeguards Staff as adequate to meet the requirements of 10 C.F.R. § 73.67. (Affidavit, ¶ 10.)
2. All of her briefs and pleadings filed in this proceeding have been reviewed by the appropriate Assistant Chief Hearing Counsel and the Chief Hearing Counsel, Office of the Executive Legal Director (OELD), and that pleadings involving safeguards regulations have also been reviewed by the Regulations Division, OELD. (Affidavit, ¶ 12.)
3. She has throughout this proceeding made careful inquiry of the Safeguards Division with respect to the Staff position on the security issues raised in this proceeding, and that the Safeguards Division knew of and approved her representations to the Board. In addition, she has provided the Safeguards Branch of Region V with copies of her pleadings. (Affidavit, ¶ 13.)

Counsel's representations recited above are supported by the affidavits of Joseph R. Gray, Assistant Chief Hearing Counsel for Hearing Branch IV, OELD; Russell R. Rentschler, Section Chief, and Donald M. Carlson, Fuel Facilities and Safeguards Branch, Division of Safeguards, NMSS; Donald J. Kasun, Chief, Licensing Section, Power Reactor Safeguards Branch, Division of Safeguards, NMSS; Leroy R. Norderhaug, Chief, Safeguards and Emergency Preparedness Branch, Region V; and Matthew D. Schuster, Chief, Security Licensing and Emergency Preparedness Section, Region V.

It is thus clear that counsel's representations to the Board were made only after verifying that they represented the views of her client. We see nothing presented by the information available to counsel which would have formed the basis for further inquiry into the facts. If in fact the

² See, for example, Staff counsel's letter to the Board of March 16, 1984, indicating that on that date she had been informed that OIE Manual Chapter 2545 instructs inspectors to inspect for protection against radiological sabotage at research reactors and that such an inspection was conducted last November with respect to another university licensee. In that letter, counsel indicates that she is seeking further information on this matter.

Staff position is not what was represented to counsel (and, as noted above, there is some question as to what that position really is), that misrepresentation cannot be attributed to counsel.³

LEGAL PRINCIPLES REGARDING COUNSEL'S DUTY OR CANDOR

In the following section, we discuss the legal principles which underlie counsel's duty with respect to factual representations. We begin with the proposition that the Commission will not tolerate conduct which compromises the licensing process to the public detriment. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-691, 16 NRC 897, 919 (1982); *cf.* CLI-83-2, 17 NRC 69, 70 (1983). In order to prevent such compromise, applicants and licensees, as well as the NRC Staff, have an obligation to keep adjudicatory boards informed of the material facts which are relevant to the issues pending before them, an obligation which extends to and often is the responsibility of counsel. ALAB-691, *supra*, 16 NRC at 910; *Tennessee Valley Authority* (Browns Ferry Nuclear Plant, Units 1, 2 and 3), ALAB-677, 15 NRC 1387 (1982); *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-458, 7 NRC 155, 172 n.64 (1978). Failure of a licensee or applicant to fulfill this obligation may result in the assessment of civil or criminal penalties. *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), LBP-75-54, 2 NRC 498 (1975), *aff'd in part, modified in part, and rev'd in part*, ALAB-324, 3 NRC 347 (1976), *aff'd in part and rev'd in part*, CLI-76-22, 4 NRC 480 (1976), *aff'd sub nom. Virginia Electric and Power Co. v. NRC*, 571 F.2d 1289 (4th Cir. 1978); *United States v. Metropolitan Edison Co.*, Criminal No. 83-00188 (unpublished order of the U.S. District Court, M.D. Pa., February 29, 1984).

The proposition that adjudicatory boards must be kept fully informed regarding the matters of issue before them is well set forth in *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-143, 6 AEC 623 (1973) and *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397 (1976). In *McGuire*, the Appeal Board, faced with a situation in which the applicant had modified its quality assurance organization but had not promptly notified the board, laid down the rule that parties must keep the presiding board and other parties apprised of relevant and material new information. In so

³ As noted above, counsel points out that she made no representations as to the contents of the Plan. As noted below, we believe that prudence would have dictated that she review the Plan. However, we do not believe her failure to do so should be a basis for disciplinary action.

doing, it noted that the rule it formulated was necessary to preserve the integrity of the adjudicatory process and that “[i]ts sacrifice for the sake of expediency cannot be justified and will not be tolerated.” (6 AEC at 626.)

In *Catawba* the Appeal Board addressed a situation in which changing circumstances with regard to the need for the facility had not been brought to the attention of the presiding board by the applicant. It reaffirmed its *McGuire* ruling and noted that in NRC proceedings presiding boards must rely on counsel to fully and fairly develop the issues and keep boards informed of developments which may conceivably affect the outcome. The proposition that applicants must keep boards and parties advised of new relevant developments was recently reaffirmed in *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-765, 19 NRC 645, 656-57 (1984).

Counsel’s obligations to be candid and to ensure that boards and parties are informed of material and relevant facts have been discussed in some detail by various appeal boards. We begin our review with *Public Service Co. of Oklahoma* (Black Fox Station, Units 1 and 2), ALAB-505, 8 NRC 527 (1978). In that decision, the Appeal Board chastised applicants’ counsel for his misrepresentation of the record made before the Licensing Board. Intervenors had sought a stay of a licensing board decision from that Appeal Board. They represented that the Licensing Board had refused the relief now requested from the Appeal Board. Applicant’s counsel contradicted that statement, a statement which was true. The Appeal Board found applicant’s statement “misleading in the extreme” (8 NRC at 532 n.16), and stated:

Counsel appearing before this Board (as well as other NRC adjudicatory tribunals) have a manifest and iron-clad obligation of candor. That obligation is hardly fulfilled when, as here, there is a failure to call attention to facts of record which, at the very least, cast a quite different light upon the substance of arguments being advanced by counsel. We shall expect that, in the future, applicants’ counsel will take pains to avoid this kind of conduct.

8 NRC at 532 (footnote omitted). See also *Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B), ALAB-409, 5 NRC 1391 (1977).

Consumers Power Co. (Midland Plant, Units 1 and 2), LBP-81-63, 14 NRC 1768 (1981) presents a more complex factual situation involving the construction permit. This decision responded to the direction of the Appeal Board in ALAB-458, *supra*, that certain charges related to the conduct of applicant and its counsel should be aired and resolved. These charges concerned the contractual relationship of the Applicant and

Dow Chemical Company. The latter had agreed to purchase steam from the Midland Plant and this obligation furnished a major justification for the siting and construction of the plant, both relevant inquiries under the National Environmental Policy Act. The charges were that applicant had sought to keep from the Board certain disputes that had arisen with regard to Dow's obligations and its intent to follow through on the contract. The Licensing Board discussed the legal principles governing applicant's duty of disclosure (14 NRC at 1777-85) and outlined the conduct of applicant's counsel (14 NRC at 1789-1800) which gave rise to the problem. It appeared that applicant's counsel was indeed anxious to prevent any airing in the prefiled testimony of Dow's continuing concern with regard to this contract for fear that to do so would result in a suspension of the construction permit. Counsel's fears proved unfounded for, despite efforts to conceal Dow's concern, that concern was fully aired on cross-examination and the permit was not suspended. However, it does appear that the prefiled testimony was less than forthright. The principal witness for Dow, whose testimony is here involved, characterized it as follows:

"If the goal was to tell in complete detail, everything that was going on at that point, that [my] testimony was, as judged by that criteria, not open, not honest, and not consisting of all the relevant information."

14 NRC at 1795, *quoting Midland Tr.* 2307.

The Board concluded that "the parties and their lawyers took an improperly narrow view of their duty affirmatively to disclose significant information to the Board." (14 NRC at 1800.) Nonetheless, the Board concluded that sanctions against counsel were not called for because:

First, although counsel had been excessively preoccupied with the interests of their clients and insensitive to the duty of disclosure in NRC cases, there was no conspiracy to countenance perjury or commit fraud upon the Board;

Second, the high standards of affirmative disclosure involved had not previously been addressed in detail by an appeal board or the Commission and that fairness to counsel required some advance notice of what was required; and

Third, the fact that all the factual information sought to be suppressed had indeed been brought out in the record was a mitigating factor.

In ALAB-691, *supra*, the Appeal Board affirmed the Licensing Board's conclusion that sanctions were not appropriate. In so doing, it expressed disagreement with various aspects of the latter Board's decision. It noted, however, that the conduct described by the Licensing

Board had a strong, albeit unrealized, potential for compromising the licensing process to the public detriment.

In discussing whether counsels' conduct in Midland had been appropriate, the Appeal Board applied the American Bar Association's Code of Professional Responsibility (now superseded by the Model Rules of Professional Conduct adopted on August 2, 1983). It concluded that counsel had not violated the provisions of that Code. However, it warned that:

Counsel and parties who engage [in conduct which may compromise the licensing process] risk violating [§ 186a of the Atomic Energy Act, 42 U.S.C. § 2236a] and other Commission authority. Where that threshold is crossed, we will have no hesitation in imposing appropriate sanctions and taking whatever other measures are necessary to ensure no recurrences. What we said at an earlier stage of this proceeding bears repeating:

Inssofar as the integrity of the proceedings or the good faith of the parties is concerned, there is no parallel between zealous advocacy in support of an arguable legal position and, *e.g.*, the withholding of relevant factual information. We note that in the latter regard we fully expect both clients and lawyers to adhere to the highest standards.

ALAB-458, *supra*, 7 NRC at 172 n.64.

16 NRC at 919.

In CLI-83-2, 17 NRC 69 (1983), the Commission declined to review ALAB-691. In so doing, the Commission stated:

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

17 NRC at 70.

A few months prior to ALAB-691, the Appeal Board issued a Memorandum in *Browns Ferry*, ALAB-677, *supra*. That case involved a factual situation not unlike that presented here. In *Browns Ferry*, the Appeal Board had issued a Decision (ALAB-664, 15 NRC 1 (1982) then under Commission review) and subsequently discovered that TVA had not served it with material information which might have changed the outcome of that decision. That information superseded the information on which the Appeal Board had relied in reaching its Decision in

ALAB-664. In ALAB-677, the Board noted that TVA's counsel "had an obligation to advise us that we were about to rely on outdated, *i.e.*, incorrect, information" (15 NRC at 1393), and went on to remind parties to Commission proceedings of their absolute obligation to bring such information to the attention of adjudicatory boards. ALAB-677 does not indicate that the Appeal Board considered imposing sanctions against either TVA or its counsel.

These decisions do not clearly delineate the obligations of parties from the obligations of counsel to those parties to disclose information. Indeed, *Browns Ferry* (ALAB-677) focusses principally on the obligations of parties and only in one specific instance, quoted above, on the obligation of counsel, while *Black Fox* (ALAB-505) focusses only on the obligations of counsel.

Although *Midland* (ALAB-691) does distinguish between the two obligations to some extent, that distinction is not entirely clear. As noted by the Commission in *Midland* (CLI-83-2), ALAB-691 determined that no material information had been omitted from the prefiled testimony which LBP-81-67 had found to be deficient. In its separate discussion of counsels' conduct, the Appeal Board had found that the Code of Professional Responsibility had not been violated with respect to counsels' claim of attorney's work product privilege and counsels' role in preparing the prefiled testimony. Both of these matters are distinct from the obligation of a party to disclose information in that the first involves a legal conclusion uniquely the province of counsel and the second the proper role for counsel to assume with respect to the preparation of testimony. And LBP-81-67 does not appear to have made a distinction between the obligations of a party and those of its counsel to disclose information. (See 14 NRC at 1789-1800.) Similarly, the Commission's statement from CLI-83-2 quoted above does not appear to make such a distinction.

We noted at the outset of this discussion that a party's obligation to disclose material information extends to and is often the responsibility of counsel. We believe that the failure of the *Midland* and *Browns Ferry* decisions to make a clear distinction between the party's and counsel's obligation in this regard is tacit recognition of the extension of this obligation to include not only the party but its counsel. Indeed, it is only logical, in litigation involving highly complex technology, to assume that many decisions regarding the materiality of information can only be made jointly by a party and its counsel. Consequently, it would be illogical to make such a distinction.

Our statement also contemplates that it is often counsel's responsibility to make such disclosures. The statement that a party speaks largely

through its counsel requires no elaboration. *See, e.g., Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 533 (1973). Indeed, a party may often need to rely on its counsel to make the necessary decisions whether a particular piece of information should be disclosed.

We thus conclude that, in this case, counsel had an obligation to make accurate disclosures with regard to the information here in question (assuming its materiality, discussed *infra*). We also conclude that this obligation, imposed under the Atomic Energy Act and Commission's regulations, is not substantially different from that posed by the ABA's Model Rules of Professional Conduct. The applicable Model Rule states:

RULE 3.3 CANDOR TOWARD THE TRIBUNAL

(a) A lawyer shall not knowingly:

(1) make a false statement of material fact or law to a tribunal;

* * *

(b) The duties stated in paragraph (a) continue to the conclusion of the proceeding, and apply even if compliance requires disclosure of information otherwise protected by Rule 1.6.

Rule 3.3(a)(1) is substantially identical with DR 7-102(A)(5), which provided that a lawyer shall not "knowingly make a false statement of law or fact."

In the Comment on this Rule there appears the following:

Representations by a Lawyer

An advocate is responsible for pleadings and other documents prepared for litigation, but is usually not required to have personal knowledge of matters asserted therein, for litigation documents ordinarily present assertions by the client, or by someone on the client's behalf, and not assertions by the lawyer. Compare Rule 3.1. However, an assertion purporting to be on the lawyer's own knowledge, as in an affidavit by the lawyer or in a statement in open court, may properly be made only when the lawyer knows the assertion is true or believes it to be true on the basis of a reasonably diligent inquiry. There are circumstances where failure to make a disclosure is the equivalent of an affirmative misrepresentation. The obligation prescribed in Rule 1.2(d) not to counsel a client to commit or assist the client in committing a fraud applies in litigation. Regarding compliance with Rule 1.2(d), see the Comment to that Rule. See also the Comment to Rule 8.4(b).

This Rule and Comment, when read in conjunction with the obligation imposed on parties and their counsel with respect to full and accurate disclosure, requires that, at least in NRC proceedings, counsel have an

ironclad obligation to ensure that their statements of fact are accurate. They may fulfill this obligation by either:

1. verifying the statement of fact with the party who is their client; or
2. verifying the statement of fact themselves.

In this case, it is obvious from the affidavits submitted by and on behalf of Colleen P. Woodhead that she chose the first method. She checked all representations with her client and was advised that they were correct. Absent some basis for her to suspect that the client was misinformed or dissembling, a basis not present here, there was no obligation for her to inquire further. Consequently we conclude that she has conducted herself within the letter of the Atomic Energy Act, the Commission's rules, and the ABA Model Rules of Professional Conduct.

We noted in note 3, *supra*, that prudence would have dictated that counsel review the Security Plan in connection with her representations. Her failure to have done so might be viewed as the deliberate avoidance of knowledge which she had reason to suspect was true (*United States v. Maniego*, 710 F.2d 24 (2nd Cir. 1983)). Particularly in the circumstances of this case where a member of the technical staff with whom she worked closely was the primary reviewer of the Security Plan and as such aware of its contents (*see* Carlson affidavit, ¶¶ 2, 3), it is difficult to understand why the Technical Staff member's knowledge was not imparted to counsel. Nonetheless, we accept counsel's representations that "none of [her] representations to the Board concerning safeguards regulations were based on, or even considered, the contents of the UCLA Security Plan . . .," that "until the Board's Order of February 24, 1984, [she] was unaware of the apparently contradictory language in the security plan . . ." (Woodhead affidavit, ¶ 4) and that "Staff Counsel did not, in fact, review the UCLA security plan in formulating or consistently presenting arguments on the regulatory requirements for UCLA . . ." (Staff's March 9, 1984, Response at 7). Counsel's inflexibly narrow view of the issue, limited to a consideration of the regulatory requirements only, apparently prevented any question directed toward the actual provisions of the Plan. The prudent course would not have excluded such a question which, if asked, should have elicited information which could well have foreshortened the proceedings on this contention.⁴

⁴ As noted at the outset of this Memorandum and Order, we do not address questions regarding the propriety of the conduct of the Technical Staff. We consider the corollary to this proposition — whether the Technical Staff should have informed counsel of the provisions of the Plan — to fall within that topic. Hence we do not address it here.

William H. Cormier's representations on behalf of UCLA are not so easily explained. His declaration indicates that he had briefly reviewed the Plan on two occasions prior to making the August statement that the Plan provided no protection against sabotage. It is not easy to understand why he would not have recalled that the Plan contained protective provisions which clearly are aimed at sabotage, not theft. Nonetheless, according to his declaration, he neither sought to verify the accuracy of the August statement himself or by inquiry of someone more familiar with the Plan.

Moreover, Cormier's declaration indicates that he became aware of the introduction to the Plan and the statement that it was the purpose of the Plan to provide protection against sabotage last January. Thus from that point, he was by his admission aware of these provisions of the Plan. Yet, at the prehearing conference of February 8 and 9, despite extensive discussion of the sabotage issue, some of which was conducted *in camera* (Tr. 3530-51), at no point did he seek to correct the August statement. This is clearly contrary to the Commission's requirements and the ABA's Model Rule 3.3(b).⁵

MATERIALITY OF COUNSEL'S REPRESENTATIONS

Before passing to the question of what sanctions, if any, should be imposed, we must discuss the materiality of these statements. If the statements are not material, then the imposition of sanctions would be inappropriate. *Midland, supra*, ALAB-691, 16 NRC at 910-15.

Both for the sake of a complete discussion and because we have yet to learn precisely what requirements, if any, are being enforced by Staff with respect to sabotage, we have included Staff counsel's statements in this discussion.

The Commission has stated that "determinations of materiality require careful, common-sense judgments of the context in which information appears and the stage of the licensing process involved. Materiality depends upon whether information has a natural tendency or capability

⁵ We have not specifically addressed the obligations of counsel whose names appear on UCLA's pleadings but who exercise only a supervisory role in their preparation. Nonetheless, we believe that these attorneys have an obligation to ensure the careful preparation of such pleadings so as to avoid problems of this nature. The appearance of their names on the pleadings constitutes a representation that they have fulfilled that obligation.

Moreover, we are compelled to note that recent communications from UCLA concerning the current shutdown of the reactor and security measures for the Olympic Games indicate that timely disclosure of information to the Board and parties may still be a problem. If so, we trust it will not persist.

to influence a reasonable agency expert." *North Anna, supra*, CLI-76-22, 4 NRC at 491. *See also Midland, supra*, ALAB-691, 16 NRC at 910.

We have no difficulty in concluding that the statements involved were material as that term has been defined by the Commission. They were made in the context of our consideration and reconsideration of the question whether 10 C.F.R. § 73.40(a) requires this facility to institute some means to protect against sabotage. Staff's statements that it imposes no such requirement was entitled to great weight, and we refused to defer to this position only because we could find no reasonable basis for it in the regulations. Without a doubt, these statements were material.

Similarly, UCLA's statement that no sabotage protection measures were in place was material. Had we been accurately informed of the sabotage protection provisions actually in place at UCLA, there would have been little point to considering, as a threshold matter, whether such protection was required by the regulations. Indeed, because the measures in place are of the same precise nature as those which we held to be required, the fact of their existence conceivably could have mooted the issue entirely. By making a material false statement, Mr. Cormier has put his client, the other parties, and this Board to needless effort and controversy. Plain commonsense judgment, exercised at the time the August statement was made, only leads to the conclusion that such would be the consequences if indeed the statement were false.

SANCTIONS

We must now address the question whether sanctions should be imposed against William H. Cormier. The statement in question was both false and material. Cormier had an ironclad obligation to ascertain its accuracy when he made it and to correct it when he discovered its falsity. He did neither. In these circumstances, we believe that he should be formally reprimanded. *Cf. Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 454 (1981). However, before entering such an order, we will permit Mr. Cormier to respond, either orally or in writing, or both, to the reasons underlying our conclusion.

CONDUCT OF UCLA AND STAFF

In our February 24 Memorandum and Order, we asked whether the representations of counsel had been reviewed and approved by their respective organizations. Staff's response details the review which it conducted. However, as indicated in counsel's letter of March 16, questions with regard to Staff's practices still exist. Therefore, we have withheld any comment on the Staff's conduct with respect to these matters pending further advice from Staff.

In his declaration, Cormier states that his statement was not reviewed by the other attorneys whose names appear on it prior to its submission and that "[t]he statements were not reviewed by any other representative of The Regents" (declaration at 2). With respect to the quoted statement, we wish to be informed whether the statements were *never* reviewed by any other representative of The Regents, or were not reviewed by any other representative prior to submission. If the statements were reviewed after submission, we wish to know when and by whom. On receipt of this information, we will address the issue of whether the misrepresentation of counsel may be imputed to UCLA.

In consideration of the foregoing, it is, this 13th day of April 1984,
ORDERED

1. No basis exists to impose sanctions against NRC Staff counsel, Colleen P. Woodhead;

2. Within ten days of the service of this Memorandum and Order, UCLA is to indicate whether any representative of The Regents, other than counsel, reviewed counsels' statements here in question after they were submitted to the Board; and

3. Counsel for Applicant, William H. Cormier, may, within ten days of the service of this Memorandum and Order, respond in writing to our conclusion that he should be formally reprimanded and/or request a

hearing with regard to that conclusion. After considering any such response, we will finally determine whether to issue such a reprimand.

**THE ATOMIC SAFETY AND
LICENSING BOARD**

**Dr. Emmeth A. Luebke
ADMINISTRATIVE JUDGE**

**Glenn O. Bright
ADMINISTRATIVE JUDGE**

**John H Frye, III, Chairman
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland
April 13, 1984**

[Appendix A has been omitted from this publication but may be found in the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555.]

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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)**

June 21, 1984

In an operating license amendment proceeding, the Licensing Board denies Licensees' motion for reconsideration or, in the alternative, for certification to the Appeal Board, of an order admitting Intervenor contentions.

RULES OF PRACTICE: MOTION FOR RECONSIDERATION

Where the party has raised no new issues nor cited new information, it has offered no basis for the Board to reconsider its order.

ATOMIC ENERGY ACT: RIGHT TO HEARING

Legislative history supports the determination that hearings on license amendments be held, if properly requested, even after irreversible actions have been taken upon a finding of no significant hazards consideration.

RULES OF PRACTICE: CERTIFICATION

The grant of a request for certification is an exception to the general rule against interlocutory appeals and is to be resorted to only in "exceptional circumstances." *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-382, 5 NRC 603, 606 (1977).

RULES OF PRACTICE: INTERLOCUTORY APPEALS

Interlocutory review is undertaken only where the ruling below either (1) threatens the party adversely affected with immediate and serious irrevocable impact which, as a practical matter, could not be alleviated by a later appeal; or (2) affects the basic structure of the proceeding in a pervasive or unusual manner. *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977).

RULES OF PRACTICE: INTERLOCUTORY APPEALS

The erroneous admission of a contention, where a hearing may be required in any event, does not affect the basic structure of the proceeding in a pervasive or unusual manner, or cause an irreparable impact which cannot be alleviated by a later appeal, so as to permit interlocutory review.

MEMORANDUM AND ORDER

(Denying Licensees' Motion for Reconsideration or Certification)

Memorandum

In our Order of April 23, 1984, LBP-84-18, 19 NRC 1076, we admitted the Intervenor, Jacksonians United for Livable Energy Policies (JULEP), and two of its contentions. These contentions were understood by this Board to involve amendments to the operating license granting one-time suspensions of certain technical specifications to permit the testing of certain components. These tests have already been performed and, as we understood it, were not to be repeated. We admitted these contentions over the objection of Licensees on grounds of mootness, on the basis of the "Sholly Amendment" to section 189 of the Atomic Energy Act of 1954, enacted in section 12 of Pub. L. 97-415 (1982). The amendment was adopted in response to *Sholly v. NRC*, 657

F.2d 780 (D.C. Cir. 1980), *reh'g denied*, 651 F.2d 792 (1980), *vacated*, 103 S. Ct. 1170, 75 L. Ed. 2d 423 (1983), in which the Court of Appeals had held that section 189a of the Atomic Energy Act did not permit the NRC to dispense with a requested hearing on a license amendment even if the Commission had previously made a finding that the modification of license involved "no significant hazards consideration." The new language in section 189a provided, *inter alia*, that, where the Commission determines that a license amendment involves no significant hazards consideration, the amendment "may be issued and made immediately effective in advance of the holding and completion of any required hearing." Section 189a(2)(A) (42 U.S.C. § 2239(a)(2)(A)).

We held that this language (and similar language in 10 C.F.R. §§ 2.105(a)(4)(i) and 50.58(b), promulgated under the changes made in the Atomic Energy Act by Pub. L. 97-415) requires a hearing, if requested, in all cases in which the license amendment has been issued and made effective, notwithstanding that the action permitted under the amendment may have been completed.

Although Licensees objected, on the grounds of mootness, to our admitting those contentions, it now asks us to reconsider our ruling with regard to one of those contentions on those same grounds. (It presently concedes, on factual considerations, that the other contention may not be moot.) In the alternative, in the event that we do not grant the motion for reconsideration and deny the contention that Licensees object to as moot, Licensees would have us certify the matter to the Appeal Board pursuant to 10 C.F.R. § 2.718(i) or 10 C.F.R. § 2.730(f).

We deny Licensees' motion for reconsideration and decline to certify the matter to the Appeal Board.

MOTION FOR RECONSIDERATION

Licensees have offered no valid reasons for our reconsidering the Order admitting Intervenor's contentions. They have raised no issues beyond those asserted in their initial brief, nor have they cited new information that has become available since we issued our Order. Although their motion argues their point on mootness perhaps more persuasively than their original brief and more thoroughly reviews the legislative history of Pub. L. 97-415, the NRC Authorization Act of 1982 which amended section 189a of the Atomic Energy Act of 1954, it offers nothing new that would form a basis for reconsideration of our Order. *See Nuclear Engineering Co.* (Sheffield, Illinois Low-Level Radioactive Waste Disposal Site), CLI-80-1, 11 NRC 1, 5 (1980).

Notwithstanding the lack of basis in Licensees' motion for our reconsidering the prior Order, we would not hesitate to reverse our ruling were we persuaded that we had erred. However, we cannot agree with Licensees' interpretation of the legislative history of section 12 as evidencing a Congressional intent to permit "irreversible" actions (such as the one-time test permitted here) to remain unreviewed by hearing boards when opposed by a member of the public with the requisite "interest." Our reading of the same Congressional dialogue quoted in Licensees' motion, which accompanied the reporting of the House and Senate bills, brings us to the conclusion that Congress intended that hearings be held if properly requested, even after irreversible actions had been taken upon a finding of no significant hazards consideration. We note in that respect that, although the legislators were apprehensive about irreversible actions being taken under a finding of no significant hazards consideration, none of them suggested that this would foreclose a requested hearing after the fact. Rather, it is clear that they anticipated that a hearing would be held, if requested, even though the practical effects of the contested actions could not be reversed by the licensing board. *See*, for example, Conf. Rep. to H.R. Rep. No. 884, 97th Cong., 2d Sess. 37-38, *reprinted in* 1982 U.S. Code Cong. & Ad. News 3603, 3607-08, quoted in Licensees' motion at 13, as follows:

In those cases [in which license amendments have been taken that have irreversible consequences], issuing the order in advance of a hearing would, *as a practical matter*, foreclose the public's right to have its views considered. In addition, the licensing board would often be unable to order *any substantial relief* as a result of an after-the-fact hearing. [Emphasis added.]

Obviously, the conferees considered that a hearing would be held even if, as a practical matter, no substantial relief could be granted.

Moreover, if legislative history is invoked, even in the face of the plain meaning of the statute and Commission regulations promulgated thereunder which appear to require hearings if requested, the language in the Senate report (S. Rep. No. 113, 97th Cong. 2d Sess. 14, *reprinted in* 1982 U.S. Code Cong. & Ad. News 3592, 3598) should be dispositive, as follows:

[T]he Committee stresses its strong desire to preserve for the public a meaningful right to participate in decisions regarding the commercial use of power. Thus, the provision [permitting a license amendment in advance of hearing if it involves no significant hazards consideration] does not dispense with the requirement for a hearing, and the NRC, if requested, *must* conduct a hearing after the license amendment takes effect. [Emphasis added.]

We see no way of reconciling Licensees' position that the Licensing Board can refuse a hearing because the action is irreversible, with the strong Congressional language to the contrary. And, having decided that Congress intended to, and did, require hearings if requested after a license amendment has been granted on a no significant hazards consideration determination, we need not further determine in this proceeding how that legislation impacted upon preexisting section 189b of the Atomic Energy Act of 1954, as amended (42 U.S.C. § 2239(b)), which permits judicial review of hearing board determinations, as Licensees would have us do.

MOTION FOR REFERRAL OR CERTIFICATION

In the event that this Board decides their motion for reconsideration adversely to Licensees, Licensees request that we certify or refer the matter to the Appeal Board pursuant to 10 C.F.R. § 2.718(i) or 10 C.F.R. § 2.730(f). However, the matters in question do not meet the standards for certification or referral.

The grant of a request for certification is an exception to the Commission's general rule against interlocutory appeals and is to be resorted to only in "exceptional circumstances." *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-382, 5 NRC 603, 606 (1977), citing *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 486 (1975). Thus, almost without exception in recent times, discretionary interlocutory review is undertaken only where the ruling below either (1) threatens the party adversely affected with immediate and serious irrevocable impact which, as a practical matter, could not be alleviated by a later appeal; or (2) affects the basic structure of the proceeding in a pervasive or unusual manner. *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-737, 18 NRC 168, 171 (1983).

As Licensees now concede (Motion at 2), one of the two contentions admitted by us may not be factually moot, and could not be successfully challenged as being inadmissible. Consequently, to the extent that Licensees challenge our prior Order, it had the effect of including a contention in this proceeding in addition to one properly admitted. We do not understand established precedent in the NRC to consider the erroneous admission of a contention, where a hearing may be required in any

event, as either affecting the basic structure of the proceeding in a pervasive or unusual manner or as causing an irreparable impact which cannot be alleviated by a later appeal. *See, e.g., Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-675, 15 NRC 1105 (1982).

Moreover, while it is possible that the Licensing Board's interpretation of the Sholly Amendment to section 189a of the Atomic Energy Act, *supra*, may escape review in this proceeding, the precedential value of our decision will be negligible if our reasoning can be shown in any later proceeding to have been in error.

Order

For all of the foregoing reasons and based upon a consideration of the entire record in this manner, it is, this 21st day of June 1984,

ORDERED

1. That Licensees' motion for reconsideration of our Order admitting Intervenor and two of its contentions *is denied*; and
2. That Licensees' alternative motion for certification or referral to the Appeal Board *is denied*.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Herbert Grossman, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

James L. Kelley, Chairman
Dr. Richard F. Foster
Dr. Paul W. Purdom

In the Matter of

Docket Nos. 50-413
50-414
(ASLBP No. 81-463-06-OL)DUKE POWER COMPANY, *et al.*
(Catawba Nuclear Station,
Units 1 and 2)

June 22, 1984

This operating license proceeding was contested with respect to a broad quality assurance contention, two relatively narrow technical contentions, and numerous emergency planning contentions. The Licensing Board decides the quality assurance contention (with certain reservations) and the technical contention concerning embrittlement of the reactor pressure vessel in the Applicants' favor. The other technical contention, concerning meteorology and accident analyses, is decided against the Staff and the Applicants and in favor of the Intervenors. Notwithstanding the findings adverse to the Staff and Applicants, the Board finds that, subject to the resolution of certain unresolved issues over which it retains jurisdiction, the reasonable assurances requisite to authorization of a low-power operating license are present. Accordingly, this Partial Initial Decision authorizes the Director of Nuclear Reactor Regulation to issue such a license, on condition that the unresolved issues are first resolved in favor of the Applicants. A separate Licensing Board will decide the emergency planning contentions at a later date.

RULES OF PRACTICE: TIME LIMITS ON EXAMINATION OF WITNESSES

Licensing boards are authorized to establish reasonable time limits for the examination of witnesses, including cross-examination, under 10 C.F.R. §§ 2.718(c) and 2.757(c), the Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981) and relevant judicial decisions.

RULES OF PRACTICE: DISCOVERY

Under 10 C.F.R. § 2.740(b)(1) discovery is available after a contention is admitted and it may be terminated a reasonable time thereafter. Litigants are not entitled to further discovery as a matter of right with respect to information relevant to a contention which first surfaces long after discovery on that contention has been terminated.

APPEARANCES

J. Michael McGarry, III, Anne W. Cottingham, and Mark S. Calvert, Washington, D.C., and **Albert V. Carr, Jr., and Ronald L. Gibson**, Charlotte, North Carolina, for the Applicants, Duke Power Company, *et al.*

Robert Guild, Columbia, South Carolina, and **John Clewett**, Washington, D.C., for the Intervenor, Palmetto Alliance.

Jesse L. Riley, Charlotte, North Carolina, for the Intervenor, Carolina Environmental Study Group.

George E. Johnson and Bradley Jones for the Nuclear Regulatory Commission Staff.

Richard P. Wilson for the State of South Carolina.

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PARTIAL INITIAL DECISION

Scope of Decision

Duke Power Company ("Duke"), North Carolina Municipal Power Agency Number 1, North Carolina Electric Membership Corporation and Saluda River Electric Cooperative (the "Applicants") are the joint owners and applicants for operating licenses for Units 1 and 2 of the Catawba Nuclear Station. Duke is the lead applicant and has exclusive responsibility for the design, construction and operation of the facility.

This proceeding was contested with respect to a broad quality assurance contention, two relatively narrow technical contentions, and numerous emergency planning contentions. This Licensing Board now decides the quality assurance contention (with certain reservations) and the technical contention concerning embrittlement of the reactor pressure vessel in the Applicants' favor. We decide the other technical contention, concerning meteorology and accident analyses, against the Staff and the Applicants and in favor of the Intervenors.¹ Notwithstanding adverse findings on certain subsidiary quality assurance issues and our decision unfavorable to the Staff and Applicants on one technical issue, we find that, subject to the resolution of certain unresolved issues over which we are retaining jurisdiction (*see* pp. 1585-86, below), the reasonable assurances requisite to authorization of a low-power operating license are present. We authorize the Director of Nuclear Reactor Regulation to issue such a license, on condition that the unresolved issues are first resolved in favor of the Applicants. A separate Licensing Board will decide the emergency planning contentions at a later date.

Background and Summary

I. FACTUAL AND PROCEDURAL BACKGROUND

A. The Facility

The Catawba facility is located on the shore of Lake Wylie in York County, South Carolina, approximately 10 miles southwest of the

¹ The Board heard a third technical contention concerning safety aspects of spent fuel storage. The Intervenors elected not to file any proposed findings of fact on that contention, Palmetto Contention 16, although directed by the Board to do so. Order of December 30, 1983 (unpublished). We cautioned the parties in our Order that failure to file timely findings could result in our treating the contention as uncontested. Palmetto Contention 16 is dismissed. *See* 10 C.F.R. §§ 2.754(b) and 2.760a.

Charlotte, North Carolina city limits. The facility contains two pressurized water nuclear reactors, designed to operate at core power levels up to 3411 thermal megawatts, with a net electrical output of 1145 megawatts per unit.

B. The Parties

Permits to construct the facility were issued, following hearings, in 1975. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), LBP-75-34, 1 NRC 626 (1975). In June 1981, the Commission published in the *Federal Register* (46 Fed. Reg. 32,974) a notice of receipt of an application for operating licenses for the Catawba facility. In response to that notice, petitions to intervene were filed by Palmetto Alliance (Palmetto), Carolina Environmental Study Group (CESG), Charlotte-Mecklenburg Environmental Coalition (CMEC), Safe Energy Alliance (SEA), and the State of South Carolina. The Board subsequently admitted Palmetto, CESG, and CMEC as parties to the proceeding.² The petition of the State of South Carolina to intervene as an interested state, pursuant to 10 C.F.R. § 2.715(c), was also granted.

C. The Contentions

The intervening parties filed a total of fifty-two different contentions, some of which were sponsored by two parties. The Applicants and NRC Staff separately opposed most of these contentions. The Board initially admitted twenty-five contentions subject to certain specified conditions, and admitted one contention unconditionally. LBP-82-16, *supra*, 15 NRC at 575-83. At the request of the Applicants and the Staff, we referred to the Appeal Board certain questions relating to standards for admission of contentions. LBP-82-50, 15 NRC 1746 (1982). Following the Appeal Board's decision (ALAB-687, 16 NRC 460 (1982)), we reconsidered our initial conditional-admission rulings and admitted unconditionally, in whole or in part, eleven of the twenty-five contentions previously admitted on a conditional basis.

Several important documents, including the Staff's Draft Environmental Impact Statement ("DES") and the offsite emergency plans, first became available following the Board's initial rulings on contentions. The Board issued a series of rulings on contentions lodged against the

² The SEA petition was denied because SEA did not file contentions in support of its initial petition and failed to appear at the January 1982 prehearing conference. SEA did indicate that its interests would be represented by CMEC. Memorandum and Order of March 5, 1982, LBP-82-16, 15 NRC 566, 568.

DES, their effect being admission of three such contentions and rejection of twenty others. The net result was that the Board considered seventy-five contentions (exclusive of emergency planning contentions), rejecting sixty-two and admitting thirteen, at least for discovery purposes.³

Toward the close of discovery, the Applicants and Staff filed motions for sanctions against Palmetto, seeking dismissal of several contentions for failure to meet discovery obligations. This motion was granted in part and two contentions were dismissed. LBP-83-29A, 17 NRC 1121 (1983). In June 1983, CMEC and the Applicants submitted a stipulation to settle CMEC's four contentions. The Board approved the stipulation and dismissed CMEC as a party to the proceeding.

After discovery on the remaining contentions was completed, the Applicants and Staff filed motions for summary disposition on all the remaining contentions. The Board granted several of those motions in whole or in part, leaving parts of four contentions for hearing:

- Palmetto Contention 6, relating to quality assurance (QA);
- Palmetto Contention 16, relating to the storage of spent fuel;
- CESG Contention 18 (also Palmetto Contention 44), relating to the embrittlement of reactor pressure vessels; and
- Joint Contention 17, relating to assessment of adverse meteorology in accident analyses.

The texts of these contentions are set forth in our discussion of each contention.

D. The Hearings

Hearings were conducted in Rock Hill, S.C., and Charlotte, N.C. for forty-five days, running continuously from October 4, 1983 to December 16, 1983 (with a recess week for Thanksgiving) and resuming on January 30 and 31, 1984. All parties were represented by counsel, presented

³ In addition, the Board has considered several late contentions filed after the evidentiary hearing relating to the backup diesel generators, financial qualifications, certain postulated hydrogen accidents and control room design. We rejected the Intervenor's initial diesel generator contentions based upon our balancing of the five "lateness" factors. Tr. 12,541-50. Order of April 13, 1984 (unpublished). This Board raised a diesel generator contention *sua sponte*, but that contention was found by the Commission to be inappropriate for *sua sponte* treatment. Order of June 8, 1984 (unpublished). As to the Intervenor's June 21, 1984 motions on diesel generator contentions, see note 50, below. All of the remaining late contentions are now, for various reasons, rejected. The Commission's Statement of Policy of June 7, 1984 requires rejection of the financial qualifications contention. We reject the hydrogen accident and control room design contentions essentially for the reasons advanced by the Staff. See Staff Response dated May 2, 1984. Briefly, the hydrogen accidents are rejected because final Commission action on a generic rule addressing the same concerns is expected before the anticipated date of full-power operation of Catawba. As to the control room design contentions, the Intervenor has failed to show good cause for their lateness or that they could make a substantial contribution to resolution of those issues.

evidence, and cross-examined witnesses. The Board heard testimony from eighty-five witnesses called by the parties — sixty-eight by the Applicants, four by the Intervenors, and thirteen by the Staff. In addition, we called four Board witnesses (*see* discussion of the *in camera* witnesses below). The transcript — most of it devoted to cross-examination — exceeds 14,000 pages; over 280 exhibits were admitted into evidence. Subject to certain narrow exceptions, the record was closed on December 16, 1983.⁴ Thereafter, each party submitted extensive proposed findings of fact and conclusions of law.

E. Further Comments on Certain Procedural Rulings

The Board rendered scores of procedural rulings during the hearing, assigning brief reasons for most, and providing more detailed explanations of complex or unusual rulings. In the main, we believe that those procedural rulings were adequately addressed on the record and we have nothing to add here. There are a few matters, however, on which some further comment is warranted.

1. Time Limits on Questioning Witnesses

The Board did not initially impose any time limits on questioning of witnesses; counsel for the various parties were allowed such time as they thought necessary. However, after several days of hearings it became apparent that some system of time limits would be necessary — particularly on cross-examination — to enable the case to progress at a reasonable rate. The Board began to impose *ad hoc* limits on questioning time — *e.g.*, finish cross-examination of the current panel by noon tomorrow — and called for comment from the parties on appropriate time limit guidelines for the rest of the case. Tr. 2814-16; 2839-43. The Applicants and NRC Staff favored Board imposition of time limits on all questioning. Tr. 3300-27. Palmetto Alliance, while seemingly conceding that the case should be heard in an approximate time frame (Tr. 3334), nevertheless opposed any time limits on particular witnesses as “arbitrary and capricious.” Tr. 3331.

Following extended discussion of the matter, the Board adopted ground rules to govern questioning time for the remainder of the hearing. Tr. 3744-52. At that time, several panels of Applicant, Intervenor and Staff witnesses remained to be heard. Based on our experience

⁴ Tr. 11,909-10. Five *in camera* issues were carried over to the January 30-31, 1984 hearings. The record was closed as to those remaining matters on January 31, 1984. Tr. 12,418-19.

in the hearing to that point and the length and complexity of the prefiled testimony, we allocated two hearing days for cross-examination of each panel and about one-half day for questions by the other parties and the Board. Recognizing that counsel might wish to spend more time cross-examining one panel than another, we authorized them to transfer time among panels simply on notice to the Board — *e.g.*, three days for Panel X but only one day for Panel Y. Tr. 3750. We also authorized counsel to apply for additional time where that appeared to be justified. *Id.* These rules worked smoothly for the remaining panels of Applicant and Staff witnesses. In fact, as Counsel for Palmetto Alliance noted, he finished his cross-examination of panels on or before his two-day allocations expired. Tr. 5716.

The administration of fair and effective time limits proved somewhat more difficult with the welding inspector and first-line supervisor witnesses. The list of people in these categories was long — thirty-five names — and all parties agreed that some of them represented important witnesses. The Board initially thought that we might usefully spend about six days on these witnesses, with three days for the few most important witnesses, and another three days for many of the rest. Tr. 3747-48, 5707. Under that approach, we might have spent an average of two or three hours each for all questioning of the “important” witnesses, and less on the others.

As matters developed, the parties stipulated to a list of nine “important” witnesses (from among the thirty-five names), six of whom were considered more “important” than the other three. Tr. 5707-16. We actually spent about six days (November 3, 4, 8-11) in questioning those six witnesses, most of it on cross-examination by Palmetto Alliance.⁵ We then spent about three more hearing days (November 28-30, December 1) on nine more welding inspectors/supervisors, for a total of nine days on that category of witness.

We had recognized that it would be more difficult to establish fixed times in advance for questioning the welding inspector/supervisors than had been the case with the panels, chiefly because the number and complexity of their concerns varied widely. Tr. 3747. We proceeded largely in an *ad hoc* fashion, setting a tentative time limit when a witness began, but granting extensions when warranted. Tr. 6265, 6588, 6781-82. In a few instances, Palmetto “borrowed” time from one witness

⁵ For example, Palmetto was allocated about 4 hours each for cross-examination of Inspectors J.R. Bryant (Tr. 6086, *et seq.*) and John Rockholt (Tr. 6184, *et seq.*). Supervisor Beau Ross was on the stand for two days, with about one day devoted to Palmetto cross-examination. Tr. 6585-6824, 6947-7091. Between them Messrs. Ross and Bryant had expressed about three-quarters of the total concerns of the welding inspectors.

to use on another. *E.g.*, Tr. 9028. On the whole, the system worked reasonably well.

Essentially the same time limit ground rules were followed for the remainder of the case, which included Staff witnesses on Contention 6, witnesses for all parties on the technical issues, and the Board's *in camera* witnesses. The Board tended to establish somewhat shorter time limits toward the end of the case, particularly on technical witnesses and witnesses on the *in camera* concerns. This was justified in the case of the technical witnesses because the issues were relatively narrow and positions were fully set forth in prefiled testimony. Similarly, the *in camera* concerns were relatively narrow and specific (*see* p. 1548, *et seq.* below), in contrast to the broad scope of Contention 6.

Palmetto Alliance questioned our authority to set any time limits on cross-examination. Such authority is recognized in the federal district courts. *See MCI Communications Corp. v. AT&T*, 85 F.R.D. 28 (N.D. Ill. 1979), *aff'd*, 708 F.2d 1081, 1170-73 (7th Cir. 1983). We believe that time limit authority for Licensing Boards is fairly inferable from the federal cases, the NRC Rules of Practice (which include authority to "prevent . . . repetitious, or cumulative cross-examination" (10 C.F.R. § 2.757(c)) and to "[r]egulate the course of the hearing" (10 C.F.R. § 2.718(e)), and from the Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981). The whole thrust of that *Statement* is toward fair but timely hearings, and Boards are explicitly directed to "set and adhere to reasonable schedules." *Id.* at 454. A Licensing Board can hardly be expected to adhere to a "reasonable schedule" if the time for cross-examination, the most time-consuming part of the process, is beyond its control.

Boards can make reasonable estimates about how long it should take to question particular panels or witnesses, so long as reasonable flexibility is incorporated into the ground rules. We believe that our rules allowing a party to transfer allocated time among witnesses and to seek more time as circumstances might warrant were an adequate protection against arbitrary limits. Furthermore, our experience with time limits in this case indicated that a cross-examiner under some time pressure to get his questions asked tended to present a more effective cross-examination than one whose questioning is limited only by his stamina and imagination.

2. *Genesis of the In Camera Proceeding*

As part of the evidentiary hearing on Palmetto's Contention 6, the broad quality assurance contention, the Board called several former

Duke employees to testify *in camera* as Board witnesses. This, of course, represented a departure from the normal hearing practice, where witnesses are called by one of the parties and the subjects of their testimony usually have been explored in discovery. The *in camera* proceeding grew out of the following circumstances.

In early 1983, months before the evidentiary hearing, Palmetto had moved for various kinds of relief to counteract a "chilling effect" that certain actions of Duke had allegedly had on the willingness of employees at Catawba to cooperate with Palmetto. Among other things, Palmetto asked the Board to write a letter to the employees about their rights to communicate with Intervenors and the NRC, and to sponsor informational meetings involving the Board, Palmetto and the employees. The Board granted some relief, but denied these particular requests. Based on the pleadings then before us, we acknowledged that some "chill" on employee cooperation probably had occurred. We concluded, however, that an evidentiary hearing on "chilling" and related issues, with the expenditure of time and resources that would involve, was not warranted at that time. LBP-83-24A, 17 NRC 674 (1983).

Shortly after the evidentiary hearing began, Palmetto renewed its motion for the same relief, its counsel contending that there existed "an atmosphere of oppression and a chill upon the potential cooperation of workers at the Catawba Plant that prevents their cooperation with this Licensing Board. . . ." Tr. 1738. In addition to the existing record, Palmetto cited statements from the prefiled testimony of one of its witnesses (Tr. 1742-43) and two of the Applicants' witnesses indicating that an atmosphere of harassment and intimidation might exist at Catawba. Tr. 1745-46. Palmetto asked the Board to hold an *in camera* hearing on whether workers at Catawba had been deterred from coming forward with evidence of a quality assurance breakdown. The Applicants and NRC Staff opposed the motion. Tr. 1764-94.

The Board found itself confronted with a dilemma. On the one hand, the scheduled evidentiary hearing was just getting under way and promised to occupy the Board and parties fully for many weeks. As we saw it, to scrap the established hearing schedule in favor of an impromptu and lengthy hearing on an alleged "chill" at Catawba would be quite costly in party and Board time and effort. Tr. 2466-67, 2474, 2609-10. We also expected to receive at least some evidence on the "chill" question from the scheduled witnesses. On the other hand, we thought it necessary to take some appropriate action to ensure that "reluctance [of workers] to report safety violations or deficiencies" is not a "serious or pervasive problem" at Catawba. See *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 366 (1983).

In these circumstances, we again denied the particular forms of relief sought by Palmetto, partly for lack of an adequate evidentiary basis. Tr. 2610. In the alternative, however, we issued a public notice inviting present or former Duke employees at Catawba having personal knowledge of defects in construction or quality assurance to submit a confidential statement to the Board, indicating that such statements might lead to an *in camera* hearing. The full text of the notice is set forth in the margin.⁶ We directed Duke to post the notice prominently at the site. Tr. 2481, 2603. Area media also publicized its terms. Persons wishing to submit statements to the Board were given about nine days to do so. In issuing the notice as a prophylactic measure, we made it clear that we were making no findings, one way or the other, on whether a "chill" on employee cooperation existed at Catawba. Tr. 2609-10..

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

NOTICE

The Atomic Safety and Licensing Board is presently holding a hearing concerning quality assurance procedures and the quality of construction of the Catawba nuclear facility, particularly in the area of welding inspection. The parties in the case are Duke Power Company, the NRC Staff, and Palmetto Alliance, an intervenor group. Any present or former employee at Catawba who has personal knowledge about significant defects in construction or in quality assurance procedures at Catawba may submit *on a confidential basis* to the Board alone a statement which provides the following information:

1. The person's name and telephone number and/or address.
2. A brief description of the concern.
3. A brief explanation of why the individual desires his concern to be expressed in closed, rather than public, hearings.

The Board will review any statements it receives and then decide, in consultation with counsel for the parties to the case, whether and how to conduct a closed hearing in which the identities of the witnesses would be kept confidential. The Duke Power Company's attorney and possibly another representative of the company would attend the closed hearing, as well as representatives of the NRC Staff and Palmetto Alliance. However, they would be ordered not to disclose the identities of the witnesses. The prospective witnesses should realize that under this procedure, their identities would be substantially protected from any further disclosure, but complete protection from such disclosure would not be guaranteed.

Confidential statements must be filed with the Board by the *deadline date of October 21, 1983*. Statements may be delivered to the Board in a sealed envelope at the Office of the Clerk in the Federal Courtroom in Rock Hill at Old Post Office Building, Second Floor, Caldwell and Main Streets, Rock Hill, South Carolina, or to the Ramada Inn in Rock Hill (at I-77 and 21 North) where the Board is staying. Statements may be delivered personally or by an intermediary.

THE ATOMIC SAFETY AND
LICENSING BOARD

James L. Kelley, Chairman

Richard F. Foster, Member

Paul W. Purdom, Member

October 12, 1983
Rock Hill, S.C.

Three former Duke employees came forward in response to the notice on a confidential basis. One of the three, Mr. Howard S. Nunn, Jr., later waived confidentiality and testified in public session. A fourth former employee, Mr. Harry Langley, came forward publicly; as a matter of convenience, we also addressed his concerns largely under the *in camera* procedures. The particular concerns voiced by the *in camera* witnesses are discussed below. The further procedural history of the *in camera* proceeding is, we believe, adequately reflected in the record.⁷ We add a few words, however, on the question of discovery.

3. Request for Formal Discovery

Immediately prior to the evidentiary hearing on the *in camera* issues, Palmetto made a belated request for postponement and formal discovery on those issues (I.C. Tr. 534-42), which the Board denied. The principal bases for that ruling are set forth in the record. Tr. 11,217-21. We add the following points to provide a fuller statement of our views.

First, contrary to its apparent claim (I.C. Tr. 534), Palmetto was not automatically entitled to formal discovery on the *in camera* concerns as a matter of right under the Rules of Practice. Under 10 C.F.R. § 2.740(b)(1), discovery is based only on an admitted *contention*. Discovery begins after the first prehearing conference and concludes before the final prehearing conference, except upon leave of the Board for good cause shown. The *in camera* concerns were not themselves individual "contentions"; they were merely examples of matters that fell within the broad scope of Contention 6. A brief chronology will place this aspect of the matter in perspective. Discovery on Contention 6 began in December 1982 (LBP-82-107A, 16 NRC 1791, 1810) and closed in May 1983, subject to an extension the Board granted to allow Palmetto until mid-July to conduct depositions concerning quality assurance concerns in welding. LBP-83-29A, *supra*, 17 NRC 1121. The final prehearing conference on Contention 6 was held on September 12, 1983 and hearings began on October 4, 1983. The *in camera* concerns were first expressed on November 8-10, 1983. Palmetto's motion for still more discovery on Contention 6, based on the *in camera* concerns, was not made until December 13, 1983, three days before we largely closed the record on that contention.

As this chronological outline suggests, it would be impractical to recognize formal discovery rights based on a broad range of employee

⁷ A helpful summary of that history is set forth at 2-5 of the NRC Staff's January 5, 1984 Opposition to Palmetto's Motion for Directed Certification of Board Ruling Denying Further Discovery.

concerns that surface late in the case, as they did here. At least if the full panoply of discovery devices were to be allowed — depositions, interrogatories, motions to compel, answers, etc. — it might take several additional months to complete the proceeding. This would mean, in turn, that the Commission's policy of attempting to complete operating license proceedings before the applicant's anticipated fuel load date probably could not be implemented in some cases, including this case.⁸ In our judgment, such a delay should not usually be necessary for a "fair and thorough hearing process," and certainly was not necessary in this case. *See Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, *supra*, 13 NRC at 453.

More importantly, except in unusual circumstances not presented here, formal discovery on particular quality assurance concerns raised by individual employees is not necessary for an adequate exploration of the concern. This is because such concerns, if they are to assist the Board's broader assessment of quality assurance, must be particularized and based on personal knowledge. For example, an employee might report that a particular weld on a particular pipe in a safety system is defective. The Applicants and Staff can then investigate the concern and present responding evidence, as they did in this case, and the Intervenors and the Board can question the witnesses effectively, as was done here, without prior formal discovery. To be sure, if the employee's concern were to be substantiated, it may also be necessary to consider whether the defect has generic ramifications for other systems. However, a Board would not normally look to employee witnesses to raise generic concerns beyond their personal knowledge of the facts.⁹ It is the broader generic concerns — not individual pipes and concrete pours — on which pre-hearing discovery may be necessary.

II. SUMMARY OF DECISIONS ON QUALITY ASSURANCE ISSUES

This section summarizes the detailed findings of fact in the following section on the most significant issues presented by Palmetto Alliance Contention 6 concerning quality assurance. It is intended to provide a relatively brief narrative description, essentially an overview, of how

⁸ When this issue was before us in December 1983, the anticipated fuel load date for Catawba was May 1, 1984.

⁹ For example, we focused carefully on the particular welding concerns of former employee Howard S. Nunn, an experienced welder. But we did not pursue Mr. Nunn's broader, nonspecific concerns about defective steel in the facility. Mr. Nunn is neither an engineer nor a metallurgist. Nunn, Tr. 12,180, 12,183.

those issues have been decided, and why. Our findings on the two relatively narrow technical issues — relating to pressure vessel integrity and meteorological conditions — are brief and require no summary.

A. Regulatory Standards

Palmetto Contention 6, as revised by the Board, reads as follows:

Because of systematic deficiencies in plant construction and company pressure to approve faulty workmanship, no reasonable assurance exists that the plant can operate without endangering the health and safety of the public.

In our Order admitting this contention we noted that it “concerns alleged ‘corner cutting’ ” and that its thrust was “primarily toward alleging company attitudes and practices; proof of this contention . . . involv[es] specific instances of misfeasance” LBP-82-107A, *supra*, 16 NRC at 1795.

This broad quality assurance (“QA”) contention potentially implicates several different regulatory standards. In the first place, conduct like that described in Contention 6 would violate the Applicants’ own QA program, a detailed program Duke was required to develop, adopt and adhere to by the NRC’s basic quality assurance regulation, 10 C.F.R. Part 50, Appendix B. Moreover, some conduct within the scope of Contention 6 might also violate one or more provisions of Appendix B itself. However, in the context of an operating license proceeding like this one, proof that conduct has occurred that violates a licensee’s QA program, or Appendix B, or both — whether deliberate or negligent — does not necessarily mean that the license application must be denied. The most detailed guidance on that question is provided by the Appeal Board’s *Callaway* decision. *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343 (1983). There the Appeal Board stated that:

In any project even remotely approaching in magnitude and complexity the erection of a nuclear power plant, there inevitably will be some construction defects tied to quality assurance lapses. It would therefore be totally unreasonable to hinge the grant of an NRC operating license upon a demonstration of error-free construction. Nor is such a result mandated by either the Atomic Energy Act of 1954, as amended, or the Commission’s implementing regulations. What they require is simply a finding of reasonable assurance that, as built, the facility can and will be operated without endangering the public health and safety. . . . Thus, in examining claims of quality assurance deficiencies, one must look to the implication of those deficiencies in terms of safe plant operation.

Obviously, this inquiry necessitates careful consideration of whether all ascertained construction errors have been cured. Even if this is established to be the case, however, there may remain a question whether there has been a breakdown

in quality assurance procedures of sufficient dimensions to raise legitimate doubt as to the overall integrity of the facility and its safety-related structures and components. A demonstration of a pervasive failure to carry out the quality assurance program might well stand in the way of the requisite safety finding.

Id. at 346. In the light of this guidance, we have scrutinized the Contention 6 record to determine whether it reflects a “pervasive failure” or “breakdown” of the QA program at Catawba, such that the requisite reasonable assurance finding cannot be made. Although, as one would expect, we find violations of the QA program and Appendix B, we find no pervasive failure or breakdown. On the contrary, we find that, on the whole, the Duke QA program at Catawba worked well.

B. Welding Inspector Concerns

1. Background

In July 1981, Duke informed the welding inspectors and certain other categories of its employees that their pay would be reduced, based upon a reanalysis of applicable qualifications. During the Fall of 1981, certain welding inspectors who were appealing the pay reduction began to express concerns to management about safety issues. Duke’s primary response was to establish several task forces to investigate the concerns and make recommendations to senior management. The validity and extent of these welding inspector concerns and the adequacy of Duke’s investigations and corrective measures were the principal focus of the hearing on Contention 6.

The welding inspectors who expressed concerns performed a visual inspection function, in contrast to other types of inspectors who used liquid penetrant, magnetic particle, radiographic and ultrasonic examination techniques. Visual inspection is usually not the only inspection of a safety-related weld. Many safety-related welds are also inspected by one or more nondestructive examination (NDE) techniques.

Detailed quality assurance procedures establish the parts of construction processes that are to be inspected, and when. For example, for certain classes of welding, “hold points” are established so that required in-process inspections can be performed. Inspectors determine acceptability by referring to acceptance standards established in QA Procedures and Design Specifications.

When an inspector discovers a discrepancy, he may use one of several corrective methods, depending on the circumstances. Thus, where “hold points” have been established, the inspector makes the welder aware of the deficiency, the deficiency is corrected to the inspector’s

satisfaction, and the inspector signs off on the item. Under this method, no documentation is required, other than the inspector's sign-off.

Another method used by quality assurance inspectors to require corrective action involves the use of deficiency reports. In the welding area until mid-1982 the principal report form used to document deviations from procedures was the "Nonconforming Item Report," commonly referred to as an "NCI." Generally speaking, the inspector describes the discrepancy on the form and the form is processed for further evaluation. The resolution is then reassigned to the appropriate construction department for engineering evaluation, which is in turn approved by quality assurance engineers. Typical resolutions of an NCI might be to require corrective action on the hardware involved, or to require further testing, or to accept the hardware as is. Since most of the welding inspector concerns stem from the period prior to 1982, much of the testimony focuses on the origination of NCIs, the reviews for validity by QA supervision, and the resolutions established after engineering evaluations by the construction and quality assurance departments.

The first Duke task force to consider the welding inspectors' concerns was constituted in December 1981 to determine whether significant problems existed and, if so, to estimate their size and scope. It brought to management attention many of the inspectors' concerns and made several constructive recommendations that were to be implemented later on. Its creation evidenced the fact that Duke management was taking the inspectors' concerns seriously. And it led to the creation of two additional task forces, to which we turn next.

In January 1981, Duke established the "Technical Task Force" to investigate all of the technical concerns of the Catawba welding inspectors and to take or recommend any necessary corrective action. The Task Force was composed of five senior engineers from four different departments, including QA and Construction.

The Technical Task Force followed a formal plan of six major phases: (1) data collection and review; (2) technical evaluation; (3) development of results and recommendations; (4) management review and implementation of recommendations; (5) inspector feedback; and (6) final report. It first sought to obtain all the concerns of the welding inspectors, in writing. Although some inspectors may not have felt free to state all their concerns, the Board nevertheless concluded that virtually all of the significant concerns were conveyed to the Task Force.

The Technical Task Force then undertook an analysis of each welding inspector's technical concern, in the following format: each of the handwritten concerns, coded by inspector, was attached to a form entitled "Technical Evaluation — Individual Concern," in which the con-

cern is stated, the technical evaluation is documented, and recommendations are made; a separate form called "Verification — Individual Concern," accompanies each evaluation, and is signed by a different evaluator; the technical evaluations identify whether the concern had a specific basis, *e.g.*, an NCI number; whether a criterion (procedure) was actually or potentially violated; and whether an actual or potential technical inadequacy existed.

The adequacy of the Task Force's individual technical evaluations is summarized below. Suffice it to note here that the Technical Task Force did not classify any of the concerns as actual technical inadequacies. However, there were "potential technical inadequacies" associated with twenty-four concerns. Follow-up on these was left to the QA, Construction or Design Engineering Departments.

In addition to the individual technical evaluations, the Technical Task Force reached these overall conclusions: (1) problems were arising from the "interface" between inspectors, their supervisors and craft personnel; (2) procedure interpretation and implementation was a major area of concern; (3) procedural changes could alleviate some of the concerns. These conclusions led to a number of general policy and specific action recommendations which were assigned to various departments for implementation. Except for some disagreements on evaluations of particular technical concerns, we find that the Technical Task Force and the implementation of its recommendations were appropriate responses to technical aspects of the welding inspectors' concerns.

In February 1982, Duke appointed a "Nontechnical" Task Force to review "nontechnical" concerns that had been raised by the Catawba welding inspectors. The Task Force conducted a paper review (as distinguished from personal interviews) of each of the welding inspectors' concerns and compiled a list of nontechnical concerns. Although a sharp distinction could not always be made, generally speaking a concern dealing with administrative or personnel matters was considered "nontechnical." The Task Force then engaged in a limited amount of information gathering, including interviews with a few inspectors. The Task Force concluded that several areas needed management attention, including communications, channeling employee concerns to management, and the inspector's role in relation to craft. Its report to management included several recommendations for corrective action: training supervisors in communication skills, explaining to inspectors their role and responsibilities, recourse procedures for both technical concerns and incidents of harassment.

Palmetto Alliance alleges that "no serious effort was made [by the Nontechnical Task Force] to determine the factual validity of any of the

nontechnical concerns." The Board largely agrees. That Task Force never set out to investigate the underlying facts of concerns, but only what the concerns were, whether valid or not. In other words, the concerns were taken as given.

Nevertheless, the Board believes that the Task Force's approach was valid, at least up to a point. For example, if many inspectors express concerns that reflect a lack of understanding about their roles, recommendations for additional training can be developed without performing a detailed investigation of the underlying facts of individual concerns. We believe, however, that the Nontechnical Task Force should have probed more deeply into harassment concerns (and perhaps other concerns) than it did. Harassment has been a problem at Catawba. A thorough investigation of harassment concerns might have produced needed remedial action in addition to a new recourse procedure, such as a widely disseminated message from management that harassment would not be tolerated, and that stiffer sanctions would be imposed, if necessary.

2. Technical Concerns/Construction Deficiencies

The Applicants, in seeking to meet their burden of proof with respect to the technical concerns of the welding inspectors, relied primarily on the evaluations of their Technical Task Force. Intervenors also focused on the work of the Task Force in an attempt to show that Duke's QA program had been circumvented and consequently that unknown numbers of defects exist at Catawba. As a result, numerous individual concerns were the subject of extensive questioning which represents most of the record on technical concerns.

Although the technical concerns evaluated by the Technical Task Force are but a very small sample of all deficiencies reported by all quality assurance inspectors during construction of the Catawba plant, we regard this sample as representing "worst-case" situations in respect to potentially uncorrected deficiencies. As noted above, several procedures are available to the inspectors for dealing with construction deficiencies, but the Nonconforming Item Report (NCI) is used for situations that are not readily correctable and warrant special attention by QA management. Over 17,000 NCIs had been processed by the end of 1983, and most of the welding inspector technical concerns involved an NCI. In view of the nature of the concerns submitted by the welding inspectors, it seems unlikely that other uncorrected deficiencies of comparable or greater significance would not have surfaced as concerns.

Palmetto asserts that our field of view is too narrow; that the Technical Task Force constrained the submissions and that crafts other than weld-

ing had equal or greater problems. We find nothing in the record to support that assertion. Moreover, welding is a procedure that appears to be especially susceptible to nonconformances.

We looked carefully at the record on the technical concerns for evidence that Duke condoned substandard workmanship, discouraged the detection or documentation of faulty work, or left deficiencies warranting correction unrepaired. Palmetto placed special emphasis on instances where inspectors were told not to write an NCI and where second-level supervisors "verbally voided" NCIs before they were entered into the system. They would have us find that such actions were attempts by Duke management to circumvent the QA system in deference to the construction organization and cost and scheduling pressures.

In a few cases the evidence can be interpreted as supporting the Intervenor's hypothesis. However, the number of instances where this occurred is so small in relation to the total volume of work and NCIs processed that it cannot be viewed as pervasive or as having had any significant impact on the regular functioning of the QA program.

The record shows clearly that, prior to 1982, the welding inspectors used NCIs to document some situations that could have been resolved more simply through other QA procedures. The NRC Staff noted this and recommended that Duke restrict the use of NCIs — which are routed to engineers for review — so that the engineers could devote more attention to problems actually needing technical evaluation. Duke's efforts to reduce the use of NCI forms were not adequately explained to the welding inspectors. They interpreted those efforts as violations of QA procedures for use of NCIs, and as further evidence of lack of management support for their work. The Technical Task Force recognized this and other communications problems between the welding inspectors and their second-level management and took appropriate actions.

Although several of the welding inspectors and at least one first-line supervisor perceived a lack of support from middle management, they continued to do their jobs. The record shows that they were highly conscientious and reported all construction flaws and deviations from procedures which they found. Several of their concerns came about because they did not recognize any "grey zone" in the way procedures were to be followed. For example, if an inspector were to write an NCI because a procedure had not been strictly followed, he might not understand why QA management could judge the weld to be "acceptable as is" from an engineering standpoint. Some inspectors tended to require higher quality work than called for by standards or design specifications in order to ensure that no bad work was passed over. Intervenor's made no

attempt to question whether some inspectors might not have performed their work well. Rather, the inspectors were held up as models in an effort to show that lack of support by middle management was part of an effort to circumvent the inspectors' conscientious efforts.

Following Duke's Technical Task Force investigation of concerns, the NRC Staff conducted its own in-depth study. The Staff concluded that despite the pressures felt by the welding inspectors, they did not allow significant deviations from requirements to take place. Palmetto tried to impeach the Staff's findings by implying that the NRC inspectors were collaborating with Duke management to the detriment of the welding inspectors. No evidence was presented to support those allegations and we find them to be without merit.

All of the welding inspector witnesses believed that the hardware deficiencies they had found had been or were being evaluated and corrected, so that there would be no unsafe condition at Catawba. Several of the inspectors had high praise for the quality of the welding.

Initial review of the concerns by the Technical Task Force revealed no "actual" technical inadequacies. However, in-depth investigation of the "potential" technical inadequacies turned up several items that required correction. Follow-up on two of the concerns resulted in the reinspection of thousands of socket and nozzle welds and the addition of more weld metal to certain welds found to be undersized.

Palmetto reasons that there must be a large number of "bad welds" in the Catawba plant. The argument seems to be that any deviation from a written procedure results in a "technical inadequacy" or "bad weld" and thus a violation of 10 C.F.R. Part 50, Appendix B criteria. Duke's Technical Task Force is criticized for not acknowledging more technical inadequacies and the Staff is criticized for not citing Duke for more violations of Appendix B. Although we agree that the Technical Task Force should have acknowledged more violations of procedures, we largely disagree with Palmetto's reasoning. QA and Construction procedures are intended to prevent bad welds or to assure that significant deficiencies are detected and repaired. Failure to follow procedures strictly does not automatically result in a "bad" weld. Such a concept ignores much of the work of the QA organization, redundant inspections of safety-related systems, and final testing before release to operations.

We reached the following conclusions on the key contested issues involving construction deficiencies:

1. Duke did not deliberately condone substandard workmanship nor attempt to circumvent its QA program.

2. In two cases, inspectors were improperly instructed to "sign off" on work that was suspect. There is no associated evidence that the intent was to approve faulty work, however.
3. In several cases there was disagreement between an inspector who filed a concern and a higher level inspector about the significance of an imperfection. The higher level inspector may not have always been right, but there is no evidence of a proclivity to approve substandard workmanship.
4. Although there were a few minor deviations from material traceability procedures, there is no evidence that improper materials were actually installed.
5. Preventing inspectors from writing NCIs, including so-called "verbal voiding," was not so extensive that it could have significantly affected the quality of construction. In many cases, the "voiding" was an understandable attempt to confine NCIs to situations requiring engineering evaluations.
6. In a few situations there is evidence that construction personnel attempted to expedite work by circumventing QC inspector decisions, but these were isolated cases. Construction foremen occasionally pressured welders to complete a job, but we find no widespread effort to cut corners in order to meet cost and time schedules.¹⁰
7. All the welding inspectors and first-line supervisors who testified appeared very conscientious, were not dissuaded by any perceived lack of management support on technical concerns, and were satisfied that the plant was built safely.
8. The record indicates very few situations where Duke failed to take reasonably prompt action to correct confirmed deficiencies.

As the Appeal Board pointed out in *Callaway*, we do not expect that a project of the size and complexity of Catawba will be constructed without some lapses in construction and quality assurance procedures. The question is whether such lapses were of such a magnitude and so pervasive that the safe operation of the plant may have been compromised. The Board concludes that no such compromise occurred at Catawba.

¹⁰ This conclusion is subject to the outcome of the investigation triggered by the "foreman override" concerns raised by Welder B. See pp. 1565-66, below.

3. Concerns About Retaliation

Some welding inspectors claimed that they were discouraged from taking safety concerns to the NRC. In particular, Mr. Larry R. Davison, the head of Quality Assurance at Catawba, met with welding inspectors in pairs to urge them to bring concerns to the Company. Some inspectors interpreted this action as intimidating reprisal for going to the NRC, but others did not. There was a similar lack of clarity in certain statements made by Mr. Warren Owen, a Company Vice President, concerning whether inspectors were free to take their concerns to the NRC.

Understandably, the Company prefers workers to bring problems to it first. Presumably, this approach would offer the opportunity for the speediest resolution. However, where there is lack of trust, no impediments to access to, or retaliation for direct contact with, the NRC should be permitted. The record suggests that the Applicants felt uncomfortable with complaints being made directly to the NRC. While the Company urged its employees to bring problems to its management, some employees did contact NRC and there was no clear evidence of retribution.

The Applicants' policy statement fails to clearly define the Company's position and workers' rights to take safety concerns to the NRC without fear of subsequent retaliation. The Board is directing that it be revised. In this regard, we note some ambiguity in NRC statements of policy, particularly NRC Form 3. This form is inadequate for its purpose and should be revised. Until that is done, it should come as no surprise that individual licensee policies are ambiguous and employees are left in the dark.

We heard testimony from a few witnesses about instances where welding inspectors interpreted instructions to mean they should "ease off" or "slack up" on inspections, with the implication that otherwise there would be retaliation. We found on examination, however, that these instances involved problems with communication and interpretation of procedures.

The low performance rating of Mr. Gary E. "Beau" Ross by his supervisor, Mr. Art Allum, was explored extensively. We summarize the evidence briefly here. Mr. Ross was the supervisor of many of the inspectors who had raised safety concerns, and he himself had raised many concerns. Mr. Ross had received competent or better ratings until the concerns were submitted, after which he received two consecutive mediocre ratings — "2" on a scale of 1 to 5.

Mr. Allum testified that he rated Ross low primarily because Ross would not exercise his supervisory responsibilities, but referred his

inspectors to others, and for not accepting explanations for management decisions. Mr. Ross, for his part, felt that his inspectors were entitled to go above him for answers and that he was following prescribed procedures.

There was an interim evaluation in November 1982 by Mr. Allum which was not communicated to Mr. Ross for three months, but which stated that Mr. Ross might not be continued as a supervisor without improvement. The delay was contrary to Duke policy. In response to Board questions to nearly all the welding inspector and supervisor witnesses, Mr. Ross was rated by them at a "4" or higher. There were some internal inconsistencies in Mr. Allum's ratings of Mr. Ross. We also looked at other pertinent circumstances. In 1981, Mr. Davison had confidentially recommended transfer of Ross as part of the solution to welding inspector concerns. Ross had declined transfer. In 1983, Mr. George Grier, in discussing Mr. Ross' rating with him, also brought up the question of the forthcoming hearing before this Board, an incident we viewed in context as an improper attempt to influence Ross' testimony. We note also a difference in handling Mr. Ross' ratings and actions taken against certain craft foremen in incidents involving harassment of welding inspectors. The foremen were made to understand they might be fired, but no record was made. An elaborate written record was made against Ross which could have justified firing him, but he was not dealt with completely openly.

The preponderance of the extensive evidence leads us to find that Mr. Ross' low rating was unfair and in retaliation for his involvement in raising safety concerns, either directly or by supporting his inspectors.

4. Harassment of Welding Inspectors

We received testimony on several incidents of alleged harassment of welding inspectors. The Company's policy statement on harassment is primarily aimed at discriminatory practices involving sex, race, etc.; it does not deal specifically with the type of harassment reviewed here. For the purpose of evaluating issues in this case, our concept of harassment is any action taken by another employee or superior intended to modify the behavior of an inspector so as to impede the proper performance of the assigned task. Harassment may involve use or threat of physical force or violence or more subtle action or speech intended to intimidate, embarrass, or ridicule. An effective harassment policy has to be applied to actions and conduct off site, as well as on site. A few examples will illustrate the concept.

Welding inspector Max Reep took possession of welding rods he found some distance from prone welder, G.R. Jones, as a basis for writing an NCI. Alerted by another worker, Jones took the rods back from Reep. Reep completed his inspection and took the same rods from Jones' pouch. Jones forcibly took them away from Reep. Reep filed harassment charges. The charges were not upheld even though the QA Department supported Reep. Construction management disagreed because Reep did not need the rods to write an NCI. Jones was given a violation of procedures citation and counseled on unprofessional conduct. We think this incident was handled properly. It was not a case of harassment, but a personal confrontation, brought about in part by the inspector's poor judgment.

Welding inspector Larry Jackson noticed pipefitter Fox using a grinding disc on stainless steel that was not marked with red paint, as required. Instead, the disc was marked with a Magic Marker. Jackson believed the marks had been added as he approached, decided to write an NCI, and took possession of the disc. When Jackson showed the disc to Fox's supervisor, Ed McKenzie, McKenzie put the disc in a shirt pocket. And when Jackson tried to retrieve it, McKenzie threatened to "knock his eyes out." Jackson filed an NCI report for the section of pipe Fox had been working on. The next day Jackson put a red NCI tag on a section of pipe, but it turned out to be the wrong section. Shortly thereafter, McKenzie abusively told Jackson of his mistake. Jackson filed a harassment charge for verbal abuse.

Applicants' review found no harassment but both Jackson and McKenzie were counseled on unprofessional conduct. McKenzie was told a repetition could jeopardize his job and his crew was verbally reprimanded about ridiculing inspectors.

The Board views this as a case of harassment. The actions taken against the foreman and crew were appropriate, but they did not go far enough. McKenzie should have been formally cited for harassment and the citation should have been publicized on site.

Welding inspector supervisor William Deaton rejected an ironworker's fit-up. On the way home, the ironworker pointed a rifle at Deaton from a passing car with an exchange of words. The next day the ironworker's job was terminated at his own request. The Company was hesitant to fire him outright because the incident occurred off site.

We are concerned about failure to take the more direct action of firing the worker only because the event happened off site. An effective QA program cannot tolerate offsite harassment of inspectors.

Welding inspector Lindsay Harris was planning to write an NCI on an improperly preheated tack weld when the foreman, Mr. Tom Mullinax,

threatened to knock his teeth out if Harris didn't leave his men alone. Mr. Mullinax was orally reprimanded. This is a serious case of harassment involving a threat of physical violence. As in the McKenzie case, the reprimand should have been in writing and publicized on site.

We found that in the most serious harassment cases the Company took some appropriate actions to discourage repetition. However, looking at the group of cases as a whole, the actions were not as severe as they might have been, they were not publicized, and the harassment victim was not always made aware of the action taken. Thus, the inspectors involved often concluded that they were not being supported. To their credit, this did not prevent the inspectors from doing their job. In order to put this issue in perspective, we note that the cases of serious harassment were relatively few in number.

C. Concerns Raised by Messrs. McAfee and Hoopingarner

William R. McAfee and Nolan R. Hoopingarner, II, are former employees of Duke at the Catawba site. Mr. McAfee worked in several different jobs from March 1977 until March 1979, when he resigned. Mr. Hoopingarner worked at Catawba as a builder and rodbuster from 1977 until September 1980, when he was fired. Both McAfee and Hoopingarner are members of Palmetto Alliance and Palmetto refers to them as its "original whistleblowers" (Palmetto Proposed Findings at 80). Both appeared as Palmetto witnesses.

Mr. McAfee described several incidents which he thought represented safety concerns. These included certain concrete pouring practices and an incident where water had been allowed to condense or leak into a control room and onto certain control equipment. These matters were scrutinized at the hearing and the resulting record reflects that the Applicants had acted appropriately under the circumstances. Although Mr. McAfee impressed us as a forthright witness, we believe that his limited perspective on the matters in question did not produce a comprehensive picture.

Mr. Hoopingarner's experience as a Duke employee at Catawba was, to say the least, unusual, primarily because of his unusual and disruptive behavior on the job. Mr. Hoopingarner took it upon himself to report to his superiors, the NRC, or both every "wrong" he could uncover at Catawba, whether within or without his area of assigned activity. In the process, he made indiscriminate charges of "wrongdoing" against his fellow workers, superiors and an NRC inspector. Duke showed remarkable self-restraint in allowing Mr. Hoopingarner to carry on in this fashion

for as long as they did. Finally, Duke fired Mr. Hoopingarner, ostensibly because of a series of unexcused absences.

The Palmetto claim that Mr. Hoopingarner was fired because of his attempt to raise safety issues was fully reviewed at the hearing. We find that his firing was not related to that factor, but that it was legitimately based on Mr. Hoopingarner's unusual and disruptive behavior at the site. Mr. Hoopingarner's various safety concerns were also reviewed at the hearing, particularly his concern about possible water damage to the emergency diesel generators. The record reflects that his concerns were unfounded or that adequate corrective action had been taken.

Notwithstanding our essential rejection of Mr. Hoopingarner's testimony, we do not question his sincerity as a witness. We came to believe, however, that Mr. Hoopingarner's perspective had been distorted by his self-righteousness and poor judgment.

D. Concerns Raised by the *In Camera* Witnesses

Howard S. Nunn was the most important of the four *in camera* witnesses. Mr. Nunn, a former Duke welder, initially accepted the Board's invitation to testify *in camera*, but subsequently elected to testify publicly. Mr. Nunn raised eight concerns, four of which were struck in response to motions by the Applicants and Staff. The remaining concerns included laminations in containment plate, accuracy of radiographs, and "foreman overrides." Mr. Nunn was a candid and cooperative witness. He is a skilled welder, but has no relevant expertise aside from welding.

Mr. Nunn had considerable difficulty making a satisfactory weld where laminations had been encountered in working on containment plate. He questioned the structural integrity of the plate. Laminations are very thin planes caused by folding of gases and residues in the steel as ingots are rolled into plate. The Applicants and Staff proved that the Catawba steel plate was fabricated to ASME requirements, which permit some laminations. Others are repairable. The structural integrity of the containment is not compromised by these laminations because the dominant stresses are parallel to the surface of the laminations. Mr. Nunn's testimony showed he had the skill to overcome the difficulties encountered in welding over laminations.

Mr. Nunn was also concerned about the accuracy of radiographs because he could not always find flaws in the metal at spots indicated on the radiograph, and new radiographs made after repairs would reveal flaws not previously detected. Testimony by Applicant and Staff witnesses noted that the angle of the shot could influence detection of flaws

not previously noted. There are also possible problems in matching tracers on the pipe to locate defects. Other welders sometimes experienced these problems, but for the most part did not question the accuracy of radiographs. The record reflects no cause for concern about radiographs.

Mr. Nunn cited several instances which he claimed were examples of "foreman override." For example, Mr. Nunn claimed he had been pressured to make a weld without proper paperwork. He also testified that a fellow welder had been instructed to finish a weld with an inappropriate rod, that the weld was subsequently rejected, and the welder had been required to retest to regain his certification. In the course of the Staff's January 1983 investigation of the "foreman override" issue, another welder made allegations similar to Mr. Nunn's. At the time this decision was issued, further investigations by the Staff and the Applicants were ongoing. As described more fully below (pp. 1565-66), we are holding the record open and retaining jurisdiction over this aspect of the "foreman override" concerns.

The concerns of the other three witnesses who testified in the *in camera* portion of the hearing were also reviewed. No significant safety issues were presented by the developed record.

Findings of Fact on Quality Assurance — Contention 6

I. WELDING INSPECTOR CONCERNS

A. Background

1. Introduction and Summary

1. In July 1981, Duke informed the welding inspectors in its Quality Assurance Department that their pay would be reduced, based upon a reanalysis of applicable qualifications. During the Fall of 1981, certain welding inspectors who were appealing the pay reduction began to express concerns about other issues, which had been developing over time, including technical issues. In December, Duke appointed a task force to look into the inspector concerns. The task force report suggested the possible presence of problems and thereafter all the welding inspectors were asked to submit any concerns in writing. Twenty-three inspectors expressed concerns, some involving personnel relations matters — categorized by Duke as "nontechnical" concerns — and others involving the safety or adequacy of hardware or work procedures — referred to as "technical" concerns. In early 1982, Duke appointed two additional task forces to investigate the technical and nontechnical concerns,

respectively. The validity and extent of these welding inspector concerns and the adequacy of Duke's investigations and corrective measures were the principal focus of the hearing on Contention 6. Van Doorn Testimony, Staff Ex. 7, at 5-9.

2. The attempted division of inspector concerns into "technical" and "nontechnical" categories was useful for some purposes, but there was no bright line marking the division. Most technical concerns had nontechnical aspects, and vice versa. Furthermore, as stated by a consultant to Duke, apart from the "technical-nontechnical" dichotomy —

The primary concern of the inspectors was that they did not have the support of their supervision and management. . . . [I]nspectors were required to identify failure to follow procedures and when they did this, a technical evaluation by their supervisors accepted the work, but nothing was done to correct the generic problem of violations of procedures. . . . The rationale or justification for resolution of NCIs was not communicated to the inspectors.

Zwissler Testimony, App. Ex. 13, at 12-13.¹¹ We also agree with the following Staff perspective on the welding inspector concerns, namely —

Whether seen as a technical or nontechnical matter, the concerns appear to stem from differing understandings by the inspectors on the one hand and their management on the other as to the function of the QC inspector, and the way in which deviations from procedures were to be handled.

Staff PFF 93.

2. *The Welding Inspector's Role*

3. The welding inspectors who expressed concerns performed a visual inspection function, in contrast to other types of inspectors who used liquid penetrant, magnetic particle, radiographic and ultrasonic examination techniques (also referred to as nondestructive examination (NDE) techniques). *See, e.g.*, App. Exs. 28-32, 56-59. Visual inspection is usually not the only inspection of a safety-related weld. As reflected in the discussion of specific concerns, many safety-related welds are also inspected by one or more NDE techniques.

¹¹ Mr. Louis Zwissler was the subject of an extensive *voir dire* examination by Palmetto directed toward whether he could conduct an objective evaluation of the Duke task force reviews. Tr. 3240-55; 3345-3410; 3415-16. Having reviewed the task force efforts ourselves in detail, we have no occasion to rely on Mr. Zwissler's evaluations of them and therefore no occasion to determine the impact of Palmetto's *voir dire*. However, we quote from Mr. Zwissler here because he has aptly summarized basic aspects of the inspectors' concerns.

4. The NRC Staff has included in its Proposed Findings 97-103 an accurate and helpful summary of the standards and procedural tools available to the welding inspector in carrying out his function. We adopt these proposed Staff findings verbatim in the following seven paragraphs.

5. "Detailed quality assurance procedures establish the specific aspects of various construction processes that are to be inspected, and when they should be inspected. For certain classes of welding, 'hold points' are established so that required in-process inspections can be performed. A hold point is a point at which work must be inspected before it can continue. When hold points are established, generally process control travelers, which follow the work, are used to indicate the inspections required and the inspector's acceptance. Testimony of Larry R. Davison, App. Ex. 14, at 21-22."

6. "Inspectors determine acceptability by referring to acceptance standards established in QA Procedures and Design Specifications. *Id.* Examples of these are QA Procedures H-4 and H-5, which control the identification of piping materials and structural steel materials, and L-80, which is the Visual Workmanship Standard for Welds. *Id.* at 33. When an inspector discovers a discrepancy, he may use one of four basic corrective methods available, depending on the circumstances. *Id.* at 23."

7. "The first, the 'hold point' method, consists of an inspector making the craft aware of a deficiency, the deficiency being corrected to the satisfaction of the inspector, and the inspector signing off the item. In this method, the item is not signed off until all necessary action has been completed, and the inspector is satisfied. No documentation of this action is required. *Id.*"

8. "The second is the 'process control' method, whereby the inspector may document the repair on the inspection report itself. *Id.* Procedure M-4, 'Visual Inspection and NDE Welds (ASME III),' applies to all Class A, B, and C welding at Duke, and these welds and the inspections thereof are recorded in Form M-4A, 'Weld Process Control Sheet.' Duke QA Program Procedures, App. Ex. 6. Any defects detected in a final visual inspection would be resolved on this form. The Process Control Form serves both as a documentation of the work and the inspection of that work. Davison, App. Ex. 14, at 23."

9. "The third method may be referred to as the 'deficiency report form' method. In the welding inspection area, until mid-1982, the principal vehicle used to document deviations from construction or quality assurance procedures was the 'Nonconforming Item Report' (Form Q-1A), commonly referred to as an 'NCI.' Shropshire, Tr. 5010; Grier, Tr. 3033-34. Generally speaking, the inspector describes the discrepancy

on the Q-1A form, and after a review for clarity and completeness within the Quality Assurance Department, the form is processed for further evaluation. Depending on the problem, the resolution is then reassigned to the appropriate department (in many cases involved here, resolutions were assigned to the Construction Department's technical support group) for engineering evaluation, which is in turn approved by quality assurance engineers. Following this resolution process, the Q-1A is returned to the field, perhaps to the same inspector for disposition. If the resolution is that the item is acceptable, the form would so indicate and require removal of the Q-1B tag — which would normally have been affixed to the nonconforming weld to indicate that no further work on that weld was permitted. Grier, App. Ex. 2, at 18-22; Davison, App. Ex. 14, at 24-30."

10. "Another form, the 'Discrepancy Report Form,' commonly referred to as the R-2A, is a method of documenting discrepancies, similar to the NCI method. This form entails a somewhat less-involved review than the Q-1A. Davison, App. Ex. 14, at 23-24. However, this method was not in common use in the welding inspection area prior to 1982. Shropshire, Tr. 5007-11; Grier, Tr. 3033-34. As a result of recent procedural changes, the R-2A has replaced the Q-1A as the common method of documenting discrepancies. Grier, Tr. 2130-32."

11. "Since most of the welding inspector concerns stem from the period prior to 1982, much of the testimony focuses on the origination of NCIs, the reviews for validity by QC supervision, and the resolutions or dispositions established after engineering evaluations by the Construction and Quality Assurance Departments."

3. Origins of the Inspectors' Concerns — the Pay Reclassification

12. As the Staff points out (PFFs 104-105) there were indications of problems that would later surface as welding inspector concerns in the 1979-81 time frame. These included some lack of understanding by welding and other inspectors about processing NCIs (Testimony of Maxwell, Staff Ex. 6, at 6), and a volume of NCIs so large as to threaten the quality of NCI evaluations. Testimony of Van Doorn, Staff Ex. 7, Att. 25. However, the expression of these "welding inspector concerns," as we are using the phrase, was triggered by the July 1981 announcement of a reduction in their pay.

13. The pay reduction resulted from a Company-wide review of position analyses based on characteristics and levels of ability thought to be required for a particular job and a point system for different characteristics and levels. Pursuant to that review, the position of "Welding Inspec-

tor A” was reduced from Pay Grade 11 to Grade 10. Among the factors leading to the reduction was the determination that welding inspectors should no longer be required to have either two years of welding or welding inspection experience. Testimony of Grier, App. Ex. 2, at 44-45; Tr. 2978-80, 2986-89. Other inspector positions were also reclassified. Some — like the Mechanical Inspector A position — were upgraded; others — like the Film Reader position — were downgraded. Grier Testimony at 45.

14. Mr. Warren Owen, Executive Vice President, Engineering and Construction and the senior Duke official to appear as a witness, testified that the pay reclassifications were made to achieve internal equity and to maintain external competitiveness. Tr. 2317. This explanation is reasonable and fully consistent with the record.

15. Palmetto asks us to find that the pay reclassification was in response to “scheduling and cost pressures” and for the purpose of undermining the welding inspection effort. PFFs 151, 153. But they cite nothing in the record in support of these propositions in those proposed findings, and we know of no support for them. There is no nexus in the record between the matters referred to in Palmetto’s Proposed Findings 154-160 and the pay reclassification.

16. Palmetto also contends that there were “clear connections” between the mediocre rating of Catawba in the so-called “SALP Report” and subsequent management treatment of the welding inspectors, including their pay reclassification. PFF 162. The SALP Report is discussed in greater detail below at pp. 1457-58. Palmetto’s thesis seems to be that after Catawba’s QA welding program was criticized in SALP the response of management was not to improve welding QA but to attempt to intimidate and suppress the welding inspectors to the point that future QA welding deficiencies would not be detected. This farfetched thesis is not supported by the record. Furthermore, even if one were to assume that the pay reclassification was somehow intended as retaliation against the welding inspectors because welding came in for criticism in the SALP Report, that would leave unexplained Duke’s failure to retaliate against workers in other areas that were also criticized in SALP — e.g., concrete placement, design, electrical control. *See* NUREG-0834, “NRC Licensee Assessments,” Appendix B (1981).

17. Many of the welding inspectors at Catawba apparently felt that the reduction of their pay was inequitable, based on their comparative assessment of their own qualifications with the qualifications of craft welders. Addis, Tr. 2360; Addis Testimony, App. Ex. 8, at 8-9. During the months following the pay reclassification, forty-five welding inspectors from four Duke nuclear sites pursued the Company recourse proce-

dure over the pay issue. Twenty-nine inspectors — twelve from Catawba — pursued the matter to the final step, to the Company president, by whom the classification was upheld. *Id.* at 5.

18. In November 1981, during the recourse process, the welding inspectors were individually interviewed by Duke's Director of Employee Relations, Ms. Gail Addis, to ensure that the views of both sides on the pay issue were understood by all involved. *Id.* at 8. During those interviews, some of the Catawba inspectors voiced concerns that the quality of work at Catawba had been adversely affected by some management practices and work relationships. These concerns were referred to as "work quality" concerns to distinguish them from pay recourse concerns. *Id.* at 9.

19. In early December 1981, Ms. Addis wrote a memorandum to Mr. Owen summarizing the work quality concerns that had been conveyed to her by Catawba inspectors. Addis Memorandum attached as Tab 3 to Addis Testimony. Mr. Owen informed Mr. William Lee, Duke President, of these developments and they decided to appoint a task force to look into the work quality concerns. Owen Testimony, App. Ex. 1, at 14; Palm. Ex. 7. Such a task force, composed of three Duke employees (and later known as "Task Force I"), was constituted on December 10, 1981. Palm. Ex. 8.

Summary of Task Force Activities and Results — Task Force I

20. The record reflects some lack of clarity in the mission of Task Force I — whether it was to undertake a comprehensive investigation of the welding inspectors' concerns or whether it was merely to determine the existence and scope of possible problems. The Task Force Charter spoke of "the necessary investigation to completely understand the allegations made by the inspectors interviewed at Catawba." Attachment 2 of McMeeken Testimony, App. Ex. 10, at 3. Similarly, the Task Force I conclusions were cast in unequivocal terms. Among other things, the Task Force concluded that "the QA/QC Program at Catawba is working as intended and there is no reason to believe that unacceptable craftsmanship and unsafe conditions exist at the plant." The principal problems they found were "communications problems." Report by the Task Force on QC Inspection, dated December 29, 1981.

21. With the benefit of hindsight and the resulting appreciation we have gained concerning the complexity of some of the inspectors' concerns, it is apparent that Task Force I could not have performed a comprehensive review of those concerns. Their work was begun and completed in about two weeks. McMeeken, Tr. 3279-80. Many of the

welding inspector concerns had not yet emerged and only sixteen welding inspectors were interviewed. Task Force Report, Att. 6. Apparently the Task Force relied largely on interviewing and performed little or no inspection of hardware or records review.

22. Testimony at the hearing described Task Force I as more of a preliminary problem identification effort than a comprehensive investigation. Thus Mr. Owen said that he “wanted a judgment by experienced people to determine whether a problem existed and, if so, its magnitude and potential scope.” Their report made it clear to him “that there were technical concerns which should be investigated.” Owen Testimony, App. Ex. 1, at 14. *See* McMeeken, Tr. 3272, 3279, 3295.

23. We view the Task Force I effort in a similar light. It brought to management attention many of the inspectors’ concerns and made several constructive recommendations that were to be implemented later on. *See* Task Force Report at 4, 7, 10-11. Its creation evidenced the fact that Duke management was taking the inspectors’ concerns seriously. And it led to the creation of two additional task forces, to which we turn next. However, in light of its limited investigations and mandate, we attach little weight to the Task Force I conclusions about the state of the QA program at Catawba.

The Technical Task Force

24. In January 1981, Mr. Owen established the “Technical Task Force” to investigate all of the technical concerns of the Catawba welding inspectors and to take or recommend any necessary corrective action. Owen Testimony, App. Ex. 1, at 14-15. Cobb Testimony, App. Ex. 11, at 5. The Task Force was composed of five senior engineers from four different departments, including QA and Construction.

25. The Technical Task Force developed and followed a formal plan, consisting of six major phases: (1) data collection and review; (2) technical evaluation; (3) development of results and recommendations; (4) management review and implementation of recommendations; (5) inspector feedback; and (6) final report. Cobb Testimony at 7 and Att. 2.

26. The Task Force first sought to obtain all of the concerns of the welding inspectors, in writing. A meeting was held for that purpose in mid-January 1982 of the welding inspectors, their supervisors, and Mr. Davison, Project Quality Assurance Manager at Catawba. Ross, Tr. 6651-52. As Mr. Beau Ross, first-line supervisor of welding inspectors who voiced most of the concerns, described the meeting:

[I]t was just a matter of writing down any concerns, any specifics; the more specifics the better because it would help resolve the problems: specific weld numbers, specific joints, NCIs, whatever . . . as much details as possible so that they could be resolved. It was pretty open as far as just saying, hey, if you got problems, let's lay them on the table.

Tr. 6655. There were some indications that some of the welding inspectors may not have felt free to express all of their concerns at the meeting. Testimony of Burr, App. Ex. 29, at 15. Ross, Tr. 6656-62. We find, however, that the Task Force did make a good-faith effort to elicit all such concerns and that is all that can reasonably be expected. We note also that the numerous welding inspectors we heard testify were not, generally speaking, at all reticent. Considering also that many generic concerns were expressed by several inspectors, we conclude that virtually all of the significant concerns were conveyed to the Task Force.

27. The scope of the Technical Task Force analysis is indicated by the Staff's PFF 118, as follows:

Volume II of the report contains each of the handwritten concerns coded by inspector, attached to a form entitled "Technical Evaluation — Individual Concern," in which the concern is stated, the technical evaluation is documented, and recommendations are made. A separate form called "Verification — Individual Concern," accompanies each evaluation, and is signed by a different evaluator. The technical evaluations identify whether the concern had a specific basis, *e.g.*, an NCI number; whether a criterion (procedure) was actually or potentially violated; and whether an actual or potential technical inadequacy existed. Cobb, App. Ex. 11, Att. 5.

In general, this analytical approach was appropriate for the concerns involved. The adequacy of many of the Task Force's individual technical evaluations is addressed at pp. 1461-98, below.

28. The Technical Task Force did not classify any of the concerns it reviewed as actual technical inadequacies. However, there were "potential technical inadequacies" associated with twenty-four concerns. Follow-up on these was left to the QA, Construction or Design Engineering Departments. Cobb Testimony at 13 and Att. 4, ¶ 5.4.

29. The Chairman of the Technical Task Force testified that the Task Force "reviewed with each involved inspector the evaluation of his specific concerns." These sessions were to ensure that the concern was properly interpreted, but not to obtain the inspector's concurrence with the technical evaluation. Cobb Testimony at 14. Although some inspector witnesses could not recall these post-evaluation discussions, we find that the Task Force made efforts to conduct such discussions and that most inspectors probably participated in them.

30. In addition to the individual technical evaluations, the Technical Task Force reached these overall conclusions: (1) problems were arising from the "interface" between inspectors, their supervisors and craft personnel; (2) procedure interpretation and implementation was a major area of concern; (3) procedural changes could alleviate some of the concerns. These conclusions led to a number of recommendations of both a policy nature and specific action recommendations. *Id.* at 11-12.

31. Implementation of the Technical Task Force recommendations was the responsibility of the Quality Assurance Department. That Department developed a Management Implementation Plan with specific implementation objectives designed to carry out the Task Force's more general recommendations. Specific individuals in various departments were assigned to carry out particular actions. Grier Testimony at 49-50. The Management Implementation Plan is Attachment 3 to Mr. Grier's testimony.

32. Subject to certain findings hereafter on evaluations of particular technical concerns, we find that the Technical Task Force and the implementation of its recommendations were an appropriate response to "technical" aspects of the welding inspectors' concerns.

The Nontechnical Task Force

33. On February 22, 1982, the Corporate QA Manager, Mr. Grier, appointed Mr. C.N. Alexander, then Personnel Manager at the McGuire site, as chairman of a "nontechnical" task force to review "nontechnical" concerns that had been raised by the Catawba welding inspectors. The Nontechnical Task Force had one other member, an Employee Relations Supervisor from the Construction Department. Alexander Testimony, App. Ex. 12, at 2-3.

34. The Task Force conducted a paper review (as distinguished from personal interviews) of each of the welding inspectors' concerns and compiled a list of nontechnical concerns. If a concern dealt with administrative or personnel matters, it was considered "nontechnical." Each of the concerns was then placed in a matrix under one of the following categories: qualifications, technical support, NCI resolutions, communication, management support, inspector responsibilities, directing craft, adherence to procedures, and harassment. *Id.* at 3-4.

35. The Task Force then engaged in a limited amount of "information gathering." To that end, it reviewed the documents previously submitted by the welding inspectors. Mr. Alexander testified that: "Where there was not enough information for us to understand the concern and to make recommendations, we interviewed the inspectors to obtain the

additional information so that the concerns could be addressed.” *Id.* at 4. The record is not crystal clear on this point, but it appears that the Task Force met with at least three inspectors prior to its evaluation work in order to obtain additional information about nontechnical concerns. *See* Bryant, Tr. 6036-37; Jackson, Tr. 8888; Ross, Tr. 6675-76. *Cf.* Crisp, Tr. 8377-78.

36. On the basis of the information thus developed, the Task Force found that several areas needed management attention, including communications, channeling employee concerns to management and the inspector’s role in relation to craft. Alexander Testimony, at 5.

37. The Nontechnical Task Force Report of March 24, 1982 included the following recommendations for corrective action: training supervisors in communication skills; explaining to inspectors their role and responsibilities; recourse procedures for both personal and technical concerns; harassment recourse; employee forum to provide an informal meeting where employees could meet with management and ask questions; and the “team work” concept to draw the department closer together. These recommendations were implemented shortly thereafter through a Management Implementation Plan. *Id.* at 6-8.

38. The Task Force findings were communicated to the welding inspectors in a group meeting. In addition, Mr. Alexander testified that he then “began individual meetings to review with inspectors and their supervisor their concerns.” There is very little in the record to corroborate this statement, except possibly in the case of Mr. Ross. Tr. 6676-78. Other inspectors who recalled meeting with one of the Nontechnical Task Force members were apparently referring to earlier information-gathering meetings. *See* Bryant, Tr. 6036-37; Godfrey, Tr. 8291; Crisp, Tr. 8377-78. We find that the resolution of particular concerns was not communicated to the inspector involved on an individual basis.

39. Palmetto sought at various points in the hearing to impeach the work of the Nontechnical Task Force. In its Proposed Findings of Fact Nos. 181-187, Palmetto attacks this Task Force as “a sham in both form and substance.” Unfortunately, Palmetto’s proposed findings on this subject lack supporting citations to the transcript. Thus, we would be justified in disregarding Palmetto’s proposed findings in this area altogether. Order of Dec. 30, 1983, at 2. We note, however, that certain of Palmetto’s criticisms have some validity.

40. The Task Force work was done under time pressure, in about one month. Alexander, Tr. 3173-74. The work was done by only two people, apparently working part time. The Chairman of the Task Force assumed a new position in the Quality Assurance Department during the Task Force work. *Id.*, Tr. 3141-42. This put him in the position of

reviewing concerns involving senior QA officials. *Id.*, Tr. 3158-62. While we do not conclude that the Chairman's objectivity was in fact compromised by these circumstances, it would have been preferable for this work to have been carried out by people outside the QA Department. *See id.* at 3182-83.

41. Palmetto PFF 185 states in part —

It is apparent from review of this plan and the testimony of Alexander that no serious investigation of the inspectors' programmatic allegations was ever conducted. It is clear that the principal, if not exclusive, source of quoted data, "was the original handwritten concerns of the inspectors themselves." No serious effort was made to determine the factual validity of any of the nontechnical concerns. . . .

The Board agrees. Although the Task Force Report and its Chairman did not say this explicitly, it is apparent that they were not investigating the underlying facts of concerns, but only what the concerns were, whether valid or not. Alexander, Tr. 3169. As Mr. Alexander put it, the Task Force investigation was "as comprehensive as we felt like it needed to be in order to evaluate and make recommendations on the concerns." Tr. 3180. In other words, the concerns were taken as given.

42. The Task Force approach was valid, up to a point. For example, if many inspectors express concerns that reflect lack of a clear understanding about their roles, a reviewer can develop recommendations for additional training without performing a detailed investigation about the underlying facts of individual concerns. Similarly, if there are concerns about harassment, one can recommend a recourse procedure — as the Nontechnical Task Force did — without investigating individual instances. As the Staff points out (PFF 127) supervisor Beau Ross subsequently testified that the result of implementation of such a harassment recourse procedure was that "a lot of doors were opened to take care of situations that had occurred in the past." Ross, Tr. 6964.

43. We believe, however, that the Nontechnical Task Force should have probed more deeply into harassment concerns (and perhaps other concerns) than it did. As discussed in more detail in part I.D below, harassment has been a problem at Catawba. A thorough investigation of harassment concerns might have produced needed remedial action in addition to the recourse procedure, such as a widely disseminated message from management that it would not be tolerated, and stiffer sanctions imposed, if necessary.

The SALP Report

44. Palmetto introduced as an exhibit, NUREG-0834, "NRC Licensee Assessments," (1981) a "Systematic Assessment of Licensee Performance" (commonly called the "SALP Report") performed by the Staff on all reactor licensees based on data from the 1979-80 time frame. Using a variety of criteria, the Staff ranked all licensee facilities as either "above average," "average," or "below average." Of the forty-three sites where construction was then in progress, thirty-six were rated "average" and seven, including Catawba, were rated "below average." The SALP Report had the following criticisms of Catawba:

The Catawba facility displayed evidence of weaknesses in the area of quality assurance, including management and training.

Quality assurance weaknesses were characterized by instances of inadequate design reviews, procedures not issued, specifications and commitments not translated into procedures, and audit programs not established. There were numerous items of noncompliance involving failure to follow procedures for activities involving welding, concrete placement, design, quality control inspections, records control, and electrical equipment installation.

Catawba received a relatively large number of items of noncompliance when compared with other power reactor facilities under construction. Most of these items of noncompliance were attributed to weakness in the licensee's quality assurance and management overview process.

Appendix B-1.

45. Palmetto points to the SALP Report as part of the "history of QA failure at Catawba" and as a "comprehensive evaluation," the product of a "lengthy evaluative process." We are urged to accord the SALP Report substantial weight adverse to the Applicants. PFFs 4-15.

46. The 1981 SALP Report is evidence adverse to the Applicants, but it is not entitled to very much weight, for several reasons:

- (a) A "below average" rating "does not imply that a facility must be shut down or that construction of a facility must be interrupted." NUREG-0834, at 3.
- (b) The authors of the SALP Report — the Staff — apparently no longer support the "below average" rating. They now support the Applicants' QA program without significant reservation.
- (c) This Board and the parties, through the hearing process, have performed a far more thorough and critical review of the Catawba QA program than the Staff SALP review. Compare Palmetto Exhibit 5 with the record on Contention 6.
- (d) Applicants' witnesses testified without contradiction that SALP gave weight to numbers of violations without giving cor-

responding weight to levels of construction activity. Owen Testimony, App. Ex. 1, at 19; Grier Testimony, App. Ex. 9, at 36. Such activity was at a high level at Catawba at the time. It appears significant in this regard that the same SALP Report gave higher marks to other Duke facilities — “above average” for Oconee and McGuire 1 and “average” for Cherokee and McGuire 2. Furthermore, 1981 SALP did not take into account the Applicants’ corrective actions. Owen Testimony, App. Ex. 1, at 19.

47. Palmetto invites us to compare Catawba with the “subsequent histories” of other plants that received a “below average” rating in 1981 SALP. The factors bearing on such a comparison would be so diverse as to render it virtually useless. Moreover, even to attempt a sufficiently in-depth comparison of the sort suggested would have drawn us far into collateral issues.

48. The evidence adverse to the Applicants fairly derivable from 1981 SALP is far outweighed by other favorable evidence in the record.

*Independence of the Quality Assurance Organization*¹²

49. Palmetto sought to show in various ways that the QA function at Catawba was not sufficiently independent from the construction function. Part of this effort focused on historical changes in the QA organization. The legality of the QA organizational structure, *per se*, was not in issue. That structure had been litigated and approved at the construction permit stage. *See Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), LBP-75-34, 1 NRC 626, 646-50 (1975). However, the Board permitted some cross-examination relevant to the issue of QA independence as it bears on a major thrust of Contention 6 — Company pressure to approve faulty workmanship. *See Tr.* 1928-34.

50. Palmetto refers us to various Atomic Energy Commission Staff positions in the 1973 SER for the Catawba construction permit. PFFs

¹² Immediately preceding its proposed findings on this topic, Palmetto addresses a February 1981 NRC Report as evidence of “continuing QA failure.” We give no detailed consideration to Palmetto’s PFFs 16-20 on this subject because, once again, Palmetto provides no citations to the record. In any event, PFFs 16-17 are concerned primarily with training, an area we repeatedly held to be outside the scope of Contention 6. *See, e.g., Order of Aug. 26, 1983, at 9.*

The Applicants point out that Palmetto is apparently referring to NRC Staff Inspection Report 50-413, 414/81-02, which was Attachment 25 to Mr. Van Doorn’s Testimony (Staff Ex. 7). Suffice it to say that the violations for which Duke was cited in that report were relatively minor and that Duke’s subsequent engineering reviews of some 11,000 NCLs was considered to be a satisfactory response. Bryant, Tr. 9815; Van Doorn, Tr. 9815.

24-30. Apart from their remoteness in time, it appears that these positions were either satisfied by the Applicants or superseded by the CP Licensing Board decision.

51. Prior to issuance of the Catawba CP, the Vice President for Engineering and Construction was also the Corporation Quality Assurance Manager. The Appeal Board in the *McGuire* case directed that a separate QA Manager be appointed within one year. This condition was met by the appointment of Mr. James Wells in 1974, a job he held until 1982. Wells Testimony, App. Ex. 9, at 1-2. Palmetto seeks to discredit Mr. Well's performance through innuendo, but it fails to cite any substantial evidence to support its thesis, and we know of none in the record. PFFs 33-34. We also reject the related claim that Duke did not take seriously its obligation to establish an independent QA program. PFF 35.

52. Palmetto points to the fact that the same high-level executive, Mr. Owen, has supervisory responsibility over both Construction and QA. The record also reflects, however, that the Construction and QA Departments are headed by separate independent managers who report to Mr. Owen. Owen Testimony, App. Ex. 1, at 3-4. Grier Testimony, App. Ex. 2, at 8-9. We agree with the Applicants that Palmetto "appears to advocate some kind of complete organizational independence of the QA function." App. Reply at 22. Such a concept is inconsistent with Criterion I of Appendix B to Part 50, which provides that "the applicant shall be responsible" for QA. The Applicants are correct in observing that "responsibility for construction and all other activities [including welding QA] necessarily come together at some level of management." App. Reply at 23. Indeed, partly because the QA and construction responsibilities are vested in the same entity, lines of communication are shorter and resources for corrective action can be mobilized more quickly.

53. The only organizational feature of the QA program which was raised at the hearing that gives us any real concern is the fact that until 1981 the QC inspectors were located "administratively" in the Construction Department but were subject to the "functional" control of QA. In 1981, the QC inspectors were transferred from Construction to the QA Department, which assumed control of them for all purposes. Owen, Tr. 1941-42.

54. The "administrative" control exercised by Construction over QC inspectors included personnel matters, such as timekeeping and payroll. Palm. Ex. 1, at 2-3. In addition, it included authority to hire and fire and, apparently, at least indirect authority to schedule daily work. Owen,

Tr. 1938-40. The "functional" control exercised by QA included technical and policy direction, training and certification of inspectors, and establishment of QA procedures. Palm. Ex. 1, at 2-3; Owen, Tr. 1939; Grier, Tr. 2296.

55. Mr. Owen testified that the QC inspectors were left under Construction "administratively" primarily to coordinate their availability with ongoing construction. Tr. 1943. The 1981 decision to move the inspectors to QA for all purposes was to provide greater career opportunities. Owen, Tr. 1944.

56. Palmetto claims that "the evidence of actual interaction between inspectors and their management . . . demonstrates . . . that the Construction Department directed their work in all significant respects." PFF 31. Palmetto cites no specific "evidence of actual interaction" in support.

57. Palmetto also claims that the power to control the QA inspectors was inherent in Construction's power to hire, fire, set schedules, etc. As a matter of practical experience, we think there is some merit in this claim. Furthermore, we believe that the QA function at Catawba would have been performed somewhat more independently if the present organizational structure had obtained throughout construction. We also believe, however, that the effect of the functional-administrative dichotomy on inspector performance cannot be quantified but probably was not very great. In any event, that very dichotomy had at least the implied blessing of this agency in the CP proceeding: LBP-75-34, *supra*, 1 NRC at 649, 650. In these circumstances, absent a showing that safety was compromised, a showing not made here, we can only regret that the dichotomy was not abolished earlier than it was.

B. Construction Deficiencies

1. Introduction

1. Contention 6 is concerned with systematic deficiencies and Company pressure to approve faulty workmanship. The technical concerns expressed by the welding inspectors constitute a major part of the evidence about the extent and significance of alleged faulty workmanship. Applicants created the Technical Task Force to look into these technical concerns and its report has been of substantial help to this Board by providing added detail of where and when certain events occurred and the specific systems involved. The Task Force Report also identified some of the QA and Construction Procedures (CPs) that might have been violated. Further, if there was doubt as to whether a construction defect had gone uncorrected, the Task Force initiated

follow-up inspections, tests, or rework, as necessary. We looked critically at what the Task Force had to say about the disposition of each concern and its recommendations for avoiding recurrence. We stress, however, that this Technical Task Force Report is not the principal foundation upon which we build our own findings. In many cases, we felt that the report curiously avoided acknowledgment when the welding inspectors were correct and used circuitous reasoning to justify the actions of Duke supervision. For some examples, see ¶¶ 33, 34 and 69, below.

2. Each of the parties has summarized the technical concerns in its proposed findings. Each presents the material in a different way, but all focus heavily on the Technical Task Force. None of the formats used by the parties suits the Board's needs, particularly since we are not inclined to give special weight to the findings of the Task Force. Consequently, we have thoroughly reexamined the pertinent testimony and exhibits, as well as the proposed findings, and have organized this material in a way that relates more directly to the language of Contention 6. Our format considers the technical concerns expressed by the welding inspectors and their supervisors in relation to:

- (a) Whether substandard workmanship was condoned by Duke;
- (b) Whether detection or documentation of faulty work was inhibited or discouraged; and
- (c) Whether construction deficiencies warranting correction were adequately repaired.

3. The Final Report of the Technical Task Force (App. Ex. 11, Att. 5) records and evaluates 130 concerns submitted by 15 welding inspectors. First-line supervisor Ross submitted sixty-four of these concerns and one of his inspectors, Mr. Bryant, submitted thirty of them. The Ross concerns duplicated fifteen concerns submitted by others. The Board and parties heard and cross-examined nine of those submitting concerns. These nine witnesses were responsible for about 90% of the technical concerns, but not all of their concerns were subject to cross-examination.

2. *Was Substandard Workmanship Condoned by Duke?*

4. Our consideration of whether substandard workmanship was condoned divides the inspectors' concerns into four categories: (a) supervisors directing welding inspectors to "sign off" or not to NCI conditions the inspectors believed rejectable; (b) resolution of NCIs by permitting the hardware to be "used as is"; (c) acceptance of material not bearing proper identification; and (d) additional concerns about welding quality.

3. *Sign-off or No NCI*

5. Welding inspectors submitted eight concerns in this category that were subjected to cross-examination.

*Concern D-22*¹³

6. On June 15, 1981, inspector Bryant identified lack of fusion in a portion of a weld which had previously been accepted. Rather than have Bryant document the nonconformance, second-line supervisor Charles Baldwin ordered a liquid penetrant test. The test showed no rejectable condition (Baldwin, Tr. 4416-22, 4424-27), so Bryant was instructed to accept the weld. Under these circumstances, resolving the suspected deficiency without an NCI or similar documentation is not in accord with Applicants' procedures as described by Project Quality Assurance Manager L.R. Davison. (App. Ex. 14, at 25.) Condoning of substandard work is not evident, however.

Concern D-24

7. On July 10, 1981, inspector Bryant noted a pinhole in the root of a socket weld associated with the 1A diesel generator. Supervisor Baldwin told the inspector that pinhole indications were not a basis for rejection since the applicable procedure, L-80, did not so specify. (Bryant, Tr. 6139.) The Staff concluded that documentation of this condition was advisable, even if not required by the letter of the procedure. (PFF 167.)^{13a} We agree with the Staff.

Concern D-30

8. Inspector Bryant was unable to visually inspect the results of grinding on the inside of a 6-inch pipe some 7 feet from the open end. The grinding was associated with repair of a defect and was done with a grinder mounted on a long rod. (Ross, Tr. 6804-18.) Supervisor Baldwin instructed Bryant to sign off on the visual inspection even though the repair could not be seen.

9. A year or more later Bryant included the incident among his written concerns and it was investigated by the Technical Task Force. UI-

¹³ For reference purposes we adopt the code (e.g., D-22) used by the Technical Task Force in their report (App. Ex. 11, Att. 5) and abbreviate citations to this report, e.g. (TTF D-22).

^{13a} In some instances, we cite a proposed finding rather than to the record. We intend thereby to incorporate the record citations in the finding.

trasonic testing carried out for the Task Force showed that the wall thickness of the pipe did not meet minimum specifications (Ross, Tr. 6807), so NCI No. 13,955 was issued. More metal was added to the outside of the pipe to compensate for that ground away on the inside.

10. Sign-off on a visual inspection that cannot be made is a violation of Applicants' Procedure M-4. In this case (D-30), the fault lies most heavily with the supervisor who issued the instruction to sign off rather than with the inspector who sought his guidance. The Staff (PFF 168) holds that a violation of Appendix B, Criterion XVI would have existed except for the corrective actions that belatedly resulted from the Technical Task Force evaluation. The record provides no plausible explanation for the supervisor's action in this case.

Concern Q-1

11. On February 27, 1981, inspector John Rockholt could not confirm the material identification of a plate installed on the floor of the spent fuel pool decontamination pit of Unit 2. Presumably the identifying markings were on the underside of the plate. Supervisor Baldwin instructed Rockholt to accept the material rather than initiate an NCI because the unique configuration of the plate matched the place where it was installed. (App. Ex. 31, Att. A.) Some ten months later (December 1981) and after investigation of this concern (but prior to the establishment of the Technical Task Force), inspector Rockholt was asked to initiate NCI No. 13,627 (Palm. Ex. 89) on the nonvisible material identification marking (Rockholt, Tr. 6278-81). The NCI was then resolved on the basis of the unique shape of the plate and tests which confirmed that it was stainless steel.

12. This instruction to sign off does not relate to quality of work, but rather to material traceability. Whether Applicants' QA Procedure H-5 concerning material verification was violated or not is questionable. Applicants' belated decision to issue an NCI indicates that Mr. Rockholt should have been allowed to write one in the first place.

Concern R-58 (I-1)

13. On August 28, 1981, inspector Gantt looked up a 3-inch pipe with the aid of a flashlight and saw what appeared to be oxidation and excessive penetration of a weld some 8 to 10 feet from the open end. Lead inspector Bryant and first-line supervisor Ross also looked in the pipe and concurred with Gantt. Rather than initiating an NCI, foreman Ross consulted supervisor Baldwin — a practice that Baldwin had imposed at

that time. Baldwin ruled against writing an NCI because the weld in question was too far from the end of the pipe for a valid visual inspection (Gantt, Tr. 8454). The Technical Task Force evaluation of this concern records that three independent reviews of radiographic tests were made (QA, QC, and ANI) and none of the reviewers had concerns about excess penetration. (TTF R-58.) The record does not show whether or not supervisor Baldwin had the radiographic test results when he decided against an NCI.

14. Although the weld in this 3-inch pipe was clearly too far away for *approval* based on a visual inspection, we question the propriety of ignoring a suspected deficiency because it is beyond the prescribed viewing distance. The favorable radiographic evaluations provide a valid reason for acceptance of the weld, but documenting these observations on an NCI would have been preferable.

Concern R-59 (D-28)

15. On September 4, 1981, inspector Bryant noted a black film on the inside of a 3-inch stainless steel pipe. Supervisor Baldwin, after consulting QA engineer Shropshire, said the condition was O.K. and Bryant signed off on the hold point. Design Engineering subsequently (February 26, 1982) confirmed that the pipe did not need to be cleaned. Inspector Bryant believed that accepting the pipe with the black stain violated Applicants' Procedure M-24. The Technical Task Force believed that the inspector violated QA Procedure M-4 for signing off on a condition he viewed as rejectable. (TTF D-28.) We find no evidence here of substandard workmanship being condoned either by the inspector or by QA supervision.

Concern V-2

16. Inspector Harris was not satisfied that the finish grinding of welds on pipe supports for reactor Unit 2 met the requirements of the specified construction procedure. Inspectors had rejected the work a number of times and craft wanted to complete the job. Foreman Ross and supervisor Baldwin first suggested that Harris sign off; but when Harris showed them the work and the specifications, they agreed with Harris that he should not sign off (Harris, Tr. 9028-34). The record does not indicate whether Harris ever did sign off, but the Technical Task Force directed that a Level III inspector determine whether or not the welds were acceptable. The evidence in this incident indicates that the

inspector was steadfast in requiring high-quality craft work and that QA supervision did not override his opinion.

Concern L-1

17. Inspector Jackson noted a craft foreman in the turbine building helping a female welder with a weld on nonsafety-related pipe. Jackson believed the extent of the work performed by the foreman, who was a certified welder, warranted having his stencil number on the weld where only the female welder's stencil was applied. Jackson wrote a CP-49a violation report which was resolved by Bill Sams of Technical Support with the instruction to Jackson to "accept as is" (Jackson, Tr. 8890-92). Jackson signed off (Jackson, Tr. 8893).

18. We concur with the Technical Task Force evaluation that coaching of welders should be done on training pieces and temporary piping, not production work. Nevertheless, the foreman's apparent intent was to produce better quality work — not the condoning of substandard craftsmanship. Further, the quality of the portion of the weld done by the foreman was superior to that done by the welder (Jackson, Tr. 8913). We do not agree with Palmetto Alliance (PFF 522) that the circumstances warrant escalation of the incident to the level of falsification of records and QA procedure violation.

19. Essentially all of the cases described above represent situations where the second-line QA supervisor (usually Baldwin) had to decide whether to let a condition remain "as is" or to have a nonconformance or similar report issued. In these cases the decision was to "accept as is." (Welding inspectors would not likely have voiced a concern in cases where the supervisor favored an NCI.)

20. In four cases (D-24, D-30, Q-1, and I-1) Baldwin relied upon the precise language of QA procedures to justify decisions not to issue NCIs. (See descriptions of concerns, above.) Except for Case D-30 (grinding on the inside of a 6-inch pipe) subsequent testing or technical evaluations confirmed the acceptable quality of the work.

21. It is evident that supervisor Baldwin was sometimes reluctant to approve the use of the NCI procedure. However, we find no clear evidence that this restricting of NCI use and the instructions to "sign off" were associated with deliberate condoning of substandard workmanship.

4. Resolution of NCIs by Permitting "Use as Is"

22. Welding inspectors submitted six written concerns to the Technical Task Force which we place in this category.

Concern C-4

23. On August 6, 1981, inspector Burr was able to inspect visually the inside of a weld after an adjacent section of the pipe was cut out. He saw what he believed to be a crater crack in the weld root and originated NCI No. 12,420. A Level III inspector approved the weld based on his visual inspection and reevaluation of radiographs (Palm. Ex. 86) (Burr, Tr. 5912-14). Although Burr questioned the resolution of the NCI by the Level III inspector (App. Ex. 29, Att. A), we find no reason to believe that the Q-1A procedure was abused or that a substandard weld was approved.

Concern D-27

24. Under circumstances similar to C-4, *supra*, inspector Bryant originated NCI No. 12,329 because he believed a weld root was defective. A Level III inspector, after looking at the weld and examining the radiographs, concluded that the weld met ASME standards. Bryant was dissatisfied with the resolution and maintained that QA Procedure L-80 was violated (Bryant, Tr. 6141). This Board commends Bryant's desire to assure that welds meet both visual and radiographic inspections, but we find no evidence that the NCI was improperly resolved. The record does not support Palmetto's assertion that, "supervision bowed to construction to override the results of one inspection tool in favor of accepting rejected work" (PFF 401).

Concern C-3

25. On the second shift of September 3, 1981, inspector Burr visually inspected the inside (root) of a weld on a Class-B pipe system that could then be seen because of rework nearby. Burr found some lack of fusion and documented the problem on NCI No. 12,682. The NCI was left for processing the next morning (Burr, Tr. 5851-56). The NCI was processed through Baldwin and Atkins of the QA Department, but the disposition of "acceptable as is" was made by two welding technical support representatives of the Construction Department (Palm. Ex. 85). Atkins of QA approved this resolution on September 18, 1981, the Q-1B tags were removed (by inspector Crisp), and the rework finished (Tr. 5858-59).

26. A few days later on the night shift, the ANI inspector and NRC inspector Van Doorn contacted Mr. Burr and had him show them the

questionable weld.¹⁴ Since the pipe was now reclosed, the defect on the inside was not visible but Burr marked the area of concern. The marked area was cut out and a repair made (Burr, Tr. 5850).

27. The Technical Task Force recognized that the overruling of the QA inspector's decision by Construction Technical Support was a violation of ANSI Standard N45.2.6 and 10 C.F.R. Part 50, Appendix B (App. PFF 103b). NRC issued Violation 50-413, 414/81-24-02 (Staff Ex. 7, at 45). This Board finds that Concern C-3 does constitute an occurrence of condoning substandard workmanship. Although this weld was soon repaired, the correction was made as a result of covert communications with the ANI and NRC inspectors and their follow-up action.

Concern D-19

28. On a final visual inspection Bryant found that a fillet had been added to the inside of a weld on a penetration to the Unit 2 reactor. The fillet had been added to correct insufficient penetration of the root pass and was not in agreement with design drawings (Bryant, Tr. 6125). He issued NCI No. 11,534 which apparently was overruled (Staff PFF 190). When the Technical Task Force investigated Concern D-19, they found the excess reinforcement to be a "potential violation" of procedures. A new NCI was issued to resolve the "potential inadequacy" (App. PFF 117b).

29. Although Applicants' procedures were apparently violated, the quality of the weld was not in question and we find no intent to condone substandard work.

Concern D-17

30. Inspector Bryant noted pitting in a pipe that was deep enough to violate the minimum wall thickness specified in Construction Procedure 107. He initiated NCI No. 11,309. At first, Bryant questioned the resolution of the NCI which was "use as is." Later he was satisfied with the explanation that, although manufacturing tolerances were not met, Duke's design engineering group had determined that the pitted pipe was strong enough for the system where it was installed. We find no irregularity here.

¹⁴The record does not show how the ANI and NRC inspectors became aware of this suspected defect. Burr, however, became sufficiently concerned that he might be blamed for the NRC involvement that he talked with Van Doorn about protection from retribution (Burr, Tr. 5868-69).

Concern D-15 (R-62)

31. In the course of a final visual inspection on a carbon steel pipe for a diesel generator, inspector Bryant found what he believed to be a fine crack on a root pass (Bryant, Tr. 6118). Foreman Ross concurred that there was a hairline crack running from the piping material through the root pass into a 90° elbow (Ross, Tr. 6738). Such a crack would be a violation of Duke Procedure L-80, and NCI No. 13,053 was originated for resolution.

32. The Level III inspector, accompanied by Design Engineering, saw only a gouge from handling on the pipe. Both Bryant and Ross disagreed with the interpretation that no crack existed. A liquid penetrant test was performed to resolve the NCI and this resulted in what the Applicants call "some light grinding to remove this defect" (App. PFF 107a). Ross testified that, "(w)hen the NDE was performed they had to chase it and get deeper and deeper and finally they scrapped the piece . . . because they couldn't get the indication out." Tr. 6738. The Technical Task Force supports the interpretation of the Level III inspector.

33. In view of Ross' observations that "there were some [handling] marks inside the pipe," and the crack was just a fine hairline (Tr. 6739), we believe that Bryant and the Level III inspector may have been looking at different things. In any event we see no evidence here of intent to approve faulty workmanship. The defect was reported on an NCI; a liquid penetrant test confirmed the defect, and the fault was repaired. Palmetto proposes that support of the Level III inspector by the Technical Task Force is a "transparent attempt to explain away a crack in a fashion that makes no logical sense . . ." (Palm. PFF 334). There is some justification for Palmetto's position. The evidence strongly suggests that a very fine crack was present. The Task Force's willing acceptance of the Level III inspector's contrary conclusion is difficult to understand.

34. Half of the cases discussed above where NCIs were resolved with "use as is" involved an investigation by the Level III inspector, John Cavendar. These follow-up investigations included either radiographic testing or liquid penetrant tests in addition to visual observations. In evaluating each of these concerns (C-4, D-27 and D-15), the Technical Task Force pointed out that a part of the NCI resolution process is to use the higher level expertise of the Level III inspector to decide the significance of questionable defect indications — "make the tough calls." We find this to be a reasonable procedure so long as the Level III inspector is properly qualified. Mr. Cavendar appeared later in the hearings as a member of panels concerned with the *in camera* witnesses. His resume is Attachment F to App. Ex. 95. There is

no evidence that Mr. Cavendar's decisions to "use as is" were biased by Construction or a proclivity to approve substandard workmanship.

35. Procedure violations were properly identified for Concerns D-19 (adding weld to the inside of a penetration) and D-17 (pitting in a pipe) but in each case investigations showed that the required quality was not compromised. Again we find no evidence that "use as is" characterizes the condoning of substandard workmanship.

36. Concern C-3, where ANI and NRC stepped in to assure repair of a deficient weld approved by representatives of the Construction Department, is disturbing. The record does not indicate that any other NCIs were resolved in this manner, however, and we conclude that C-3 is an isolated case. We find no pattern of action by Duke supervisors to approve substandard workmanship through a "use as is" resolution of NCIs.

5. Use of Material Without Proper Identification

37. Welding inspectors submitted nine written concerns to the Technical Task Force which we place in this category. One of them (Q-1) deals with a stainless steel plate installed on the floor of the Unit 2 decontamination pit and is described in ¶ 11, above. The other eight are described here, but three of them are also concerns about verbal voiding of NCIs, and are also discussed below in our section on documentation, ¶ 88.

Concern D-5

38. While making a final visual inspection of the cable tray support system in the Auxiliary Building, inspector Bryant found no material identification on angle iron. The design drawings specified A-36 materials to be used (Bryant, Tr. 6100). Bryant believed that this lack of identification constituted a violation of QA Procedure H-5, and Construction Procedure CP-23 (Bryant, Tr. 6103). He filled out a Q-1A form (NCI) for resolution of the problem, but discussed the matter with Sr. QA Engineer L.R. Davison before obtaining a serial number. Without investigating the type of material used, Davison ruled that craft should be allowed to mark the identification number of the material and that there was no need for an NCI (Bryant, Tr. 6102). Later, Davison explained that his decision was based upon A-36 being the lowest grade material on site (Bryant, Tr. 6105-06).

39. We find that the inspector was conscientious in his work. The Sr. QA Engineer, however, was rather cavalier in his decision to have

craft mark the material without positive identification. Since A-36 grade is said to be the lowest on site, there is no evidence of condoning the use of inferior material. We deal with verbal voiding of the NCI in the next section.

Concern J-1 (R-28)

40. In September 1980, inspector Harris found different material identification numbers at the ends of a 1-inch stainless steel pipe (App. Ex. 56, Att. 1). One of the numbers matched that of the released piping material log (Godfrey, Tr. 8257); the other did not. This pipe was of Class B quality but in this case was installed in a Class E (nonsafety-related) system. Harris initiated NCI No. 9085 (Palm. Ex. 113) to resolve the question of two different heat numbers. The resolution was "accept as is."

41. Inspector Vernon Godfrey was told to remove the NCI tags from the pipe and thus clear NCI No. 9085. When removing the tags, Godfrey found yet a third heat number and he called this to the attention of foreman Ross and supervisor Davison. Davison told Godfrey to remove the Q-1B tags and that NCI resolutions were not Godfrey's responsibility. (App. Ex. 56, Att. 1.)

42. Godfrey believed that having invalid heat numbers on the pipe constituted a violation of Procedure H-4. The Technical Task Force evaluation in March of 1982 states that Class E piping does not require heat number identification and, thus, NCI No. 9085 is invalid.

43. Godfrey elaborated on the J-1 concern in his prefiled testimony. (App. Ex. 56, at 5.) He postulated that some of the mis-marked pipe in the Class E system might be cut out and later reused in a Class B system. Should it fail while in Class B service, the erroneous heat number would make accident evaluation difficult.

44. This Board finds nothing in this convoluted concern to indicate that any substandard material was involved or that needed traceability had been lost. Rather, this concern comes about because material and procedures designed for very high quality systems were used for a nonsafety-related system. Further, we are persuaded that the possibility of reusing mismarked pipe is too remote to be of concern. (App. Ex. 14, at 10.)

45. Palmetto harps on Davison's quick dismissal of Godfrey's concern about the third heat number. (Palm. PFFs 471 and 473.) Since heat numbers were not required on Class E piping and since the basic question of conflicting numbers on this piece of pipe had already been

through the NCI process, we see no reason why Davison needed to recycle the NCI.

Concern E-1

46. On February 12, 1980, Mr. Boyce Cauthen was inspecting a fit and found a piece of ¾-inch pipe with a heat number which was not listed in the Released Piping Material Log. (Cauthen, Tr. 6417; App. Ex. 33.) Cauthen told the fitter that he was going to NCI the pipe. While Cauthen was initiating the NCI, foreman Ed McKenzie had the nonconforming pipe cut out and the fit remade. Cauthen "wanted to NCI Mr. McKenzie for doing away with my bad fit" (TTF E-1). NCI No. 7696 shows that the offending heat number was 455633 while the correct number was 455663. Both numbers appeared on a longer piece of pipe from which the fitted pipe was cut. Neither marking was stamped at the factory. Resolution of the NCI was to scrap both the larger piece and the removed piece of pipe (App. Ex. 33).

47. The Technical Task Force evaluation finds that the inspector did not need to originate an NCI. Rather, he could have rejected the "hold point" under Procedure M-4 or he could have used QA Procedure R-2. Cauthen acknowledges that the M-4 hold point or R-2 could have been used but states "at the time this happened we were instructed to nonconform it" (Tr. 6571).

48. Palmetto views the conduct of McKenzie and his crew as "obstructing the enforcement of Quality Assurance procedures at Catawba," and berates the Technical Task Force for its failure to address "this misconduct by craft supervision" (PFF 482). Palmetto's position is overly harsh. We view McKenzie's actions as expedient and in violation of the intent of Duke's Q-1 procedure. There is no evidence, however, of corner-cutting on the quality of work.

Concern J-2 (R-27)

49. In August of 1980, inspector Godfrey noted that a pipe fitting had the identification numbers: SA105 and A105. Such numbers are stenciled on the pipe by the manufacturer (Godfrey, Tr. 8234). Godfrey did not know that these numbers are interchangeable and initiated NCI No. 9358. Davison, as Senior Engineer, voided the NCI because he knew that there was no conflict between the two numbers.

50. There is no evidence here of any procedural violations or any attempt to use improperly identified materials.

Concern J-3

51. When making a fit-up inspection, Mr. Godfrey found no NDE piece mark on a reducer. The Released Piping Material Log (RPML) showed such a number, and failure to verify it on the material is a violation of QA Procedures M-4 and H-4 (TTF J-3). Godfrey initiated NCI No. 10,187 and the resolution was to use "as is." The Technical Task Force observed that an NDE piece mark is only required where there is a need for tracing to NDE records, specifically radiographs. This case did not require such traceability and placing the number on the RPML created unnecessary confusion.

52. This concern was not subjected to cross-examination, but its evaluation by the Technical Task Force does not indicate a procedural breakdown that might compromise construction quality. Rather, the problem arose from the application of stringent material traceability procedures in a case where they were not needed.

Concern Q-1

53. This concern involves a plate installed on the floor of the decontamination pit with the identifying markings on the underside. It is described in ¶¶ 11-12, above, in relation to acceptance without an NCI. We find it questionable whether Duke's Procedure H-5 had been violated since the size, shape and material of the plate assures that it is the piece intended for the specific place where it was installed. We find no evidence of substandard workmanship here, other than failure to transfer the identification number to the exposed side of the plate.

Concern Q-2

54. On February 26, 1981, inspector Rockholt observed craft cutting steel angle without first transferring the material identification, A-36, to the pieces being cut. Rockholt viewed this as a clear violation of CP-23 and QA Procedure H-5. An NCI was written but verbally voided by supervisor Baldwin because material identification is not required on nonsafety-related applications (App. Ex. 31, Att. A). The Technical Task Force scored this case as only a *potential* violation because "no actual unacceptable installation resulted" (TTF Q-2).

55. One purpose of the material identification procedures is to assure that inferior material is not inadvertently installed in safety-related systems which require high-quality materials. We note in Concern D-5 (¶ 38, above) that A-36 angle without proper marking was used in cable tray supports and that A-36 is the lowest grade material on

site. The record does not show where the angle iron of Concern Q-2 was actually installed (Rockholt, Tr. 6341). Consequently we find that there was an actual procedural breakdown in this case which was exacerbated by the verbal voiding of the NCI.

Concern Q-3

56. On February 25, 1981, inspector Rockholt observed craft cutting Class B pipe without transferring traceability information. As in Concern Q-2, above, Rockholt believed this violated Procedures CP-96 and H-4 (App. Ex. 31, Att. A) and initiated an NCI. The NCI was rejected by foreman William Deaton (possibly on instructions from supervisor Baldwin) (Rockholt, Tr. 6338). The Technical Task Force did not consider this a procedural violation because the high-grade (Class B) pipe was to be used in a nonsafety-related (Class G) application. Rockholt thought the procedure may have been changed after he wrote the NCI. The change would have eliminated the need for transferring markings if the intended use is nonsafety-related (Rockholt, Tr. 6337).

57. Whether or not material traceability procedures were violated in this case hinges upon when the instruction was issued to take *use* of the pipe into account. The record is not clear on this point. Here, we are less concerned with the potential for misuse of inferior material since the high-grade Class B pipe "would probably be suitable anywhere it was used" (Rockholt, Tr. 6337-38).

58. Intervenors did not cross-examine Mr. Rockholt about Concerns Q-2 and Q-3, but the Staff did. In its proposed findings of fact, Palmetto is critical of both the verbal voiding of the NCIs and of the Technical Task Force resolutions of these concerns which fault the inspector for applying QA procedures where the nonsafety use of the material did not require them (Palm. PFFs 439 and 446). Palmetto's position has merit. There was no question in the inspector's mind about the applicability of the procedures (Rockholt, Tr. 6337), and the Task Force's implied criticism of the inspector is misplaced.

Concern E-5 (R-5)

59. Inspector Cauthen's concerns included the control of welding rods. Duke's Procedure H-3 requires verification of filler material traceability prior to acceptance of the weld and that welders have control of their consumables (App. PFF 111a). Cauthen had a general concern about welders not maintaining close control of their filler material and the casual discarding of only partially consumed rods. He cites some

specific examples (TTF E-5). Rather than initiate NCIs on discarded filler material, inspectors were told to "put a red tag on it . . . and turn it in to the QA office" (Cauthen, Tr. 6458). Follow-up, if any, on the "red-tagged" rods is not clear. Other concerns about uncontrolled welding rods include the Reep-Jones harassment incident (described at pp. 1521-22, below) and a 1979 incident where a utility foreman refused to give rods to inspector Childers (TTF R-5).

60. The Technical Task Force scores both the Cauthen and Childers incidents as actual violations of Procedure H-3 and makes firm recommendations for improved control of filler material. Palmetto impugns Duke's lack of documentation and corrective action (Palm. PFF 459). This Board agrees with the Technical Task Force that craft needs to tighten up on the control of welding rods. This may have already happened since Cauthen stated that he had not found any filler material lately (Tr. 6463).

61. The only evidence that points to the use of the wrong filler material by welders was in response to a Board question. A welder may have both carbon and stainless filler material in his possession at the same time and inadvertently pull out the wrong kind (Reep, Tr. 8698). Preventing this possibility is at least as important as the control of discarded rods. Applicants are directed to upgrade their procedures accordingly.

62. In none of the concerns about material identification and traceability that we heard is there evidence that inferior material might have been installed. We do find, however, that both QA supervision and the Technical Task Force were inclined to downplay the importance of procedures designed to assure traceability. For the most part, the inspectors' concerns about lack of support in this area appear justified.

6. Additional Concerns About Weld Quality

63. We direct our attention here to the response of Duke management when faulty workmanship was clearly evident. The half dozen cases that we discuss in this section represent but a tiny fraction of the many thousands of cases in which welding inspectors have rejected work at a hold point or originated an NCI or other form which documents a problem. The cases reviewed here are only those which the inspectors viewed as sufficiently troublesome to warrant expressing as a concern to the Technical Task Force or in their testimony to this Board. Further, we consider only those concerns which the Intervenor or Staff included in their proposed findings of fact.

Concern D-3

64. Inspector Bryant found a weld on structural steel of the cable tray system in the auxiliary building that had been made with paint and foreign contaminants in the weld zone and rejectable defects on the root side (Bryant, Tr. 6095). Bryant decided the situation could not be corrected easily in the field, so he wrote an NCI which was approved by foreman Ross. Supervisor Davison, a Level III inspector at the time, concluded that since the design drawing called for only a partial penetration weld and since the weld exceeded design specifications, no inspection of the root area was required. The NCI was voided by Davison without a serial number or filing (Bryant, Tr. 6096).

65. Bryant believes there was a violation of QA PL-80 (visual inspection) (Bryant, Tr. 6098). The Technical Task Force and the Staff agreed with Davison's evaluation and saw no violation of procedures — except for verbal voiding of the NCI (TTF D-3, Staff PFF 162). Palmetto is disturbed that the Technical Task Force did not address the "paint and foreign contaminant" aspect and only "alluded" to the problem of verbal voiding.

66. Applicants' position is based on the judgment of Level III inspectors (originally Davison and later Van Malssen for the Technical Task Force) that the weld was in excess of design requirements and therefore defects in the root were of no consequence. There is no evidence in the record, however, to indicate that either Davison or Van Malssen ever looked at the weld. They decided the weld was acceptable based on what Bryant described as a rejectable condition. In this instance we find Duke management's attitude toward potential faulty workmanship illaudable. The Task Force did recognize the problem of verbal voiding of the NCI and we deal with that in the following section. .

Concern D-9 (R-25)

67. On August 20, 1980, inspector Bryant made random inspections of safety-related piping in the "exterior doghouse." Bryant required one welder to remove some minor defects and while he waited for this repair he watched a second welder working on another joint. The second welder was "not cleaning his weld of slag before putting the next pass on" (Bryant, Tr. 6112). Bryant considered welding over the uncleaned slag a violation of Procedure L-300 and wrote NCI No. 9264. The resolution of this NCI did not satisfy Bryant or his foreman, Ross. "It didn't really address the fact that they had welded over [the slag]" (Ross, Tr. 6724). A second NCI (No. 9266) was then written by Bryant which also

identified a problem of "weaving too wide." This brought supervisor Davison to the job site.

68. Davison inspected the weld and, in front of craft, questioned the source of the slag and the need for originating an NCI in view of the "insignificance" of the amount of slag (Bryant, Tr. 6114). (The Board notes that at this time Davison was a Level III inspector at Catawba but no mention is made that he was acting in that capacity on this occasion.) Bryant and Ross resented the questioning of Bryant's judgment in front of craft (Bryant, Tr. 6116). Ross also commented that, "[t]hey were all kind of snickering a little bit [at Davison] because they knew slag don't move" (Tr. 6724).

69. Resolution of the second NCI was to grind back the width of the weaving and to rework the weld (Bryant, Tr. 6115). The Technical Task Force agreed that there was a violation of L-300 but pointed out that an unacceptable amount of slag would ultimately have shown on radiographic testing and been rejected. Excessive weave width was not a technical inadequacy because this weld was not subject to impact testing.

70. The inspector's concern focused on recognition and acceptance by management (Davison) that Procedure L-300 had been violated. Applicants focus on the ultimate acceptability of the weld (App. PFF 102f). The Staff only mentions the comment by the Technical Task Force about the inspector's ability (Staff PFF 220). Palmetto avows that this incident reflects Davison's disrespect for his inspectors and deferral to the cost and scheduling interests of Construction (Palm. PFF 325). There is nothing in the record to support any relationship to cost and scheduling considerations.

71. This Board finds that Davison, as a Level III inspector, was qualified to make the judgment that the slag and wide weaving were insignificant problems. Nevertheless, his attitude toward faulty workmanship was, in this case, not conducive to the production of high-quality welds.

Concern D-31

72. This concern was not subject to any cross-examination, but the Technical Task Force found an actual violation of Procedure Q-1. The Staff's finding (PFF 161) reads as follows: "In this case, the inspector, Mr. Bryant, another inspector and his supervisor detected a bad 'root pass,' but Mr. Baldwin found it to be adequate and invalidated the NCI. The weld was corrected and the repair documented, although the record is not clear exactly how this came about."

73. The Staff cites Concern D-31 as an example of verbal voiding of NCIs (PFF 159), but the voiding is apparently documented on NCI No. 13,028 (not introduced as an exhibit). The evidence is not sufficient for us to make a finding relative to Duke management's attitude toward the bad root pass, other than to note that it was repaired.

Concern D-20 (R-44)

74. In May of 1981, inspector Bryant was called to inspect a weld which attached an iron clip to a structural beam. The welder had not adhered to the design drawing and had welded a part of the clip to the flange of the beam. Welding across the flange of a beam is not permitted by Construction Procedure CP-22 unless Design provides special authorization (Bryant, Tr. 6128). Since no special authorization had been provided in this case, Construction initiated a Problem Resolution Form CP-22A No. 6 (TTF D-20 Attachment) which documents that the weld was ground out and the flange repaired.

75. Although the CP-22A states that, "[p]er Design Engineering conversation, weld repair is acceptable . . .," foreman Ross was dissatisfied because no signature of a responsible individual in Design was required (Ross, Tr. 6968). Ross believed that Form R-3A, normally used when Design approval is needed, would have been the proper form. Form R-3A is also used for deviations from design drawings rather than a Q-1A (NCI) (Ross, Tr. 6731).

76. The Technical Task Force found that this situation was handled properly (TTF D-20, R-44). Bryant and Ross believed there was a violation of CP-22 when the weld was first made and that the Task Force should have acknowledged this (Bryant, Tr. 6129 and Ross, Tr. 6968). They were satisfied with the repair, but disagreed that an authorizing signature by Design was not needed (Ross, Tr. 6969). The Staff cites this concern only in reference to the disagreement between Bryant and the Technical Task Force (PFFs 218, 219).

77. Intervenors interpret this event as indicative of Duke's "disrespect for the separation of design from construction functions, and second, the common disrespect for the performance of the quality control inspection effort." PFF 362. We find no basis at all for such an interpretation. Although the least burdensome correction form (CP-22A) was selected for use, Construction sought the verbal guidance of Design before implementing the repair. Further, neither Bryant nor Ross alludes to any disrespect for the quality control effort. Their concerns in this case were confined to the Technical Task Force scoring of criteria violated as "none" and the verbal vs. written approval of Design.

78. We find nothing wrong with Duke's attitude and actions in this case. QA inspectors were called in at appropriate times and were satisfied with what was done and the final condition. Design was consulted about removal of the weld and repair of the beam using established procedures. Use of Form CP-22A, which does not require a signature from Design, accomplished the same result as would have happened if an R-3A or NCI had been initiated.

Concern E-3

79. While in the lower part of the reactor building, inspector Cauthen noticed a grinder in a 4-inch stainless steel pipe which had been fitted with tack welds (Cauthen, Tr. 6441-44). This was a Class E or F (nonsafety-related) system which did not require a fit-up inspection (Cauthen, Tr. 6443). The welding had been done without a purge and the inside did not look good, so Cauthen instructed the welder to "cut it out and refit it and call me back." (Cauthen, Tr. 6441.)

80. Cauthen believed this was a violation of L-200 (Tr. 6444) but did not initiate an NCI because it was craft foreman Ed McKenzie's crew and "they would have cut them out before I got back with an NCI anyway." (App. Ex. 32, Att. A-3.) The Technical Task Force observed that purging to prevent oxide formation is only required if the inside of the pipe is not accessible. If accessible, as here, the oxide can be ground away. Thus, an NCI would not have been appropriate. No technical inadequacy exists since the fit was removed and rewelded (TTF E-3).

81. In this case there was no specific contact with QA or craft management. There was, however, Cauthen's belief that Ed McKenzie's crew would correct the faulty work before he could obtain a red tag for it. Cauthen denied any aspect of game playing with McKenzie's crew (Tr. 6553). In response to a Board question on his relationship to welding crews other than McKenzie's, Cauthen replied, "[i]f I had problems with them, I'd go to the foreman, and it wouldn't take him but a minute and he would be down on that fitter. If I had problems, he would straighten it out" (Tr. 6554).

82. Palmetto thinks McKenzie and his crew intentionally circumvented quality assurance procedures for documentation of nonconforming conditions (PFF 492). Concern E-3 shows no such attitude. Cauthen made no effort to write an NCI and the Technical Task Force found that one would not have been appropriate. Rather, Cauthen asked craft to cut out the fit and remake it. This was done although the Technical Task Force later found that such action was not necessary under the

circumstances. We find no evidence here that Duke management's attitude and actions were inappropriate. Further, Cauthen's comments about craft foremen other than McKenzie indicate a very positive attitude toward correcting faulty work.

83. In his prefiled testimony, inspector Cauthen identified four incidents which gave rise to his concerns about welds in the plant (App. Ex. 32, at 4). Two of these (welds receiving only final visual checks and his discovery of some defects on M-4I inspections) are discussed at p. 1512, below. The other two involve welder qualifications and are discussed here.

84. Cauthen learned that a particular welder had made a large number of bad welds on a Class C system in the Auxiliary Building. He assumed the defects were caused by bad root passes and were found by random radiographic testing since they would have otherwise been caught immediately by the "adequate" visual inspections (Cauthen, Tr. 6530-31, 6544). The welder was fired for doing the bad work and the welds were repaired.

85. We find nothing awry with Duke's handling of this matter. The bad welds were apparently found by a redundant inspection system, the welder was fired and the welds were repaired.

86. Cauthen observed another welder "having a lot of trouble on his root passes" and questioned that he was qualified for a stainless steel certificate (App. Ex. 32, at 4). Cauthen "stayed right with him" and two co-welders helped him do the weld correctly (Cauthen, Tr. 6532). Cauthen doubted that the welder's supervisor was aware of the problem and was uncertain whether he had told QA supervision about it. Cauthen advised the welder to practice (*id.*).

87. This concern is of little relevance to this case. Perhaps the welder should not have been certified, but we cannot make such a finding on Mr. Cauthen's opinion alone. Neither can we speculate about what Duke might have done if the inspector had reported his concern to management.

7. *Did Duke Management Discourage the Detection and Documentation of Substandard Workmanship?*

88. Our consideration of whether Duke deliberately avoided recognition of substandard welding focuses particularly on the verbal voiding of NCIs. This practice was probed extensively in cross-examination and there is substantial evidence about the circumstances for some cases. Palmetto would have us conclude that, "the practice of 'verbal voiding' of NCIs is simply the clearest example of a pervasive circumvention by

quality assurance management of the critical documentation requirements reflected in the specific provisions of Duke's own quality assurance program . . ." (Palm. PFF 57). Before turning to the evidence underlying our contrary finding, we discuss the purpose of the Q-1 procedure and how it was used at Catawba.

89. As we describe above in ¶¶ I.B.7-I.B.10, Duke has several QA procedures that are intended to assure compliance with 10 C.F.R. Part 50, Appendix B. These include:

- Hold Points — The inspector must be satisfied with a craftsman's work before he signs off.
- Process Control — The inspection report itself provides the means to document a repair.
- Deficiency Report Form — R-2A is used to document minor discrepancies where technical personnel in Construction prescribe the corrective action but QA must approve the corrected work.
- Nonconforming Item Report — Q-1A or NCI is used when the discrepancy is more significant and not readily handled by one of the above methods.

(Grier, App. Ex. 2, at 18-20; Davison, App. Ex. 14, at 23.)

The Q-1 procedure is to be used when a discrepancy:

- (i) requires design evaluation,
- (ii) represents a manufacturing deficiency,
- (iii) requires extensive rework,
- (iv) represents a bypass of the inspection hold point, or
- (v) is discovered during other than a preplanned activity.

Id. During construction, thousands of variation notices and other process control forms have been issued, more than 17,000 R-2As have been written, and more than 17,000 NCIs have been initiated (Van Doorn, Tr. 9777-79).

90. Palmetto asserts that Q-1 is "[t]he primary quality assurance procedure used by quality control inspectors at the Catawba facility in the performance of their inspection duties . . ." and that "the Q-1 procedure is the primary 'measure' and 'procedure' established for use at

Catawba and employed in practice to meet [10 C.F.R. Part 50, Appendix B, QA Criterion XV]" (PFF 43). Applicants disagree, pointing to the eight volumes of QA procedures in evidence and the other methods of resolving nonconformances described above (App. Reply to Intervenor and Staff PFF at 50-51). We concur with Applicants.

91. We adopt the Staff's explanation of "verbal voiding" which is to "turn back the partially completed form with an oral explanation, rather than a written one, and not placing the Q-1A form in the QA vault" (PFF 148).

92. "In verbal voiding, the real issue is documentation, rather than whether the discrepancy involved is a valid one or not. Since under Duke's Procedure Q-1, a Q-1A or NCI cannot be disposed of once it is serialized, the legitimacy of verbal voiding hinges upon whether the NCI was serialized, or whether improper efforts were made to prevent serialization of NCIs" (Staff PFF 149). Thus, there are two questions about verbal voiding for us to resolve: (i) is it a violation of the Q-1 Procedure? and (ii) has it been used deliberately to circumvent a documentation requirement?

93. The cardinal point relative to the Q-1 procedure is whether or not it was proper for unserialized NCIs to be ruled invalid and not forwarded to technically responsible reviewers for resolution or for preservation in the "vault." Palmetto introduced the Q-1 procedure and its successive revisions into the record as Exhibit 59. We note several changes in this procedure during the construction period of Catawba.

94. In 1975, when construction began, Revision 11 was in place. It states (section 4.1) that a "person discovering a nonconforming item . . . shall initiate Form Q-1A . . . , obtain a serial number and have the Q-1A entered on the Status Log Sheet The report shall then be reviewed for completeness and correctness by the responsible Senior Engineer . . . who shall sign the report, mark initial distribution, and submit it to the Project Quality Assurance Staff for assignment of resolution responsibility" (Palm. Ex. 59). This revision makes no mention of reviewing NCIs to determine their validity.

95. Revision 12, issued in June of 1978, contained substantial changes, including a much-revised Form Q-1A. "Specific Instructions" for completing each space on the form were given in section 5. Instruction 5.1 states that the person discovering the nonconforming item shall complete spaces 1 through 11. No mention is made of obtaining a serial number.

The instruction for Space 15 reads:

The Senior QA Engineer shall review the information recorded for clarity, completeness, and proper content and shall sign and date to indicate his acceptance.

If a report is determined to be nonvalid, it shall be filed and no further action taken. He shall forward each valid report to a Document Controller.

The instruction for Space 16 reads:

A sequential serial number assigned by Document Control shall be recorded on Form Q-1A

We find it clear that Revision 12 (1978) provided for the Senior QA Engineer to determine whether an NCI was valid or not and to "file" it if he found it invalid. Only valid NCIs were to be forwarded to the Document Controller and the serial number was assigned by Document Control *after* they were received from the Senior QA Engineer.

96. Revision 13, issued in May 1980, did not change the instructions relating to numbering or validity. However, Revision 14, issued in January of 1981, added a sentence to the first instruction in section 5.1 which read:

The serial number, block 16, may be completed at this time.

The Revision 12 language for blocks 15 and 16 was not changed.

97. Revision 15, issued in April of 1981, made minor modifications to the Q-1A form, including deletion of the numbers on the blocks (e.g., "16" for the Serial No. space). Related adjustments in the text resulted in Instruction 5.1.1b reading: "*Serial No.* — This block may be completed at this time." A significant revision was made in the initial review of the NCIs. The prior instruction for the Senior QA Engineer at Space 15 was now assigned to the Project QA Engineer under Instruction 5.1.4. Sequential serial numbering by Document Control was retained under Instruction 5.1.5. Significantly, Instruction 5.1.2 was added ahead of these steps and reads:

The Senior Engineer shall complete the following steps:

* * *

6. Review the information recorded for clarity, completeness, and validity, have needed corrections or additions made by the originator; and sign and date for "Technical Review." If a report is determined to be nonvalid, this shall be explained in the description of item space The report shall be forwarded to the Project QA Engineer for review.

Revision 16 (January 1982) and 17 (June 1982) did not significantly alter the parts we focus on. In section 5.1.2 the words "appropriate individual" replaced "Senior Engineer."

98. Revision 18, issued on March 11, 1983, reflected recommendations of the Technical Task Force. Specific Instruction 5.1.6 clearly states that, “[t]he originator shall obtain a sequential serial number . . .” and there is no longer mention of the Project QA Engineer forwarding valid reports to Document Control for assignment of a number. Instruction 5.1.7c states that:

If a report is determined unnecessary the reason shall be explained on the report and a copy provided to the originator [by an individual designated by the Project QA Manager] . . . The report shall be filed and no further action under this procedure is needed.

99. How this portion of the Q-1 procedure was followed at Catawba is described by the Staff (PFF 151, 152) and we adopt parts of its findings with modifications. L.R. Davison was QC Senior Engineer from 1974 until February 1981, and was responsible for the initial determination of the validity of NCIs initiated by the QC group. The vast majority of these had serial numbers when he received them for review. (Davison, App. Ex. 14, at 26-28; Davison, Tr. 4830.) If a serial number had been assigned and he determined the NCI to be nonvalid, he would either explain on the form why it was not valid or sign it and send it on to QA with a note to assign it to him for resolution because he knew what the resolution should be (Davison, Tr. 4955). If the Q-1A form did not have a serial number and Davison determined that the matter was not appropriate for an NCI, “then that piece of paper was not kept.” (*Id.*) When Davison left the site in February 1981, for a job at corporate headquarters, C.R. Baldwin took over the technical review function and handled NCIs in like manner (Baldwin, Tr. 4458-59).

100. On April 27, 1981, supervisor Baldwin instructed the QC inspectors to avoid Q-1As as much as possible and not to get a serial number before he reviewed the NCI (Ross, Tr. 6745). Foreman Ross, who kept notes on events that concerned him and his crew, testified that most of the verbal voiding occurred in a short period of time following Baldwin’s instruction. The practice ceased when Revision 18 to the Q-1 procedure was implemented (Tr. 6984).

101. We find that Baldwin’s instruction to “see me” before serializing an NCI foreclosed the originator’s option stated in the Q-1 procedure that he “may” get the number. We address the significance of this foreclosure below. After Revision 15 was issued in April 1981, a more apparent violation of the Q-1 procedure occurred when proposed NCIs were discarded by Baldwin rather than being forwarded to the project QA engineer for review and filing. Applicants sidestep this feature in their Reply to Proposed Findings of Fact . . . of Intervenor (at 55). We

turn now to the question of whether the verbal voiding was used with an intent of circumventing documentation requirements.

102. Baldwin's instruction of April 27, 1981 follows close on the heels of NRC Inspection Report 81-02 transmitted to Duke on April 10, 1981 (Staff Ex. 7, Att. 25). An NRC inspection team had noted the large number of NCIs then being written (nearly 300 per month) and stated:

The subjects covered by these NCIs ranged from relatively minor documentation problems through major problems with safety-related hardware. This large volume of all types of problems being handled in the same manner was pointed out to licensee management as a possible contributor to the reason why generic items and/or trends were apparently going unnoticed.

(*Id.* at 21; Tr. 9848.) We find Baldwin's instruction of April 27, 1981 to be one of Duke's reactions to this inspection report.

103. If verbal voiding was used intentionally to reduce the volume of NCIs then being generated, then the percentage of NCIs originated which were discarded by verbal voiding would need to be substantial. This Board extensively probed whether there had been such a relationship. Mr. Davison, as the QC senior engineer from 1974 until February 1981, was the individual in a position to accomplish most of the verbal voiding (Staff PFF 151). Davison estimated that during this time he verbally voided no more than twenty NCIs a year (Tr. 4956). This would be on the order of 1% of those originated. Individual inspectors confirmed that verbal voiding was not widespread. Rockholt estimated thirty to thirty-five of his NCIs were voided over a six-year period. "A drop in the bucket" (Tr. 6365-66). Bryant estimated 5 out of 200 in a six-year period (Tr. 6162). Several inspectors said they had not had any NCIs verbally voided. Cauthen (Tr. 6560-61), Jackson (Tr. 8916), Burr (Tr. 5894), Crisp (Tr. 8402), Deaton (Tr. 5823).

104. Palmetto proposes that we find the record inadequate to know how extensive the voiding of NCIs was beyond the welding field (PFF 60). Mr. McAfee is cited as an example of a person in the electrical discipline who was discouraged from documenting deficiencies on NCIs (*id.* and PFF 73). We make no such finding. Davison's estimate of twenty verbally voided NCIs a year included all disciplines — not just welding (Davison, Tr. 4963). That estimate is consistent with the testimony of the welding inspectors we heard.

105. We find that verbal voiding was infrequent and experienced by only a few inspectors. So few NCIs were handled in this manner in relation to the number originated that it could not have served to conceal

faulty workmanship or significantly diminish the number of nonconformances that were documented.

106. We heard testimony about nine concerns of the welding inspectors that involved verbal voiding. Seven of these were submitted by Bryant and two by Rockholt.

Concern D-3

107. This concern of inspector Bryant is described in ¶ 64 above. Davison verbally voided the NCI concerned with foreign material in the weld zone and defects on the root side because he concluded that the weld exceeded design specifications. The Technical Task Force supported Davison's decision that the NCI was invalid, but criticized his discarding the NCI instead of seeing that it was properly filed (TTF D-3). Palmetto is critical of the Technical Task Force for not investigating the full extent of Davison's verbal voiding (PFF 289). This Board concurs that a questionable weld of this type should have been documented. We also agree with Palmetto that the Technical Task Force should have looked into Davison's verbal voiding practices. In any event, the Board and parties have done so.

Concern D-5

108. This concern of inspector Bryant is described in ¶ 38, above. It involves angle iron with no material identification. Davison decided to let craft mark the material rather than processing the NCI. We see this case as an example of situations that could well have been resolved short of the Q-1 procedure. Once initiated, the NCI should have been properly filed.

Concern D-7

109. Inspector Bryant found that a process control form (M-49A) had identification numbers for two welders, but the welders had not put their stencils on the welds. Bryant recognized that this violated procedures that called for welders to identify their welds. Before writing an NCI, Bryant conferred with supervisor Baldwin, who contacted QA Technical Support. A decision was made to either strike the welder identification on the M-49A, or to have the welders put their stencil numbers on the work (TTF D-7). No NCI was to be written. Bryant was dissatisfied with the solution because he thought positive identification of the

welders could not be made and procedure violations had occurred that should be documented with an NCI (Bryant, Tr. 6109-10). The Technical Task Force thought the situation could have been handled by Bryant simply contacting the craft foreman or using Procedure R-2. Palmetto asserts that "[t]his incident reflects significant failures of implementation of the Quality Assurance Program at Catawba." There is nothing in the record to support such an assertion.

110. In the D-7 case, Bryant was thwarted from writing an NCI but the resolution was still made by QA technical support. The missing part is documentation, but in view of the type of nonconformance, we find no evidence of intent to avoid documentation.

Concern D-12 (R-29)

111. On September 5, 1980, supervisor Baldwin verbally voided an NCI written by inspector Bryant about the absence of a welder's stencil mark on a temporary weld. There was no cross-examination about this concern and Intervenors do not offer a proposed finding about it. The Technical Task Force supported Baldwin's decision that the NCI was invalid because Procedure M-4 specifies only that a welder initial the M-4J form for temporary welds. They were, however, critical of Baldwin's discarding the NCI and specifically recommended a requirement that NCIs be assigned a number before submission for technical review (TTF D-12, R-29).

112. The Staff's finding was that the temporary weld did not require a stencil mark (PFF 162). We find the Task Force evaluation and the Applicants' version (PFF 120a) obtuse. Bryant points to Procedure I-1 which requires a welder to identify his welds. Albeit, this is another case which scarcely warranted use of the Q-1 procedure. We note that this incident occurred some six months before NRC advised Duke about the overuse of NCIs.

Concern D-18

113. On April 2, 1981, inspector Bryant made a final visual inspection on small valves being attached to sockets with fillet welds. The process control form (M-4A) called for a 0.205 fillet but, because of the size and shape of the valve, only a 0.171 fillet could be attained. Bryant wrote an NCI but Baldwin discarded it and directed Bryant to let technical support correct the problem (Bryant, Tr. 6123). The Staff simply notes that a valid but correctable weld size problem was identified (PFF

162). The Technical Task Force recognized an actual violation of Procedure M-4A, supported Baldwin's decision to refer the problem to technical support, and emphasized the need for technical support to research possible associated deficiencies and document their findings. The Task Force classified this incident as a "potential" technical inadequacy and recommended follow-up to assure the welds in question are properly sized (TTF D-18). Palmetto condemns the verbal voiding, assumes there was a judgment to accept the smaller-sized weld, and, without explanation, finds the observations of the Task Force "incredible." (PFF 347 [sic], at 193.)

114. We find nothing in the record as to whether Bryant ever referred this discrepancy to technical support, or what their decision was if he did. The Staff should verify that Duke followed through on the recommendations of their Technical Task Force that the welds were investigated to assure their size is proper. In contrast to Palmetto, we find the observations of the Task Force quite credible, but this is clearly a situation where an NCI was justified and the verbal voiding was especially improper. We note that it occurred very soon after the NRC team inspection and exit interview (Staff Ex. 7, Att. 25).

Concern D-23 (R-50)

115. On June 18, 1981, inspector Bryant observed that a weld on a steam generator blowdown tank was welded downhill. On Duke projects only uphill welding is specified and welders receive qualification only for the uphill direction. Thus, downhill welding is prohibited (TTF D-23). Bryant wanted to issue an NCI, but the craft foreman told him that supervisor Baldwin had approved craft repair of the weld rather than an NCI. Ross contacted Baldwin and confirmed that this was Baldwin's decision. Bryant testified that Baldwin "allowed the craft to overweld over top of previous weld" (Tr. 6135), but Ross was not positive this had happened because welding over top is not proper (Tr. 6735).

116. The Technical Task Force classified this incident as a potential violation of Procedures L-200 and L-300, and observed that downhill welding is prohibited on Duke projects. They also stated that "[t]he practice of not initiating proper notification (Q-1, R-2) of an obvious violation of the welding program is not acceptable" (TTF D-23, R-50). Their recommendations included: "Assure welds in question have passed the required inspections." After the Task Force review, Ross was assigned to investigate the final weld. It was welded uphill, but Ross could not determine whether it was a new weld or welded over the original (Ross, Tr. 6736-37). The NRC Senior Resident Inspector, Mr. Van

Doorn, investigated the inspector's concerns after the Technical Task Force finished. Van Doorn classified the downhill welding as a code violation (Staff Ex. 7, at 42).¹⁵ The Staff explains that the nonconformance was not the weld but the qualifications of the welder, and accepting the weld without documenting the problem was clearly inadequate corrective action (PFF 175). In response to questioning by Mr. Richard Wilson of the State of South Carolina, Ross testified that properly applied, a downhill weld should be as strong as an uphill weld (Tr. 6976-77).

117. Palmetto terms this incidence of verbal voiding "a clear subversion of Quality Assurance criteria for Quality Control inspections and the documentation of nonconforming items" (PFF 384). Applicants admit that this deviation from procedures should have been documented under Q-1 or R-2, but point out that the incident did not involve a technical deficiency. (App. Reply to PFF of Intervenor at 159.) This Board views Baldwin's improper verbal voiding as an inept effort to reduce the number of NCIs processed.

118. Our paramount concern about this incident is Ross' perception that Baldwin favored craft over QC. In response to cross-examination by the Staff, Ross states:

if [craft] felt like the inspector was wrong, they would contact me. If they felt like the inspector was right, they would contact Charles [Baldwin] because they knew if I felt like the inspector was right, I was going to back him up. And they knew Charles had more of a tendency to go along with what they wanted to do. . . . [A]t that particular time [that] was pretty much common practice. It got to be a big head ache

Tr. 6958.

Concern D-25

119. Inspector Bryant was dissatisfied with certain hanger welds because of excessive undercut, trapped slag, base metal encroachment and arc strikes. Under the applicable procedure, L-80, inspectors normally pointed out such defects to craft and they were corrected. In this case craft's attempt to make the correction under L-80 had been rejected three times by the inspector. On this fourth inspection Bryant wrote an NCI. Supervisor Baldwin verbally voided the NCI because the weld could "be corrected on the spot" under L-80 (Bryant, Tr. 6140). Subsequently another inspector approved the weld but later the weld in ques-

¹⁵ 10 C.F.R. § 50.55a specifies certain codes, such as those developed by the American Society of Mechanical Engineers, which apply to water-cooled nuclear power facilities.

tion was removed, rendering moot any question of technical inadequacy (App. PFF 103g).

120. The Staff and the Technical Task Force conclude that an NCI was not appropriate for this situation (Staff PFF 218). We adopt the Staff's finding. Palmetto's allotted time for cross-examination of Bryant expired without questioning on this particular concern (Tr. 6136). They do, however, propose the finding of a particular welder repetitively performing rejectable work (PFF 393). We do not disagree. Of greater weight here is the persistence of the QC inspector in assuring that the final product was acceptable.

121. Q-2 and Q-3 are concerns of inspector Rockholt about the traceability of material. We describe them above in ¶¶ 54-56. Q-2 involved a proposed NCI on angle iron which was verbally voided by Baldwin. Q-3 involved an NCI on high-grade pipe which was voided by foreman Deaton, possibly on instructions from Baldwin. Both of these cases could have been resolved short of using Procedure Q-1. Nevertheless, supervision chose to discard the NCIs rather than preserve some documentation of the potential procedural violations. We find this behavior unsatisfactory but see no deliberate attempt to degrade the QC program.

122. Verbal voiding, discussed above in relation to nine of the concerns, is but one means of avoiding the processing of an NCI. Many of the concerns described in ¶¶ 6-16, above, involved instructions from Baldwin not to write an NCI (D-22, D-24, Q-1, R-58) or to sign off on a hold point (D-30, D-28, V-2). We see no difference between verbal voiding of an NCI (where the form is discarded prior to serializing) and an instruction not to write one in the first place. In addition to the inspector concerns just described, we consider three others as possible evidence of discouraging the detection and documentation of substandard workmanship.

Concern C-2

123. In August 1981, inspector Burr discovered that a repair on piping involved welding on base metal outside of the original weld area. Such repair requires special procedures to control cleanliness and also a liquid penetrant test. This had not been done. Burr tried for three weeks to convince QC supervision that a procedure violation was involved. Finally he was allowed to write NCI No. 12,459 (TTF C-2). A second procedural violation occurred when craft removed the Q-1B tag prematurely and began further work on the pipe.

124. Mr. Burr was not cross-examined on this concern, but it is a part of his prefiled testimony (App. Ex. 29, Att. A-2). It is also included

in the prefiled testimony of Staff witness Van Doorn since it later became the subject of an NRC violation (Staff Ex. 7, at 43).

125. Applicants point out that radiographic examination showed that the weld was sound so the base metal must have been sufficiently clean. Further, they revised Procedure F-9 to describe base metal repairs more clearly (App. PFF 99t). Be that as it may, we focus here on evidence that the documentation of substandard work was discouraged. Applicants offer no explanation as to why Mr. Burr had to press this issue for three weeks before he was allowed to write the NCI or, for that matter, why he needed permission at all. We find that Burr was indeed discouraged from documenting this procedural violation.

Concern D-4 (R-6)

126. Inspector Bryant could not verify the throat dimension of an attachment weld and wrote NCI No. 7514. Bryant attached a note to the NCI pointing out that the welding symbol on the drawing was incorrect for the partial penetration weld called for. Davison made Bryant remove the note before he would approve the Q-1A form. Ross interceded and Davison rewrote the NCI for Bryant to sign. Ross felt Davison should have allowed Bryant to leave his note attached to the NCI the first time and was concerned about Davison trying to discourage Bryant from writing NCIs by requiring extra information and sketches (TTF D-4, R-6). Resolution of the inadequacy was not by repair of the weld, but by correcting the design drawings.

127. There was no cross-examination on this particular concern and Intervenor makes no proposed finding on it. The Staff, however, includes it in its proposed findings (PFFs 135, 136, and 159), perhaps because the weld symbol problem had been picked up during a routine NRC inspection and Violation 80-16-01 issued. This violation was because the weld symbol did not meet Code requirements.

128. The Technical Task Force noted there was an actual violation of AWS A2.4, that Procedure R-3 provides a mechanism for correcting drawings, and that the symbol had been corrected on the drawings. We observe that Ross' original note about Bryant's difficulty with Davison on the weld symbol is dated January 18, 1980 and that Duke's response to NRC Deficiency No. 80-16-01 is dated September 9, 1980 (Staff Ex. 7, Att. 30).

129. We find that there was an attempt to discourage identification of the weld symbol problem on NCI No. 7514. There is nothing in the record to explain why Davison wanted to do this.

Concern E-3

130. This concern of inspector Cauthen is described above in ¶ 79. Rather than initiate an NCI, Cauthen had a welder in McKenzie's crew replace a weld made without a purge because "they would have cut them out before I got back with an NCI anyway." As we stated in ¶ 79, we find no evidence here that craft was attempting to discourage the writing of NCIs or, as Palmetto would have it, intentionally circumventing procedures for documentation of nonconforming conditions (PFF 492).

131. Of the twenty concerns we review above for evidence of discouraging the initiation of NCIs, we find five cases (Concerns D-18, D-23, C-2, D-4 and D-30) where a good reason for questioning the need for using the Q-1 procedure is wanting. Two of these (C-2 and D-4) were significant enough to be cited as NRC violations. Most of the others should have been documented, but not necessarily as NCIs.

132. Although good reasons were not evident for not allowing NCIs in these five cases this does not demonstrate that Duke management was attempting to circumvent the QA program. The Technical Task Force made a reasonable effort to have the welding inspectors write down *all* of their concerns (*see* ¶ I.A.26, above) and, except for the few late additions included in their prefiled testimony (*e.g.*, App. Ex. 32, at 3), we are persuaded that they did so. These five cases were among the concerns given priority attention by Intervenors and the Staff during the hearing. We doubt that there were other cases of equal or greater significance in the welding area which were not brought to our attention. Further, the inspectors themselves considered verbal voiding to be "a drop in the bucket" in relation to the more than 17,000 NCIs written at Catawba as of the time of hearing. (*See* ¶¶ 89, 103, 104, above.)

133. While we disagree with Intervenors' position that Duke intentionally suppressed NCIs in order to circumvent documentation of faulty workmanship, discouraging the initiation of NCIs, for whatever reason, was disheartening to the inspectors who were personally involved. However, this appeared to have little or no effect on how these inspectors subsequently did their job. (*See*, for example, Concern C-2 described above in ¶ 123 where Burr persisted for three weeks in order to have an NCI processed).

134. We agree with the Staff that verbal voiding was a prominent inspector concern mainly after mid-1981 when Duke tried to restrict use of NCIs to matters truly requiring engineering evaluation (PFF 155).

135. Duke management recognized that some of the discrepancies then being written as NCIs could be handled adequately by use of the R-2 procedure or process control (Grier, Tr. 2583; Owen, Tr. 2584).

The R-2 procedure had been little used by the welding inspectors and foreman Ross believed that R-2 was not an applicable procedure because it was not specifically listed in the QC process control procedures, as was Q-1 (Ross, Tr. 6952). Ross continued to resist the use of R-2 until it was finally written into their procedures in 1982 (Ross, Tr. 6952-53).¹⁶ For the twelve-month period beginning August 1982, use of the R-2 procedure in welding at Catawba resulted in a 45% reduction in the number of NCIs (App. PFF 396).

136. Palmetto would have us believe that Duke's suggestions to inspectors that they "avoid Q-1As as much as possible" and "ease off on the craft" — has the improper and unlawful effect of discouraging the documentation of deficiencies of Q-1As (PFF 62). Palmetto bases its assertion on the testimony of inspector Burr (App. Ex. 29, at 3). We reject Palmetto's interpretation and adopt the Applicants' position that:

Palmetto's proposed findings would have us confuse Applicants' efforts to reduce the number of NCIs by handling the deficiencies in accordance with other procedures, with some inappropriate effort to simply reduce the number of documented deficiencies.

(App. Reply to Proposed Findings . . . of Intervenor at 53 n.12.) The apparent misunderstanding between Burr and his supervisor Stanley Ledford in respect to "ease off on craft" is discussed below in ¶ C.19.

8. *Were Construction Deficiencies Adequately Repaired?*

137. The technical concerns submitted by the welding inspectors were reviewed by the Technical Task Force for "technical inadequacies." They found none that they considered "actual" inadequacies, but twenty-four were considered to be "potential" inadequacies and, as necessary, were evaluated further by the appropriate Duke organizations (App. Ex. 11, at 10, 13).

138. The NRC Resident Inspector at Catawba, Mr. Van Doorn, also conducted an in-depth review of all the technical concerns, the task force evaluations, and management corrective actions. Further, Mr. Van Doorn reviewed all of the NCIs processed for Catawba in the 1981-83 period (Staff PFF 134). We place substantial weight on Van Doorn's evaluations and excerpt much of the Staff's Proposed Findings 135 and 136 in our findings below.

¹⁶ Ross viewed his resistance to use of the R-2 procedure as a major source of conflict with his supervisor Allum (Ross, Tr. 6953-54).

139. The most significant concerns from a technical perspective were those which directly or indirectly involved Code or NRC violations. The Code violations were as follows:

- (1) Concern K-2. Inspector Irby found pitting and poor surface finish on a number of plates for the containment dome of Unit 2. This was believed to be a manufacturing defect. NCI No. 9092 was written, but the problem was originally judged insignificant by design without looking at the defects. The plates were installed without satisfactory resolution of the NCI and it remained outstanding for over 1½ years (TTF K-2). While the Duke evaluation showed that Code requirements had been violated, it also showed that the plates would serve their intended function (Staff PPF 135(1)). The NCI was finally resolved by making a large number of repairs on the plates. Irby was not called to testify and Intervenor's comment on this concern only in association with lamination of the containment plates (Supplement to PPF at 12-13). Van Doorn concluded that Duke's actions were adequate to address the issue. (Staff Ex. 7, at 42-43). We find this incident disturbing. The evidence indicates that substandard material shipped by the vendor was accepted by Duke. Design approved the deficiency without looking at the plate, and the plate was installed without the pitting being corrected. Irby's written concern and intervention by the Technical Task Force were needed to force corrective action after 1½ years. We find it strange that the Staff passes over this situation so lightly and that Intervenor's have no comment about it.
- (2) Concern D-23 (R-50). This incident of downhill welding is described above in ¶ 115. The Code violation related to lack of qualification of the welder rather than to the quality of the weld.
- (3) Concern D-4 (R-6), which involved a note on an NCI that a welding symbol was incorrect, is described above in ¶ 126. The Code violation related to the symbol on a drawing. The weld was technically adequate.
- (4) Concern C-2, which involved control of cleanliness and missed liquid penetrant inspections, is described above in ¶ 123. The Code violation related to procedures. There was no inadequacy of the hardware. NRC Violation No. 50-413/81-22-03 was issued.
- (5) Concern D-14 and Concern R-64. Both of these concerns are associated with "paperwork" supplied to the field which did

not adequately specify the size of a fillet weld to be made. There was no cross-examination of the witnesses about these concerns so the prefiled testimony and exhibits in the record provide the basis for our conception of the circumstances: Over a considerable period of time, specific fillet weld sizes (L-dimensions) were not always specified on traveler-documents (M-4A forms). This meant that the inspectors had to figure out if the weld was of the size required. (Staff Ex. 7, at 44.) NCI Nos. 13,455 and 13,540 were written about such problems, and their resolution included an instruction to specify the needed weld size on all M-4As issued in the future. This instruction was not followed and inspector Bryant identified another such instance in his Concern D-14. A comparable situation occurred a short time later with another inspector in Ross' crew and NCI No. 14,033 was initiated.¹⁷

The Technical Task Force recognized that Concern D-14 identified at least one violation of QA Procedure F-9 which requires information on process control forms to be checked. The Technical Task Force also recognized that the absence of the L-dimension on the M-4A forms might have resulted in some undersized welds, and reinspection of a sample of 170 socket welds was made. Fourteen were found to be undersized by up to 1/32 inch. This was not in strict compliance with the Code. NCI No. 14,070 was written to resolve the problem and Duke notified NRC with Significant Deficiency Report 413-414/82-06. (Staff Ex. 7, Att. 27.)

Corrective measures included reinspection of 12,500 socket welds and the addition of more weld metal on those that were undersize. Further, deficient process control papers previously issued to the field were recalled for correction.

A second Significant Deficiency Report (413-414/82-11) was submitted because pipe-to-pipe nozzle welds were found to be undersized after prior inspections had found them acceptable (*id.*, Att. 28). All such welds were to be reinspected and repaired as necessary. The Staff intimates that this action was associated with Concern R-64, but the relationship is not crystal clear.

140. Palmetto overlooks Duke's follow-up reinspections and repairs and proposes that we find that "[n]o [attempt] whatsoever is made to ex-

¹⁷ This concern (R-64) was based on an occurrence in January of 1982 — about the time the Technical Task Force was initiated.

plain why 'thousands' of other welds may not exist without adequate reinforcement due to lack of specified 'L' dimensions" (PFFs 527, 530). We find that Duke finally did address this problem adequately — but not until the Bryant concern was investigated by the Technical Task Force.

141. Mr. Van Doorn's in-depth review of the welding inspector concerns turned up three cases that had previously been cited by the NRC as violations. He found no new violations that were serious enough to be classed at Level I, II or III, so no new citations were issued (Staff PFF 136). The three previously identified violations included Concerns C-2 and D-4 (described above) and Concern C-3 which we have described in ¶ 25, above. It involved Construction Technical Support approving a weld in which Burr had identified a crater crack.

142. In addition to the Code and NRC violations described above, we consider four other welder concerns which warrant mention in this section. One of them (D-15) involved a hairline crack in a weld on a pipe for a diesel generator and is described in ¶ 31, above. The Level III inspector did not find the crack. Although this particular weld was ground out and remade, there may be other similar situations where repairs were not made. Where there is doubt about the existence of a defect, the Level I or II inspector should at least be on the scene to point out what he saw to the Level III inspector.

Concern E-2

143. Inspector Cauthen found a fitter in McKenzie's crew making a socket weld without allowance for a 1/8-inch gap between the pipe and the shoulder of the fitting. If no gap is present, expansion of the pipe during the welding process may cause the weld to fail (TTF E-2). About ten welds were involved and Cauthen told the welder "to cut every one of them out and refit them and call me back." This was done (Cauthen, Tr. 6437). Cauthen stated that this was on a Class G system (nonsafety-related) and "could have been a drain line for all I know." (Tr. 6439). Since the system was not safety-related, an NCI was not appropriate. The condition could have been documented on Form CP49A, but Cauthen saw no need to delay the resolution by two or three days (Tr. 6437).

144. The Technical Task Force was concerned that other socket welds made by McKenzie's crew might also have been made without the specified gap (which is 1/16 inch rather than 1/8 inch) and they recommended that QA conduct an investigation to determine whether or not

there was a practice of welding sockets without gaps (TTF E-2). Foreman McKenzie was not aware of any such investigation having been made. He pointed out, however, that the procedure was modified to require scribing of the pipe so that inspectors could confirm that specified gaps were present in the sockets (Tr. 8733).

145. The Staff makes no finding about this concern (possibly because it is not safety-related). Palmetto points out that no evidence was offered to show whether Duke followed up on the Task Force recommendation for an investigation of other socket welds without gaps (PFF 532).¹⁸ Such an investigation might well have included systems that were safety-related and this Board directs Duke to confirm to the Staff whether Recommendation (1) of the Technical Task Force for Concern E-2 was implemented and, if so, what the results were.

Concern E-4

146. In Concern E-4, Cauthen objects to implications that he "over inspects" because he looks for flaws other than construction damage on M-4I inspections of piping systems (TTF E-4). Cauthen cites pits in a pipe as an example of the flaws he noted on M-4I forms (Tr. 6453). Specific welds or pipes are not a part of Concern E-4.

147. The Technical Task Force points out that QA Procedure M-4 is to identify and correct construction-induced damage on ASME piping systems. The Q-1 procedure is more appropriate for nonconstruction-induced damage (TTF E-4). Palmetto thinks the Task Force criticism of Cauthen for using the M-4I form, rather than the Q-1 procedure is "incredible." (PFF 501.)

148. We find nothing of significance here in relation to the quality of construction. Cauthen is obviously a conscientious inspector who looks for all kinds of defects. His persistence in use of the M-4I form when an NCI would have been appropriate is not commendable, but nevertheless he accomplished the necessary correction. Contrary to Palmetto's proposed finding (PFF 501), the Technical Task Force is not to be criticized for recommending that QC inspectors follow appropriate procedures.

149. In his prefiled testimony, Cauthen added four new concerns about welds in the plant (App. Ex. 34, at 4). Two of these we have already described above (in ¶¶ 84 and 86). The third relates to the undoc-

¹⁸ Palmetto would also have this Board take official notice, pursuant to 10 C.F.R. § 2.743(i) of a significant deficiency report dated 2/13/84 about the failure of two socket welds in the RHR system during hot functional testing. We see no justification for this since the only nexus to this concern is Palmetto's unsupported speculation that it resulted from improper fit-up. In any event, a significant deficiency report made following the closing of the record is not within the narrow scope of the official notice rule in 10 C.F.R. § 2.743(i).

umented defects on piping and welds he found on final visual inspections (M-4Is) (see ¶ 143, above). The fourth is concerned with some welds only receiving a final visual check. On cross-examination, it was brought out that this fourth concern was associated with McKenzie's crew and the suspected absence of gaps in some socket welds which is Concern E-2. Applicants point out that the systems which receive only a final visual inspection are those classified by Design Engineering as having a lesser degree of safety significance (App. PFF 122c).

150. The last concern we treat in this section is one which inspector Bryant added in his prefiled testimony (App. Ex. 30, at 8). This involves structural steel subsequent to its acceptance by an inspector. Attachments may be welded to the structural steel and later removed, leaving damage which is not subject to further scheduled inspections. Cross-examination by this Board brought out that Duke was in the process of developing a new procedure to assure that all such damage was identified and evaluated (Bryant, Tr. 6153, Ross, Tr. 7007). We presume that this action is a direct result of Bryant's expressed concern (App. Ex. 14, at 10).

151. We see this structural steel inspection deficiency as something that "fell through the cracks" of the overall QA program. Once recognized, Duke aggressively initiated corrective action to cure the problem.

152. The Staff has summarized Resident Inspector Van Doorn's conclusions about the technical adequacy of the Catawba plant in its Proposed Finding 138. We adopt this finding with only minor alterations:

Based on his extensive review of the welder inspector concerns, his comprehensive review of NCIs and his responsibilities as Resident Inspector at Catawba, Mr. Van Doorn stated:

- (1) He had no reason to believe that significant technical discrepancies have occurred at Catawba which have not already been corrected or which are not now being corrected (Staff Ex. 7, at 49).
- (2) He would not change his written conclusions that the technical evaluations were accurate and appropriate corrective action was taken, and in fact, the evidence presented at the hearing (nearly all of which he sat through) reinforced his conclusion. (Tr. 9680-81, 9875-76.)
- (3) All of the procedural violations identified by the Technical Task Force are of the lowest two levels of severity. (Tr. 9941-42.)
- (4) Although there have been procedural violations some probably undetected, he knew of no programmatic breakdown that would have resulted in failure of backup checks on quality, and thus uncorrected deficiencies (Tr. 9897-98).

153. In their prefiled testimony, the welding inspectors and their supervisors who submitted concerns responded to questions about whether

Catawba was being built safely. All were satisfied that the parts they knew about were built to be safe. (Staff PFF 139.)

154. A few inspectors believed a deficiency of safety significance would have been present if some concern had gone uncorrected:

- (1) Ross — Concern D-30; grinding on the inside of a pipe (¶ 8).
- (2) Bryant — Residual damage to structural steel (¶ 150).
- (3) Burr — Concern C-3; lack of fusion (¶ 25).
- (4) Bryant and Ross — Concern D-15; the fine crack disputed by the Level III inspector (¶ 31).

9. Compliance with 10 C.F.R. Part 50, Appendix B

155. Appendix B sets forth eighteen criteria with which licensees must comply in establishing and operating their quality assurance programs. In their proposed findings of fact, Intervenors would have us conclude that several of these Appendix B criteria have been violated in connection with each of the twenty-seven welding inspector concerns they discuss in some detail. Palmetto Proposed Findings 171-256. Palmetto merely quotes various Appendix B criteria without providing any rationale for their alleged applicability to particular concerns. Most of the Appendix B criteria are cast in very general terms and therefore their applicability to the facts of particular concerns is frequently not clear. In many cases, we were unable to determine Palmetto's theory of alleged violation in the absence of any explanation from Palmetto. We do not feel obliged to treat each alleged criterion violation point by point in response to Palmetto's scattershot approach. However, we have reviewed the concerns Palmetto discusses in light of the cited Appendix B criteria and we note where certain criteria appear to have been violated.

156. The Commission's regulations provide guidance on the significance of violations in Appendix C.III to 10 C.F.R. Part 2. Five levels of severity are specified. Severity Levels I and II are very significant and in general involve actual or high potential impact on the public. Level III violations are cause for significant concern. Level IV violations are less serious but are more than minor; *i.e.*, if left uncorrected, they could lead to more serious concern. Level V is the lowest category and signifies only minor safety or environmental concerns. As Intervenors point out (PFF 537), Part 2, Appendix C.IV.A states:

Because the NRC wants to encourage and support licensee initiative for self-identification and correction of problems, NRC will not generally issue a notice of violation for a violation that meets all of the following tests:

- (1) It was identified by the licensee;
- (2) It fits in Severity Level IV or V;
- (3) It was reported, if required;
- (4) It was or will be corrected, including measures to prevent recurrence, within a reasonable time; and
- (5) It was not a violation that could reasonably be expected to have been prevented by the licensee's corrective action for a previous violation.

157. The Staff's in-depth review of all of the welding inspector concerns turned up three cases that had been cited previously as NRC violations (*see* ¶ 141, above). Mr. Van Doorn was looking especially for serious violations (Level III and above) but he found none above Level IV (Van Doorn, Tr. 9938). He thought that Appendix B, Criterion V (Instructions, Procedures, and Drawings) had been violated in many of the forty-three cases classified by the Technical Task Force as "actual procedure violations," but because of their low level of severity and because Duke had found and reported them, NRC did not issue violation notices (Tr. 9939-40). Van Doorn testified that it is not unusual to have procedures violated. "It isn't particularly significant. Procedures are probably violated weekly." (Tr. 9946.)

158. Palmetto directs a scathing attack against Van Doorn for deciding not to issue notices of violation in relation to the inspector concerns (PFFs 536-538). Palmetto would not credit Duke management for identifying the violations mentioned in the inspector concerns and they cite recurring problems with the use of NCIs. In view of the low level of severity of the violations and Duke's concerted efforts to correct technical deficiencies, we find no "lack of zeal" in enforcement on the part of the Staff.¹⁹ The objective is a plant that will operate safely — not a box score on violation notices.

159. Of the twenty-seven concerns reviewed in their proposed findings, Palmetto would have us find that twenty-two of them show violations of Appendix B, Criterion I.²⁰ Criterion I is concerned with organization of the QA program. Palmetto focuses on the language of the rule which specifies that "[t]he authority and duties of persons . . . performing activities affecting the safety-related . . . components

¹⁹ Several of Palmetto's proposed findings (*e.g.*: 158, 169-170, 536-539) question the competence or integrity of the NRC Resident Inspector at Catawba or other NRC Region II personnel. Some of our findings rely on Staff testimony or actions and, to that extent, we are endorsing the Staff. Beyond that, however, and because the NRC Staff is not the license applicant in this proceeding, it is not necessary that we make detailed findings about the Staff's role. Suffice it to say that while we may not agree with everything the Region II personnel did at Catawba, we believe them to be conscientious and men of integrity. On the whole, we think they did a good job.

²⁰ The 22 identified by Palmetto are: D-3, D-5, D-7, D-9, D-15, D-17, D-20, D-22, D-23, D-24, D-27, D-30, C-3, E-1, E-3, E-4, E-5, I-1, L-1, Q-1, Q-2, and R-28.

shall be clearly established and delineated in writing,” and that such persons “shall have sufficient authority and . . . freedom to identify quality problems” and have “sufficient independence from cost and schedule when opposed to safety considerations.” (10 C.F.R. Part 50, Appendix B.I.) Apparently Palmetto equates the inspector’s perceived lack of management support, subjection to harassment, and pressure by construction with violations of Criterion I. (PFF 40.) They also view the assignment of inspectors to QA “supervisors unable or unwilling to support effective implementation of the program” as a violation of this criterion (PFF 41).

160. Palmetto’s interpretation of Criterion I is distorted. As indicated in our discussion of the independence of Duke’s Quality Assurance organization (§§ I.A.49-I.A.57, above), Criterion I relates primarily to allocations of functions and reporting relationships. We find no violations of Criterion I among the concerns of the welding inspectors.

161. Criterion II deals with the establishment of a Quality Assurance Program. Palmetto focuses on the provisions of this criterion which call for adherence to written procedures and for training of personnel performing activities affecting quality. Palmetto asks us to find that twenty-one of the concerns somehow involve violations of Criterion II.²¹ The only hint they provide as to theory of violation is in their Proposed Finding 69. Here they intimate that craft foreman McKenzie had not received training about nonconformed situations. As we have repeatedly ruled, training issues are outside the scope of Contention 6. Many of the other concerns Palmetto lists under Criterion II involve some procedural discrepancy or the need to reinstruct craft or QC inspectors on the use of procedures. Significantly, Palmetto does not associate Criterion II with the verbal voiding of NCIs (PFF 53).

162. This Board, as well as the Applicants and the Staff, recognize that a number of procedural violations have occurred. As pointed out by Van Doorn, however, the appropriate enforcement criterion for something that is only a procedure violation is V (Tr. 9938-39). We interpret Criterion II as applicable to broad frames of reference, as contrasted with specific instructions or field procedures. For example, lack of a training program in some area would violate II, but an individual forgetting what was taught would not. On this basis, we reject all of Palmetto’s proposed findings of violations to Criterion II. However, we would place three concerns in the Criterion II violation category which Palmetto did not treat. Concerns D-14 and R-64 (described in ¶ 139(5), above)

²¹ These 21 concerns are: D-3, D-5, D-7, D-15, D-17, D-20, D-22, D-23, D-24, D-27, D-30, C-3, E-1, E-3, E-4, E-5, I-1, Q-1, Q-2, Q-3, and R-28.

identify problems of the lack of information (L-dimensions) on process documents. This was a pervasive problem that required the reinspection of thousands of welds. The third concern is that expressed by Bryant in his prefiled testimony about damage to structural steel members. This inadequacy was apparently overlooked when the QA program was originally documented. It was being corrected at the time of the hearing. See ¶ 150, above.

163. Criterion V deals with instructions, procedures and drawings. It states in pertinent part:

Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings . . . and shall be accomplished in accordance with these instructions

Palmetto lists eight concerns (D-15, D-18, D-20, D-22, D-24, D-25, D-30, and Q-1) as violations of Criterion V. We agree as to Concerns D-18, D-22, D-30, and Q-1 because of the supervisor's instruction to the welding inspector to "sign off" on a condition he did not agree with, to not write an NCI, or for the discarding of an NCI, although D-18 and D-30 are the only ones we consider significant. We also agree with D-15 because we think instructions should provide for a direct dialogue between the visual inspector and the Level III inspector if there is a dispute about the existence of a flaw. Since we classify NCI voiding under Criterion V, we add Concerns C-3, D-3, D-5, D-7, D-23, and Q-2. In respect to deviating from construction procedures, we add D-19.

164. Criterion VIII provides for the control of materials to "assure that identification of the item is maintained by heat number, . . . or other appropriate means . . . to prevent the use of incorrect or defective material. . . ." (10 C.F.R. Part 50, Appendix B.VIII.) Palmetto lists six concerns it believes violate this criterion, viz: D-5, D-7, Q-2, Q-3, E-5, and R-28. Two of these (Q-3 and R-28) are nonsafety-system-related and the other three are violations only in a technical sense because the minor lapse in control was short-lived. Curiously, Palmetto did not place Concern Q-1 in this category. This involved the plate installed on the floor of the spent fuel pool with the markings on the bottom. We (and the Staff) see Q-1 coming closer to a violation of Criterion VIII than the concerns listed by Palmetto.

165. Criterion IX specifies that:

Measures shall be established to assure that special processes, including welding, . . . are controlled and accomplished by qualified personnel using qualified procedures

Palmetto thinks ten of the concerns show violations of this criterion. (D-7, D-9, D-18, D-19, D-20, D-22, D-23, D-25, D-14 and R-64.) Apparently Palmetto equates "technical inadequacy," (as used by the Technical Task Force) with a violation of Criterion IX (Palm. PFF 274). We view this criterion as applicable to the existence of special procedures and whether or not welders were qualified for the procedures they used. Violations of those procedures are covered by Criterion V. On this basis we find clear, but minor, violations in the case of D-23 because the welder was not qualified for downhill welding, and for D-14 and R-64 because of repeated failure to include a needed weld dimension on instructions issued to the field. We add D-4 because of the incorrect weld symbols on a drawing. By some stretch of the imagination, D-18 might also be included because special instructions were not provided for attaching valves of an unusual shape.

166. Criterion X deals with "inspection." Intervenors focus on the provisions which require verification of conformance with documented procedures and the observance of inspection hold points. (10 C.F.R. Part 50, Appendix B.X.) They propose Criterion X violations for four of the concerns; viz: D-24, D-30, E-3 and E-4. We agree only with D-30, where the inspector was told to sign off on a condition inside a pipe that could not be seen. Concern E-4, where Cauthen found minor discrepancies passed over by other inspectors, might also be included. More clear cut examples of inspectors missing deficiencies are D-14 and R-64, where thousands of socket welds had to be reinspected.

167. Criterion XV deals with nonconforming components and requires controls to prevent their inadvertent use or installation. Further, "[n]onconforming items shall be reviewed and accepted, rejected, repaired or reworked in accordance with documented procedures." (10 C.F.R. Part 50, Appendix B.XV.) Palmetto makes Criterion XV a pivotal issue in its arguments, asserting that the Q-1 procedure and the NCI are Applicants' principal means of ensuring compliance with this criterion (PFF 43); that Davison's and Baldwin's voiding of NCIs was intended to circumvent compliance with Criterion XV (PFF 53); and that "nonconformance" as used in XV equates to a "bad weld." (PFF 274.) We have already rejected the argument that the Q-1 procedure is the primary compliance procedure (§ 90, above), and that NCI voiding is intentional circumvention of compliance (§§ 132, 133, above). We also reject the idea that "nonconformance" under this criterion is equatable with "bad welds." Many nonconformances are not involved with hardware *per se*, and Criterion XV itself provides for the acceptance, repair or reworking of nonconforming items.

168. Palmetto asks us to find that eleven of the concerns show violations of Criterion XV. These are: D-3, D-5, D-7, D-18, D-25, D-30, R-28 (J-1), E-1, I-1, D-14 and R-64. All but the last two appear to be associated with the suppression or verbal voiding of NCIs. In the absence of justifying circumstances, we find violations in the prevention or voiding of an NCI in Concerns D-18, D-30, and I-1. We would also classify D-14 and R-64 as violations, not because of NCI problems, but because the QA program failed to promptly resolve welding deficiencies of a pervasive nature. As we pointed out in Finding 130, we would also include D-23, C-2, and D-4 as minor violations of XV because of difficulty encountered by the inspectors in initiating NCIs.

169. Criterion XVI deals with corrective action and states in pertinent part:

Measures shall be established to assure that . . . nonconformances are promptly identified and corrected. . . . that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition, . . . the cause . . . and the corrective action taken shall be documented and reported to appropriate levels of management.

(10 C.F.R. Part 50, Appendix B.) Palmetto finds the following twelve concerns to violate XVI: D-7, D-9, D-15, D-17, D-19, D-22, D-30, R-28, E-1, I-1, D-14 and R-64. Here, apparently, Palmetto again focuses on voiding of NCIs (PFF 53) and their notion that the Technical Task Force "ignored" the root cause of the concerns (PFF 260).

170. Palmetto does not explain whether they think the violation was "documentation" of the corrective action (or lack of it) on an NCI, whether the repair was not done properly, or whether there was some other problem. We will not speculate. Our evaluation includes possible violations for D-19, D-30 and I-1 because of documentation problems, and D-14 and R-64 because identification and correction were not prompt.

171. Criterion XVII deals with Quality Assurance Records. Palmetto focuses on the portion of this criterion requiring maintenance of records of inspection results and the action taken in connection with deficiencies noted. They propose violations for fifteen concerns and apparently associate them with the discarding of NCIs (PFF 53). The concerns identified are: D-3, D-5, D-15, D-17, D-22, D-23, D-25, D-30, Q-2, E-5, R-28, E-1, E-3, E-4 and I-1. We agree that there should have been an NCI or other documentation in the cases of: D-3, D-5, D-23, D-30, and Q-2. To Palmetto's list we also add D-18 and D-24 since these concerns identify situations where needed records were not maintained be-

cause NCIs were not filed, and C-2 because of the difficulty the inspector had in having the NCI accepted.

172. Criterion XVIII requires that:

A comprehensive system of planned and periodic audits shall be carried out to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program. . . .

(10 C.F.R. Part 50, Appendix B.) Palmetto thinks Concerns C-3, Q-1, and Q-3 show violations of this criterion. We find nothing in the record that would associate these or any other inspector concerns with the audit program.

10. Conclusions

173. Based on our analysis of the technical concerns and the associated record, we are satisfied that Duke did not deliberately condone substandard workmanship or attempt to circumvent the QA program.

174. There are two cases in the record (¶¶ 8 and 13, above) where inspectors were improperly instructed to "sign off" on work that was suspect. There is no associated evidence that the intent was to approve faulty work, however.

175. In several cases there was disagreement between an inspector who filed a concern and a Level III inspector about the significance of an imperfection. The Level III inspector may not have always been right, but there is nothing in the record to indicate a proclivity to approve substandard workmanship.

176. Although there were a few minor deviations from material traceability procedures, there is no evidence that improper materials were installed.

177. Preventing inspectors from writing NCIs, including "verbal voiding," was not so extensive that it could have significantly affected the quality of construction. In most cases the "voiding" was an understandable attempt to confine NCIs to situations requiring engineering evaluations.

178. In a few situations there is some evidence that construction personnel attempted to expedite work by circumventing QC inspector decisions (e.g., Concern C-3, ¶ 25 and Concern D-23, ¶ 113, above), but these were isolated cases. Construction foremen occasionally pressured

welders to complete a job, but we find no unusual or pervasive effort to cut corners in order to meet cost and time schedules.²²

179. All of the welding inspectors and first-line supervisors who testified appeared very conscientious about doing a good job, were not dissuaded by perceived lack of management support on technical concerns, and were satisfied that the plant was built safely.

180. The record indicates very few situations where Duke failed to take reasonably prompt action to correct confirmed deficiencies. Delayed repair of pitted containment plate (138) is one example.

181. We are influenced by the fact that the NRC Resident Inspector, on the basis of extensive experience at Catawba, does not believe that there are any significant technical discrepancies which have not already been corrected or are not now being corrected.

182. This Board concludes from the extensive evidence presented on the technical concerns of the welding inspectors that they do not represent a pervasive failure or significant breakdown in Duke's QA program or pressures from construction personnel which resulted in significant deficiencies in the Catawba plant.

C. Concerns About Retaliation

1. Introduction

1. In the preceding section the Board examined the various pressures welding inspectors related concerning the identification, documentation and correction of construction nonconformances and their impact on inspectors' morale and job performance. This section considers the inspectors' perceptions of Applicants' reactions to their concerns. Allegations of retaliation against inspectors for raising safety concerns are examined. Are the allegations true and, if so, what influence, if any, did they have on inspectors' job performance and the effectiveness of the quality assurance program?

2. The Pay Reduction Recourse Procedure

2. The Board accepts the Staff's review of the factual background for these allegations, as stated in Staff PFFs 224-226 and most of 227.

3. "During the course of the recourse proceeding invoked by numerous welding inspectors during the Fall of 1981 and Winter of

²² This conclusion is subject to the outcome of the investigation triggered by the "foreman override" concerns raised by welder B. See pp. 1565-66, below.

1982 in order to attempt to reverse their pay reclassification, the inspectors began to express some long-standing grievances against the onsite QA management, particularly Mr. Davison, who from 1974 until early 1981 had been responsible for the QC inspection program at Catawba. See Palm. Ex. 6; Davison, App. Ex. 14, at 2. For example, in inspector Kenneth Karriker's memo to Bob Morgan on January 14, 1982, ostensibly to notify Duke of Mr. Karriker's pursuit of his recourse rights, the focus was not on pay, but on Mr. Davison's responsibility for violations of QA procedures, and his feeling that Mr. Davison, who was then QA Manager for the Projects Division of Quality Assurance in Charlotte, should not be involved in resolution of the recourse due to his being 'the root of our problems.' Palm. Ex. 39; Davison, App. Ex. 14, at 2. Mr. Karriker claimed that in a recent meeting of inspectors with Mr. Davison on January 11, 1982, it appeared that Mr. Davison was trying to 'build a personal defense.' *Id.* Similarly, inspector John Bryant's record of a January 7, 1982 meeting with Mr. Davison was that the latter 'insinuated that if we cannot *trust* our upper management that we should find another job. . . .' Palm. Ex. 40."

4. "Another inspector, J.R. Rockholt, wrote the corporate personnel department on January 13, 1982 that when he told Mr. Davison the previous day that he 'didn't have any confidence in him and wished to talk to Mr. Owen,' he was told that if he didn't follow Company procedures, he was headed for real problems. Mr. Rockholt took this as 'threatening me with my job if I didn't do everything his way' Palm. Ex. 38, at 1 (1/13/82 Letter to W.H. Bradley from J.R. Rockholt). This account was more or less corroborated by Mr. Davison's own notes of a January 12, 1982 meeting with Mr. Rockholt. Palm. Ex. 37. See also Tr. 3986, *et seq.* Mr. Davison was thus aware that he was a major focus of the inspectors' concerns. Davison, Tr. 3689-90, 3760. Palm. Ex. 31 (Zwissler notes of meeting in which Davison said he was 'part of [the] problem'). Mr. Rockholt's written testimony was that fearing retaliation, he did not feel free to express all his concerns. Rockholt, App. Ex. 31, at 3; Davison, Tr. 3991."

5. "Although the Board credits the inspectors' statements that they believed the communication problems and lack of support they felt were the responsibility of Mr. Davison, it is less clear that Mr. Davison's responses to them were taken as serious threats of retaliation. Mr. Rockholt, for one, was not even slightly dissuaded from expressing his concerns as he saw fit. The first indication of this is his letter to Mr. Bradley the next day. Palm. Ex. 38. The second indication was Mr. Rockholt's confrontation with the Executive Vice President on January 27, 1982, on whether Duke was going to retaliate against inspectors for

going to the NRC. Palm. Ex. 2 (Transcript of Owen Meeting with Inspectors). The third indication is that no welding inspector has been fired since 1980. Davison, Tr. 4330-31. The fourth indication is that Mr. Rockholt himself stated that his relationship with Mr. Davison had improved (Rockholt, Tr. 6343), and that he in fact did express all his concerns. Rockholt, App. Ex. 31, at 3.”

6. “Nor was Mr. Davison’s behavior indicative of someone in the process of carrying through on a threat. Mr. Davison’s response to Mr. Rockholt’s request of January 12, 1982 was to inform Mr. Owen that several inspectors wished to meet with him. As noted, such a meeting soon followed. Palm. Ex. 37. (Despite Mr. Bryant’s account of the January 7, 1982 meeting, he stated he felt free to express his concerns. Bryant, App. Ex. 30, at 3.) More importantly, the Board finds no evidence in the record to suggest that Mr. Rockholt (or Mr. Bryant) stopped identifying and documenting procedural violations, as appropriate. Mr. Rockholt’s view was that as a result of the welding inspectors’ expression of concerns, the QA program was working as it should work. Rockholt, App. Ex. 31, at 6. And this, in turn, was, at least in part, brought about by corrective actions implemented by Mr. Davison himself. *See* Palm. Ex. 43 (outlining training program and new ‘Stickman’ procedures for better resolution of technical questions).”

7. Since Intervenors did not organize their proposed findings in the same manner as the Staff, the issue of Mr. Davison’s role in the recourse proceedings was not addressed directly. However, Intervenors made references and allusions to Mr. Davison’s role in their “Background” section on “The Welding Inspectors’ Revolt” (*see* PFF 165, at 105 and PFF 172, at 108) and cited some of the same welding inspectors’ testimony under the title of “Harassment of Welding Inspectors” (*See* PFF 201, at 121 *re* Bryant and PFF 205, at 124, *re* Rockholt.) The Applicants did not treat this issue separately in their proposed findings. Because of the emphasis at the hearings on Mr. Davison’s role, it seems desirable to treat this issue separately as the Staff has done.

8. It is clear to the Board that welding inspectors identified Mr. Davison with the job classification review that resulted in lower pay for welding inspectors. Also, Davison’s actions in individual cases were interpreted as a lack of management support for welding inspectors. Thus, the welding inspectors were suspicious of Mr. Davison’s motives and interpreted his actions and words as threatening when, according to Mr. Davison’s testimony, he did not intend to convey that impression. Except for the Ross case discussed below, the Board finds no substantial

evidence that Mr. Davison actually did retaliate against welding inspectors for expressing their concerns. Although his communications skills with inspectors were somewhat lacking, Mr. Davison played a role in identifying concerns and problems to top management and in proposing corrective actions. Having observed and listened to Mr. Davison for many days in the witness stand, he impressed the Board as a soft-spoken man of few words, with a low-key, even somewhat taciturn, manner. These attributes may have contributed to his communication difficulties with the welding inspectors who could have pictured Mr. Davison as unapproachable.

3. Retaliation for Bringing Concerns to the NRC

9. An issue raised by Mr. Nolan Hoopingarner (*see* pp. 1542-43, below) and some welding inspectors was whether inspectors and other employees were discouraged from or retaliated against for taking their concerns to the NRC, particularly the NRC resident inspector. This issue was not one submitted to the three task forces reviewing inspector concerns (Zwissler, Tr. 3589-90; McMeekens, Tr. 3590; C.N. Alexander, Tr. 3591). The Board accepts the Staff's descriptions of the facts relating to the several instances below. *See* Staff PFFs 247, 248 and most of 249.

10. Mr. Burr, a welding inspector, raised the issue "of retaliation for going to the NRC in an interview with Ms. Gail Addis, a corporate personnel officer, during the second step of the pay recourse proceeding. Alexander, Tr. 3567-69; Addis, App. Ex. 8, Tab 3 (12/3/81 Memo from Addis to Owen). It was not pursued by the task forces because Mr. Burr did not submit it as one of his concerns. Cobb, Tr. 3572-73. (Mr. Burr stated he did not do so because he believed he had to be able to document each concern. Burr, App. Ex. 29, at 3.)"

11. "Mr. Burr stated that he 'heard Davison and Wells were going to investigate who talked to NRC,²³ and I didn't even talk to NRC.' Addis, App. Ex. 8, Tab 3. Actually, very little information was developed at the hearing on this specific allegation; however, a great deal was heard concerning whether the inspectors felt free to go to the NRC with their concerns, what Duke's policy on going to the NRC was, an incident in which Mr. Davison met with inspectors 'in pairs' in 1980 to discuss

²³ The reference is to the concern involving lack of fusion which Burr found, but which technical support had said was acceptable, only later to be determined by the NRC to be rejectable. *See* Concern C-3, Cobb, App. Ex. 11, Att. 5; Van Doorn, Staff Ex. 7, Att. 29.

Duke policy, and a response by W.H. Owen to a query on possible retaliation for going to the NRC by Mr. Rockholt at a January 27, 1982 meeting with inspectors about their concerns.”

12. “A memo dated April 25, 1977 from R.L. Dick, Vice President, Construction, sets out Company policy on bringing matters to management and the NRC. It states:

We expect our employees to express any concerns they may have about the quality of work to their supervisor or any level of Company management. In addition, we have voluntarily agreed to post the following Nuclear Regulatory Commission communication.

* * *

Any nuclear industry worker who has concerns or questions about the nuclear safety of any facility or activity licensed by the Nuclear Regulatory Commission may bring these matters to the attention of an NRC inspector or the nearest NRC Regional Office *if they cannot be resolved directly with his or her employer*. The NRC will treat the identity of a workers [sic] as a confidential source if the worker requests that his identity not be disclosed (emphasis added). . . .”

13. This statement fails to define clearly the Company policy. It seems to imply that an employee must take his/her concerns to the Company first before going to the NRC. Certain Applicant testimony at the hearing supports that interpretation. Alexander, Tr. 7508. On the other hand, the Applicants in their proposed findings speak of “absolute” and “unrestricted” rights of employees to “go to the NRC at any point in time.” App. PFFs 537-538. The Applicants’ policy statement should be revised and communicated to their employees in a direct and explicit manner. In that connection, the Board sees no objection to the Applicants’ asking employees to bring problems to their attention first, so long as there are no express or implied restrictions on their freedom to go to NRC at any time. Presumably, the earlier a matter is brought to management’s attention the more rapid will be a corrective response. But where, for example, there is lack of trust, an employee may prefer to go directly to the NRC.

14. The Staff in PFF 250, at 126 states as follows: “In the Fall of 1980, NRC inspector George Maxwell informed Mr. Davison during an exit interview that in the course of his inspection some personnel²⁴ had come to him concerning resolution of NCIs on nonsafety-related matters, and other matters. Van Doorn, Staff Ex. 7, at 13; Maxwell, Staff Ex. 6, at 6-7; Davison, App. Ex. 14, at 14. Subsequently, Mr. Davison met with the welding inspectors ‘in pairs’ to tell them that if they

²⁴ Mr. Maxwell states he did not identify the individuals as welding inspectors or otherwise. Maxwell, Tr. 9395.

had concerns, technical or nontechnical, they should first bring them to management to try to resolve, before going to the NRC. Davison, App. Ex. 14, at 13; Burr, App. Ex. 29, at 3. Mr. Burr stated that he interpreted this as a 'reprimand,' *id.*, although most other inspectors considered the meetings simply informational. *See, e.g.,* Rockholt, Tr. 6208-09."

15. Mr. Warren Owen, Executive Vice President, Construction and Engineering, subsequently met with welding inspectors to discuss their concerns and the recourse policy. During that session he was asked by Mr. Rockholt whether there would be any retaliation if inspectors presented their concerns directly to the NRC (Tr. 1993). Mr. Owen's response was not as clear and forthright as it might have been and is subject to differing interpretations (Tr. 1993-95). Mr. Owen suggested each person would have to make a personal decision, act in "good faith," and if the concern was "genuine" that person had a right and perhaps an obligation to go to the NRC. (Palm. Ex. 2, at 6; Owen, Tr. 1998-99.) Mr. Rockholt testified to the effect that Mr. Owen's words conveyed a message to him that he "better not go" to the NRC. Tr. 6361. However, the Board heard other inspector witnesses who came away from this meeting with an understanding that they would not be retaliated against for going to the NRC. (Ross, Tr. 7068-69; Crisp, Tr. 8353-58, 8361; Godfrey, Tr. 8311.) The Board and parties listened to the tape, and Mr. Owen's talk did not come across as threatening.

16. The preceding paragraphs illustrate an unfortunate lack of clarity and consistency in Duke's policy and practice when an employee wishes to take a safety concern to the NRC. Must he go first to Company supervisors, is he merely encouraged to do that, or should he be encouraged to go directly to the NRC? The policy — whatever it is — should be *clear*, and it should be spelled out in plain English to all their employees. Since these issues involve the relationship between licensee employees and the NRC, it should be the responsibility of the NRC to establish a uniform policy for all reactor licensees and their employees. The only effort along those lines of which we are aware is NRC Form 3, which apparently is posted on licensee bulletin boards and which was Attachment E to the Applicants' Exhibit 37. Form 3 is very inadequate. It does not communicate any clear policy on basic issues involved here — *e.g.*, whether an employee may or must raise a safety concern with his employer first. *See* Board colloquy with the Catawba Resident Inspector, Tr. 9876-84. The form is written in legalistic jargon and addresses many different subjects in a confusing manner. For example, under the caption "Employee Protection" it refers to "protected activities," without defining what they are. In our view, the NRC should promptly develop the appropriate policies on these matters and set them

forth in a plain English notice for posting at all reactor sites. Until such steps are taken, it should come as no surprise if individual licensee policies are ambiguous and employees are left in the dark.

17. The Board deduces from the evidence as a whole that the Applicants felt uncomfortable with complaints being made directly to the NRC and with the impact complaints might have on licensing proceedings, such as this one. While the Applicants urged employees to bring problems to its management, we find no attempt to punish inspectors for going directly to NRC. The record shows that some inspectors contacted NRC freely (Van Doorn, Staff Ex. 7, at 8, 11, 12, 13; Maxwell, Staff Ex. 6, at 6; Bryant, Tr. 9491-93). Generally, the testimony reflected an understanding that employees could contact NRC without retribution. Perceptions to the contrary seem to have been the result of ambiguous messages from the NRC and Duke management and of misapprehension by the inspector.

4. Retaliation for Strict Inspections

18. The Board heard several incidents where inspectors interpreted instructions to mean "ease off" or "slack up" on inspections. We inquired into these matters to determine if there was pressure from management to overlook violations.

19. William H. Burr, a welding inspector, related a discussion with his supervisor, Stanley Ledford, in which Mr. Burr interpreted Mr. Ledford's remarks to mean future advancement would be limited if he did not "ease off" on craft (Burr, App. Ex. 29, at 3; Burr, Tr. 5885-86). Mr. Burr, in response to Board questions, said he took this to mean he had gone too far in inspections and that he might be considered overzealous (Burr, Tr. 5953). Mr. Burr also said there was no instruction not to follow procedure (Burr, Tr. 5953-54). He did not "ease off" but rather he became more determined to do his job (Burr, Tr. 5931).

20. Mr. Ledford, for his part, does not recall saying "ease off" craft, but acknowledged he had many complaints from craft that Mr. Burr would look for reasons to turn down work (Ledford, Tr. 9089-90). Since Mr. Ledford worked days and Mr. Burr the second shift, Mr. Burr would call him at home frequently for verification of some action Burr proposed to take. (Ledford, Tr. 9090.) Mr. Ledford wanted Mr. Burr to make more decisions on his own and not cause delay waiting for instructions or verification (Ledford, Tr. 9093). Mr. Ledford said he was considering Mr. Burr for promotion because increasing workload might require an additional supervisor. Ledford discussed Burr's opportunities in the same conversation over coffee (Ledford, Tr. 9091-98).

21. The Board had the impression that both witnesses were truthful, but were misinterpreting what the other was saying. While Mr. Burr interpreted the incident as a type of threat to future promotion, the Board considers it to be an inept attempt by Mr. Ledford to handle two matters in an indirect manner. We do not find pressure to let procedural violations go undocumented or uncorrected. We can sympathize with Mr. Ledford's desire not to be called at home frequently, up to 11:30 at night.

22. Descriptions of several cases cited in the Staff's PFFs 258, 259 and 260 are accepted for the most part. Mr. Bryant reported a circumstance where Mr. Davison told inspectors they were overinspecting miscellaneous steel welds (Bryant, App. Ex. 30, Att. A; Palm. Ex. 40, at 2). "Mr. Davison denied it. Davison, Tr. 4037. Mr. Bryant was particularly concerned that, when an NRC inspector subsequently found a weld undersized, Mr. Davison threatened to give Mr. Burr, the inspector, an 'A' violation (three of which may lead to termination). Bryant, App. Ex. 30, Att. A; Crisp, Tr. 8395-97; *see* Davison, Tr. 4033-35.) However, the net result of this incident was that inspectors were 'pretty tight on them wanting to have a little extra something . . . to cover your own self' Crisp, Tr. 8396 (PFF 258). Similarly, Mr. Cauthen was told he was looking a little too hard to find defects on his M-4I inspections, where the procedure called for a 'walk-down' for construction damage, not the complete reinspection of the system (Cauthen, Tr. 6450-51). Mr. Cauthen admitted, 'I always go a little farther than what I am supposed to' on M-4Is (Cauthen, Tr. 6524 (PFF 259))." Mr. Cauthen testified that Mr. Ross told him to slack up on writing NCIs (Cauthen, Tr. 6447-48) and that he was overinspecting (Cauthen, Tr. 6562-63). However, Mr. Cauthen stated that he never had an NCI turned down (Cauthen, Tr. 6560-61).

23. "There was, in fact, considerable evidence that the welding inspectors had a tendency to go beyond the procedures, and to inspect against their own personal ideas of what was a good weld or sound inspection. *See* Cobb, App. Ex. 11, Att. 5, Concern E-4; Bryant, Tr. 6158-59; Gantt, Tr. 8550-51; Burr, Tr. 5953; Reep, Tr. 8673; Crisp, Tr. 8395-96, 8437-38. Previous examples given of violations cited on nonsafety-related systems, which applied only if the item was safety-related, exhibit this tendency as well. *See, e.g.,* Cobb, App. Ex. 11, Att. 5, Concern G-3; Cauthen, Tr. 6441-46 (PFF 260)."

24. The Board interprets these various allegations of inspectors about being told to "ease off," "slack up," or that they were "overinspecting" as symptoms of problems with procedures and communication. The inspectors felt they had to follow a procedure to

the letter. Management felt the inspectors were not accepting reasonable tolerances, but the procedures did not provide for this judgment. Management felt procedures other than NCIs could be used, but inspectors read procedures to call for NCIs. Craft complaints led QA management to attempt resolution through oral instructions and informal or *ad hoc* procedures rather than basic changes in established procedures. The inspectors' resistance and failure to follow such oral messages led to tensions between inspectors and their management. The Board does not believe there was any intent by management to accept unsafe work. The testimony of inspectors was that they followed procedures and rejected work which did not measure up, in spite of anything to the contrary in messages or "signals" from their management. The confusion between inspectors and management about procedures has been alleviated by changes in procedures initiated following the Technical Task Force Report (*see* ¶ B.98 *re* Q-1 procedure and B.135 *re* R2 procedure).

5. *Discrimination Against "Beau" Ross*

25. Mr. G.E. ("Beau") Ross, a first line supervisor, claimed he was given a low performance rating by his supervisor, Mr. Arthur Allum because of his role in expression of welding inspector concerns (Ross, App. Ex. 34, Att. B). He filed recourse procedures on April 18, 1983 and May 13, 1983.

26. Mr. Ross' initial complaint reads:

I feel that I have been discriminated against in my job performance and most recently in my yearly evaluation. I feel that Art Allum is prejudiced against me because I have on several occasions spoken up when I felt the program was not being followed. Art is inclined to go along with some questionable situations and when I question the legality of these situations, I get branded as not doing my job. I thought that was part of my job. I also have on numerous occasions told Art that I did not feel he [was] supporting me on issues where I should be supported. Art holds this against me. I have questioned some construction practices, on several questionable cases, Art calls this not communicating with craft. I have found inspectors not properly doing their duties, Art blames me for entrapment. I get deliberately left out of some major decisions which could affect my ability to properly cover my area and provide inspection coverage. I ask questions and don't get answers.

I felt last year that I was retaliated against on my evaluation. I felt that I was being punished for standing up for what I felt was right. With God as my witness, I submitted nothing except what I morally felt was wrong. I felt that my evaluation was pay-back because I was not a yes man. I asked Art about possible recourse, but got no answer from him. Numerous occasions arose during the year when I felt intimidated, opposed, and interfered with. Things had improved a great deal, communications were better, information was being given to explain decisions, I had

just about regained confidence in the system when my evaluation came along and let me know in no uncertain terms that I had misjudged

Id.

27. The Board adopts the Staff's description of the record in its PFFs 229-242, as follows: "Mr. Ross believed his 'fair' rating was the result of questioning decisions by Mr. Allum on procedural violations. In Ross' second memo, he notes that in seven of nine years as a supervisor he had received 'competent' or better ratings, but after the inspector concerns were submitted he got two consecutive 'bad' ratings. He states: 'This tells me retaliation, payback, and discrimination.' *Id.* See also Ross, Tr. 6994-7000."

28. "The Ross accusation of retaliation involves not only Mr. Allum, but also Mr. Davison. Mr. Ross stated that Mr. Allum agreed that Mr. Ross' prior rating for 1981-82, apparently by L. Davison — in which Mr. Allum played only a minor role — was retaliatory. Ross, Tr. 6776, 7058. Ross also stated that Mr. Davison had downgraded a '4' — or superior rating by Mr. Baldwin in 1980 to a '3,' or competent one. Ross, Tr. 6996-97. Mr. Ross believed Mr. Davison was the source of Mr. Allum's prejudice against him. Ross, Tr. 7000."

29. "The focus of cross-examination in this regard was on Mr. Ross' 1982-83 rating, as documented in Palm. Exs. 36, 50, and 51. It is difficult to read Mr. Allum's February 13, 1983 evaluation of Mr. Ross (Accountability Summary and Appraisal), Palm. Ex. 50, or his Personal Performance Plan Worksheet, Palm. Ex. 51, and get a clear idea of why Mr. Ross was rated low. A descriptive statement at the end gives some clues:

Beau's performance in the first seven months of his evaluation period were less than satisfactory. During that period he showed lack of support of management decisions. This was illustrated by his failure to accept the explanation given to him on recertification of welding inspectors in MT & PT and his dissatisfaction expressed concerning the interpretation given by QA Technical Services concerning the proper use of R-2As and Q-1As. Communications between Beau, his crew, and craft and Technical Support personnel has improved over the last annual evaluation but is in need of much improvement. This was caused in part by his using another inspector to investigate problems on concerns of craft rather than doing it himself. . . ."

Palm. Ex. 50. Similar statements are made in an interim evaluation made approximately November 1, 1982. Palm. Ex. 36.

30. "Mr. Allum testified that the key factors in the low evaluation were: Mr. Ross' unwillingness to resolve problems with craft and craft supervision on a first-hand basis but rather to do so by sending inspectors (Allum, Tr. 4522-24), and his unwillingness to give his crew an-

swers to questions which they did not want to hear. Instead he was said to refer the inspectors to others, such as Mr. Allum. Allum, Tr. 4536-37. Mr. Ross was also said to have mischaracterized the source of a decision not to nonconform a downhill weld (Concern D-23 of Mr. Bryant), saying that it was Mr. Baldwin's idea to remove the weld and correct it by rewelding, rather than 'NCI it.' Baldwin, Tr 4539. According to Mr. Baldwin, this had been Mr. Ross' idea. *Id.* (Mr. Ross noted that he *never* stopped an NCI from going forward, even if he disapproved. Ross, Tr. 6960.)”

31. “Mr. Allum also rated Mr. Ross low for challenging his explanation for why the inspectors were getting NDE instruction. Mr. Ross would not accept Mr. Allum's statement that it was not in order to send them back to the Cherokee construction site. Allum, Tr. 4497-4500. Mr. Allum had other complaints: Mr. Ross challenged use of the R-2A, as taking away authority from inspectors (Allum, Tr. 4514, 4517); Mr. Ross shouted at Mr. Allum in the presence of Mr. Baldwin and two QC engineers (Allum, Tr. 4515, 4519); Mr. Ross misrepresented to his crew what Mr. Allum told Mr. Ross — giving as an example, Mr. Ross telling a crew member management turned down a requested transfer, when Mr. Ross said he could not afford to lose the inspector from his crew. Allum, Tr. 4493-95. This last basis for the 'fair' rating was not communicated to Mr. Ross. Allum, Tr. 4496.”

32. “In response, Mr. Ross explained that he initially objected to use of the R-2A because the process control sheet had not been changed, and directed that the Q-1A, not the R-2A, be used to document corrective actions. Ross, Tr. 6952. He also noted Mr. Allum had never told him before Mr. Grier did on April 27, 1983 that he was supporting his men more than management. Ross, Tr. 6798. In addition, he was told by Mr. Allum that construction technical support was doing R-2A reviews; but they were not. Ross, Tr. 6753. Mr. Ross said that Mr. Allum was not a good communicator.²⁵ Ross, Tr. 6775.²⁶”

²⁵ “This assertion was supported by Mr. Rockholt, based on his experiences with Mr. Allum. On June 9, 1983, Mr. Rockholt complained to Barbara Horne, Employee Relations Assistant for the QA Department, that during a recent Employee Forum (one of the 'communications' facilitators implemented as a result of the task forces) Mr. Allum acted disparagingly toward Mr. Rockholt, and, generally, was prejudiced against Beau Ross' crew. Palm. Ex. 87. In another similar matter, Mr. Allum reacted disparagingly when, on July 15, 1983, Mr. Rockholt asked Mr. Allum why welding inspectors had no electric fans, whereas NDE inspectors did. According to Mr. Rockholt, Mr. Allum then replied, 'NDE inspectors get fans because they work.' Palm. Ex. 88. Both incidents suggest that Mr. Allum was not on good terms with the welding inspectors. (After June 1983, Mr. Allum was no longer second-line supervisor over any visual inspectors.) Allum, App. Ex. 21, at 3; Palm. Ex. 87.” The Board adds that based on its observations of Mr. Allum as a witness, his communications skills are not well developed.

²⁶ Mr. Ross' recourses to Mr. Willis and Mr. Davison were both denied. Palm. Ex. 53; 35. *See also* Ross, App. Ex. 34, Att. B.

33. "Mr. Ross' fair rating was, in part, a facet of the communications problems which evolved from differing approaches to use of the QA procedures to identify and document construction deficiencies, and continuing mistrust between Mr. Ross and his crew on the one hand, and middle management, on the other. Mr. Allum's reasons focused on Mr. Ross' failures at communications. However, the Accountability Summary and Appraisal (AS&A) for Mr. Ross does not provide for giving a great deal of weight to Mr. Allum's reasons for rating Mr. Ross low."

34. "As we read the AS&A, there are three categories which appear to have a relationship to the problems which Mr. Allum identified as the source of Mr. Ross' low rating: 'Interface: Proper communications with other groups and departments,' 'Carry out responsibilities of QA and Construction Department QA Procedures,' and 'Resolving technical problems concerning quality.' In each of these areas, Mr. Ross was rated '2,' with a weight of '3.' The descriptions of his 'Accomplishments/Comments' in these areas are not especially strong. However, even if these ratings were proper, it would appear that Mr. Allum did not properly use the last accountability area, which is reserved for areas 'outside the Principal Accountabilities' [emphasis added], when he cited therein problems which occurred in the three other accountability areas noted above to support his rating. (Mr. Allum rated Mr. Ross a '1' in this omnibus area, which had a weight of '3.' A rating of '3' in that category would have resulted in an overall rating of '2.48,' or very close to the 'competent' range of '2.5 to 3.4.' Palm. Ex. 50.)"

35. "To illustrate the point, under 'carry out responsibilities of QA and Construction Department QA Procedures,' reference is made to 'identification of items requiring Q-1As and R-2As,' an area also referenced in the category as having been 'outside' a principal accountability. We note the same double consideration in the 'outside' category and the 'Resolving technical problems concerning quality' category, with respect to answering questions himself. Palm. Ex. 50."

36. "Two other internal inconsistencies bother us. First, Mr. Ross appears to have been 'whip-sawed' by the early interim evaluation which rated him low for trying to answer a question he should have referred to supervision, and then in the AS&A, rating him low for not answering questions he could have answered himself. Palm. Exs. 36, 50. While it is possible that the two references are not inconsistent, that is, they refer to different types of questions, we would not fault Mr. Ross for being confused by these evaluations."

37. "The Board also questions whether faulting Mr. Ross for allowing an inspector to pursue his own disagreements through supervision is

inconsistent with informal employee recourse and with the more open access to QA personnel indicated by elimination of the 'technical review' block in the new Q-1A. Similarly, it is inconsistent to argue that Mr. Ross is at fault both for not pursuing his disagreements fully through channels, and also faulting him for not supporting management decisions. *See* App. PFF 223; Palm. Ex. 50."

38. "The Board is also troubled by the apparent intentional failure of Mr. Allum to communicate, for three months, the November 1982 interim evaluation which stated that without improvement, Mr. Ross might not be continued as a supervisor. Palm. Ex. 36. Allum, Tr. 4579, 4589-90; *see also* Allum, Tr. 4574-75, 4578; Davison, Tr. 3939-40, 3951. Mr. Davison conceded that this delay was contrary to Duke policy. Davison, Tr. 4583-84."

39. "More to the point, Mr. Davison notes that 'a large contributor to Beau's feelings of being treated unfairly resulted from lack of specific, clear standards for Beau's performance and the lack of formal review sessions to go over Beau's performance.' Palm. Ex. 35. The Board views these failures in the evaluation to have resulted in unfairness, not merely contributing to Mr. Ross' *feelings* of unfairness. The lack of clarity left Mr. Ross without sufficient notice of the basis upon which he would be rated. Mr. Davison seems to perceive this as well, but suggests only prospective action to correct this. *Id.*"

40. "Another consideration is the testimony of other witnesses about Mr. Ross. Even discounting a 'we' versus 'them' attitude between the crew and supervision, the Board asked nearly all of the welding inspector and supervisor witnesses their opinion of Mr. Ross. None gave him a rating lower than '4.' *See* Sifford, Tr. 9150; Ledford, Tr. 9108; Crisp, Tr. 8415-16; Bryant, Tr. 6014, 6016, 6027, 6029, 6030. It may also be noted that both Mr. Willis and Mr. Allum are no longer supervising Mr. Ross and his crew. Davison, Tr. 3857."

41. The Board takes note of other circumstances which provide background for our evaluation of this matter. In 1981, Mr. Davison sent a confidential memo to Mr. Wells, then corporate quality assurance manager, about the welding inspector concerns. Part of the proposed solution was to transfer Beau Ross and C.R. Baldwin (Palm. Ex. 13). Baldwin was replaced by Mr. Allum, but Ross declined transfer. This reinforces the conclusion that the subsequent low ratings of Ross, first by Davison and later by Allum (under Davison's supervision) were intended to discourage strict adherence to QA procedures by Ross and his crew.

42. When Mr. Ross declined transfer, it appears to the Board that an effort was made to build a case against Mr. Ross to justify future

action to demote or fire. The Board cannot avoid noting the difference in the record concerning the Ross evaluation case and the dispositions of harassment incidents involving craft foremen, e.g., Mr. Mullinax and Mr. McKenzie (discussed below at pp. 1522-25, 1527-28). In the latter cases, the foremen were made to understand they might be fired, but no record was made. In Ross' case, an extensive record was made that could be a basis for firing, but Mr. Ross was not dealt with completely openly.

43. George Grier, who succeeded Mr. Wells as corporate quality assurance manager, wrote a lengthy confidential memorandum to the file about a meeting he had with Mr. Ross while Ross' recourse on his rating was pending. The memorandum read in part as follows (Palm. Ex. 33):

The last area I discussed was in regards to the hearings. I explained to Beau that one of our big tasks would be to put the concerns expressed by welding inspectors into perspective. The intervenors will be characterizing those concerns in the worst possible light. We need to be clear on the significance of those concerns and in particular will have to be clear on the meaning of terms like "intimidation," "threats," "falsification" and "pressure to approve faulty workmanship." These are words that are used in the concerns and could be used to describe very extreme circumstances.

The Board views the allusion to possible problems at a hearing in connection with Mr. Grier's counselling Mr. Ross about his performance as improper. Although Mr. Grier denied any improper intent (Tr. 3884), the Board thinks a reasonable person probably would interpret these comments as an attempt to influence future testimony in this proceeding.

44. Based on our review of the testimony and exhibits, the setting in which events occurred, and the credibility of the witnesses, the Board finds that the 1981-82 evaluation, the November 1982 interim evaluation, and the 1982-83 evaluation of Mr. Ross, all at the "fair" or "2" level, were unfair and in retaliation for Mr. Ross' and his crew's strict adherence to QA procedures and expression of safety concerns.²⁷

²⁷ Palmetto asks us to find the Ross evaluations to be violations of 10 C.F.R. Part 50, apparently meaning 10 C.F.R. § 50.7. PFF 254. That provision prohibits discrimination against an employee for engaging in certain "protected activities," as defined in section 210 of the Energy Reorganization Act of 1974. Since there is no clear evidence in the record indicating that Mr. Ross himself voiced concerns to the NRC prior to the evaluation in question, we find no violation of 10 C.F.R. § 50.7. *But see* Ross, Tr. 6777. However, the evaluations did constitute discrimination against Mr. Ross on account of his voicing safety concerns. They therefore violated the spirit of section 50.7, if not its letter. In any event, a retaliatory job evaluation against an employee for raising safety concerns is inconsistent with the thrust of 10 C.F.R. Part 50, Appendix B and the "reasonable assurance" determinations that must be made under 10 C.F.R. § 50.57(a)(3) and the *Callaway* decision discussed at pp. 1433-34, above. Presumably, a pattern of such evaluations, not shown here, could preclude the necessary determinations and result in denial of an operating license.

The persons directly responsible for the discriminatory evaluations of Mr. Ross were Mr. Davison, Mr. Allum (as to the interim and 1982-83 evaluations), and Mr. Grier (as to the 1982-83 evaluation, which he should have overruled). Mr. Grier and Mr. Davison occupy senior level supervisory positions. Therefore, these actions are fully attributable to the Duke Power Company.

45. In retrospect, Duke would have been wise to listen to Mr. Ross and the complaints of his crew of welding inspectors as they developed long prior to the Task Force Reviews. Instead, the Company chose to let the problem fester and ultimately to accuse Mr. Ross of being unresponsive of management and acting inappropriately in questioning management decisions. Duke corporate management has chosen to characterize the problems that surfaced as "communications problems." *E.g.*, prefiled testimony of Owen at 16; Alexander at 5. The primary responsibility for such problems rests with management; the changes made later to resolve such problems were not within Mr. Ross' authority or responsibility to change. Mr. Ross appeared to the Board to have been a dedicated employee, just trying to do his job.

46. We adopt portions of the Staff's PFFs 243 and 244, as indicated. "The Board finds that Applicants' treatment of Mr. Ross was inconsistent with their programmatic responses to the welding inspector concerns and inconsistent with effective implementation of their quality assurance program." Notwithstanding these observations, the evidence does not support a finding that Mr. Ross' performance of his work was negatively affected by the toll of these events on him. Mr. Ross himself stated that the inspection process was not compromised. Ross, Tr. 6965; App. Ex. 34, at 6, 7, 9. *See also* Rockholt, Tr. 6314-15; Cauthen, Tr. 6542. Despite the rating, Mr. Ross stated that the quality assurance program (and presumably his role in it) is "going pretty much as it should." Ross, App. Ex. 34, at 9. Mr. Ross stated:

we don't have the problems that we had before. We do have the doors open to us. If we do have problems now, they are addressed and they are taken care of in an appropriate way.

• • •

It's just a whole different atmosphere now. . . .

47. Viewing the discriminatory evaluations of Mr. Ross in light of related welding inspector concerns, there appears to have been an unsuccessful attempt on the part of some mid-level supervisory personnel to bring about an informal relaxation of inspection procedures. This is a serious matter. Had it been successful, it might have undermined the QA program at Catawba by diminishing the efforts of inspectors. Because

Mr. Ross and his crew continued to perform those duties conscientiously, there was no "breakdown" or even relaxation of the QA program. While important in itself, we further note that Mr. Ross was involved in only one part of the QA program at Catawba; we received no evidence of other similar discriminatory evaluations. Thus there is no direct evidence that the overall QA program at Catawba was adversely affected by Mr. Ross' evaluations. In these circumstances, the discriminatory actions against Mr. Ross, while blameworthy, are not a basis for denying or conditioning the license application. We expect the airing of this matter in public hearing and in this decision will have a salutary effect on the Company's handling of similar matters in the future.

D. Harassment of Welding Inspectors

1. Introduction

1. The Board views harassment of welding inspectors to be a serious allegation, if true. Duke's management claims to have procedures in place to handle such problems. The policy of the Construction Department reads:

The Construction Department promotes equal treatment of all employees. The harassment of any employees is contrary to this policy and will be considered justification for disciplinary action.

Harassment is any action that singles out an employee, to the employee's detriment, because of, but not limited to race, sex, religion, national origin, age, handicap, or innate personal characteristics. Harassment involves two or more employees who may or may not include supervisors.

App. Ex. 73. The policy of the Quality Assurance Department is similar. Both of these statements appear to be aimed at certain types of labor discrimination practices, involving, for example, sex or race; they do not specifically address the type of issues which arose in this case concerning alleged harassment of welding inspectors to the detriment of the effectiveness of the QA program.

2. In reviewing these allegations the Board found it useful to clarify its own concept of harassment. The inspector's job consists of identification and documentation of compliance or deviation from construction procedure according to prescribed procedures. Any action taken by another employee or superior intended to modify the actions of the inspector for the purpose of impeding the proper performance of the inspector's task is considered to be harassment. The use of or threat to use physical force or other violence is obviously the most overt form of

harassment, but harassment can be more subtle, taking the form of oral invectives or behavior designed to intimidate, embarrass, or ridicule the inspector. To be effective, harassment policy has to be applied to conduct off site, as well as on site.

3. The Board recognizes that an air of tension between the inspector and the inspected is inherent in that relationship. No one likes to have to do work over. Furthermore, the Board is aware that rough language may be used on construction projects to indicate friendly as well as hostile feelings. In the cases reviewed, the Board has made an effort to distinguish between such expected factors and harassment. We also allow for situations where an honest disagreement exists concerning interpretation of procedures. We would not deny either party the right to disagree, but would require that formal procedures be followed in resolving such disagreements in an impersonal manner.

2. *The Reep-Jones Incident*

4. When welding inspector Max Reep found welder G.R. Jones lying down resting about 30 feet from his welding rods, Mr. Reep took possession of the rods with the intent of writing an NCI report for failure to maintain control of the rods as required by Quality Assurance Procedure H.3. Mr. Jones was alerted to this action by a pipefitter and took back his rods from Reep's pocket before Reep left the area. Reep completed his inspections and then repossessed the rods from a pouch hanging on the wall about 6 feet from Jones. Jones told Reep he would not leave with his rods and forcibly took them out of Reep's hands. Mr. Reep filed a harassment charge. Palm. Ex. 62; Reep, Tr. 8678-82. *See also* Palm. Exs. 63-71.

5. The harassment charge was not upheld. The QA Department supported Mr. Reep because of the implied threat by Jones; however, the construction management people did not go along because Reep did not need physical possession of the rods to write an NCI. (Rogers, Tr. 5263-64; Dick, Tr. 5268.) Reep thought he did. (Reep, Tr. 8644 and 8647-48). A violation notice of Procedure H-3 (material control) was issued against Jones and he was also counseled about unprofessional conduct. Palm. Ex. 70; Dick, Tr. 5249-50.

6. The Applicant would have the Board find this incident "unfortunate . . . inconsequential and merely indicative of the natural conflict which sometimes exists between inspectors and . . . inspected." App. PFF at 80. The Intervenor suggests that this is another instance where "management wholly refuses the chance to stand up for its quality assurance program and its inspectors who try to do so." PFF 226. The Staff's

position is somewhat equivocal, *i.e.*, Jones was interfered with but it does not show a failure of QA management to prevent harassment of inspectors. PFF 266.

7. The Board finds this a case of aggravated personal confrontation more than harassment, as we have defined it. The actions of Jones seemed to be aimed more at retaining possession of his rods than in keeping Reep from reporting what he thought he should report. In this case the violation of procedures seems more marginal than in others. The sudden awakening of Jones may have been contributory. Reep's persistence in taking possession of the rods a second time when that was apparently unnecessary may also have aggravated the situation. The Board notes that a violation was written, Mr. Jones was counseled, and the QA Department did stand behind its inspector. Thus the Board cannot support Intervenors' criticism of the handling of this case, but the Board does not concur with Applicants that it was inconsequential. On balance, however, the Board thinks this incident was handled appropriately.

3. *The Jackson-McKenzie Incident*

8. Because of the complexity of this incident, the Board adopts the Applicants' factual history in its Proposed Findings 256-262 (as our Findings 9-15), since it is accurate (with one exception we note), gives the necessary detail, and is still concise.

9. "This incident began on November 11, 1981 in the RBS area adjacent to the reactor pressure vessel. (Tr. 8821-22, Jackson 11/30/83.) Welding inspector Larry S. Jackson (Jackson) was walking across a platform toward a location where he was to make a weld verification when he saw about 10 feet below him pipefitter Fox grinding on a 2-inch-diameter stainless steel pipe. Jackson perceived that the grinding disk being used by Fox was not marked with red paint as prescribed by Construction Procedure 170 (CP-170). Saying nothing, Jackson walked down to Fox's work area to examine the disk. (Tr. 8823-25, Jackson 11/30/83.)"

10. "At Jackson's request, Fox handed the disk to him, whereupon Jackson saw two red 'Magic Marker' marks on the paper on the backside of the disk. (Tr. 8828, 8901, Jackson 11/30/83.) By Jackson's account, while he was descending to the work area, Fox, having noticed Jackson's presence, took the grinder to his tool box where he placed the two red

marks on the disk.²⁸ (*Id.*) Since Jackson believed he would have seen the red marks had they been on the disk at the time he first observed the work in progress from the platform, he decided to initiate an NCI for violation of CP-170. (Tr. 8828, 8834, 8903, Jackson 11/30/83.)”

11. “The type of disk involved is an abrasive wheel 3 inches in diameter and is used for grinding in preparation of pipe joints for welding. (Tr. 5669, Dick 11/2/83.) Standard procedure at Catawba was to mark the disks used to grind stainless steel pipe with red spray paint to distinguish them from disks used to grind carbon steel pipe. (Tr. 8755-57, McKenzie 11/30/83.) The purpose of the marking procedure was to keep disks containing carbon steel fragments or particles from being used interchangeably on stainless steel pipe. (Tr. 8792, McKenzie 11/30/83; Tr. 5669-70, Dick 11/2/83.) These disks are used up rapidly ‘in a few minutes.’ (Tr. 8797, McKenzie 11/30/83.)”

12. “After examining the disk, Jackson left Fox’s work area taking the disk with him. (Tr. 8834, Jackson 11/30/83.) Jackson then met Fox’s supervisor, Edward J. McKenzie (McKenzie), and discussed the matter. (Tr. 8835, Jackson 11/30/83.) At McKenzie’s request, Jackson handed him the disk from his work pouch, whereupon McKenzie looked at it, commented on its red marks, and put it in his own shirt pocket. (Tr. 8835-37, Jackson 11/30/83.) Jackson asked for it back but McKenzie refused. By Jackson’s account, he then reached into McKenzie’s shirt pocket whereupon McKenzie stepped back, balled up his fist, and told Jackson that if he touched him again, he would knock his eyes out. (*Id.*) By McKenzie’s account, Jackson poked McKenzie repeatedly in the chest while demanding return of the disk and asserting that he was going to issue an NCI report. (Tr. 8768, 8811, McKenzie 11/30/83.) Nothing further happened and Jackson then left the work area. (Tr. 8837, Jackson 11/30/83.)”

13. “A short time later, McKenzie and Jackson together went to Jackson’s supervisor, Charles Baldwin, who immediately reviewed the matter and concluded that the disk should have been marked with red spray paint. (Tr. 8772, McKenzie 11/30/83.) McKenzie then apologized to Jackson and the two men shook hands and returned to work. (*Id.*) Later that day Jackson initiated an NCI report regarding the section of pipe on which Fox was working at the time the incident arose. (Tr. 8845, Jackson 11/30/83.)”

14. “The next day, November 12, 1981, Jackson went to the RBS area to place a red NCI tag on the section of pipe upon which Fox had

²⁸ Jackson testified that although he did not see Fox mark the disk, Fox must have done so while Jackson walked down to Fox’s work area. (Tr. 8828, Jackson 11/30/83.)

been grinding the previous day. (Tr. 8848-49, Jackson 11/30/83.) According to Jackson, he asked Fox to point out that section of pipe, which Fox did, and Jackson tagged it. (*Id.*) As it turned out, Jackson tagged the wrong section of pipe. Shortly thereafter McKenzie approached Jackson, impolitely addressed him²⁹ and informed him that he had tagged the wrong pipe. (Tr. 8850, Jackson 11/30/83.) Jackson immediately went to his supervisor and filed a formal harassment charge against McKenzie for verbally abusing him. (Tr. 8853, 8855, Jackson 11/30/83.) McKenzie went to see Charles Baldwin who sent a person to tag the correct section of pipe. (Tr. 8778, McKenzie 11/30/83.) The next day, Jackson, who had been 'on loan,' was returned to his regular crew and work area. (*Id.*; Tr. 9072, 9100, Ledford 12/1/83.)"

15. "The final outcome of this incident was that the NCI report concerning the section of pipe was allowed to stand; however, the piping system which included this section of pipe was later deleted (cut out) and removed from the building for reasons totally unrelated to the incident. (Tr. 8780-81, McKenzie 11/30/83; Tr. 8911, Jackson 11/30/83.) According to McKenzie, this incident was the only time a violation occurred regarding an 'unmarked' grinding disk. (Tr. 8791, McKenzie 11/30/83.) McKenzie testified that he did not know of any occasion where an unmarked disk was partially used, marked, and then reused on a different type of pipe. (Tr. 8812, McKenzie 11/30/83.) McKenzie also testified that he collected all his crew members' red Magic Markers the day after the Jackson incident. (Tr. 8781-82, McKenzie 11/30/83.)"

16. The Applicants' review of the case found that Jackson's actions in attempting to retrieve this disk contributed to the escalation of the confrontation and that there was no harassment. Dick, Tr. 5325-26, 5329. However, McKenzie and Jackson were both counseled about unprofessional conduct and McKenzie was told not to use abusive language. App. PFF 265. Both McKenzie and his crew got a verbal reprimand about ridiculing inspectors. Dick, Tr. 5329-34. McKenzie was told a repetition could jeopardize his job. Dick, Tr. 5309.

17. Intervenors point out that McKenzie admitted he deserved the reputation of being a bully on the job. McKenzie, Tr. 8719. Intervenors claim that McKenzie and his crew were perceived to have gotten off "scott free." Palm. PFF 221. Intervenors claim this was a clear signal to inspectors that they could expect no support from management. Palm. PFF 222. The Staff agrees with the Applicants' resolution. Staff PFF 270.

²⁹ The Applicants' characterization of what McKenzie said as an "impolite address" is euphemistic. See Tr. 8850.

18. The Board considered the demeanor of witnesses, as well as their testimony. We disagree with Applicants and Staff. This is a case of harassment. The Board is not persuaded that in attempting to retrieve the disk from McKenzie, Jackson violated his person to such an extent (if at all) as to excuse the subsequent threats and ridicule that occurred the following day. After an agreement that an NCI would be issued, the actions of the crew and its foreman the following day, in the Board's view, were designed to intimidate, ridicule and denigrate the inspector.

19. Although this episode did not affect the ultimate safety of the system involved, attempts to enforce procedures should not result in harassment. It would not be unreasonable for the perceptions arising from this case to be as suggested by Intervenors. The actual actions taken, however, were much more forceful and supportive of inspectors than the general perception on the job. In this case, had the reprimand to the crew and the warning to the foreman been made a matter of record and communicated to the inspectors, the perception of management support of QA would have been quite different.

4. The Deaton Rifle Incident

20. William Deaton, a welding inspector supervisor, had to repeatedly reject the fit-up of containment plates made by a particular ironworker. Deaton, Tr. 5793-94. One day on the way home from work a car pulled alongside the car in which Deaton was riding. A man, recognized as the ironworker, pointed a rifle at Deaton. They exchanged words and the other car pulled away. Deaton, Tr. 5794-95. The next day Deaton reported the incident to his own supervisor. The ironworker was allowed to be terminated at his own request (Beam, Tr. 5345-46) because the Company was uncertain of its legal position in an offsite incident. Dick, Tr. 5623-24. Deaton said the resolution satisfied him because it was a problem with an individual who was removed. Deaton, Tr. 5800-01.

21. Intervenors characterize the Applicants' response — allowing the ironworker to quit — as “lack-a-daisical” and “only the slightest wrist slapping.” Palm. PFF 196. The Board, however, thinks as Mr. Deaton does. This was inexcusable, aberrant behavior of an individual. The problem was solved quickly by the removal of the individual. In this case, we think the Applicant took a reasonable approach. The effect was about the same as firing, if not as forthright. However, the Board is concerned about the Company's hesitancy to fire the ironworker merely because the wrongful conduct occurred off site. To be effective, a QA program cannot tolerate offsite harassment. We have no doubt about the

Company's authority to discipline employees for offsite acts of harassment.

5. *The Cauthen M-4I Inspections*

22. Boyce Cauthen was responsible for "walk-down" inspections in the reactor building. These are a final inspection primarily for construction damage on previously inspected and approved systems about to be tested. Any deficiencies are noted on an M-4I form and could lead to an NCI report. (Cauthen, Tr. 6508-11.) Mr. Cauthen was harassed by other welding inspectors whose prior inspections approved welds that Cauthen found to be substandard, particularly inspectors from Mr. Ledford's crew (Cauthen, Tr. 6511-12), and especially Mr. Driscoll of that crew. Cauthen, Tr. 6517-18. The harassment took the form of "flak" and avoidance by fellow inspectors. Cauthen, Tr. 6512. Mr. Driscoll cursed Mr. Cauthen and promised to have him removed from the job. Cauthen, Tr. 6518.

23. Mr. Cauthen testified that he was told he was "looking a little too hard" for defects (Cauthen, Tr. 6451) and that he was only to look for construction damage. Cauthen, Tr. 6450 and Prefiled Testimony, Att. A. He also said he did not stop looking hard (Cauthen, Tr. 6451) and would continue to note on an M-4I anything he found. Prefiled Testimony, Att. A.

24. Management's first reaction to crew complaints was to change the reinspection system so that deficiencies noted by Mr. Cauthen would be referred to the original welding inspector and his foreman for joint reinspection. Cauthen, Tr. 6512. This was a sensible move, but complaints continued. Mr. Cauthen testified that all of his referrals were verified. Cauthen, Tr. 6514. A short time after the encounter with Driscoll, Cauthen was transferred by Art Allum (Cauthen, Tr. 6518-20) and was replaced by an inspector in whom Mr. Cauthen had no confidence. Cauthen conceded he had written himself up for missing bad welds on a few occasions (Cauthen, Tr. 6520), and that nobody was perfect.

25. This is a case of harassment of an inspector by other inspectors. Craftsmen were not involved and there is no suggestion of construction scheduling pressures. Simply, the inspectors did not like another inspector finding fault with their work. Transfer of Cauthen may have eased tensions and, consequently, have been seen as desirable in some ways by Cauthen and management. However, the Board considers this a case of harassment and that the management did not recognize and deal with it as such. The Board is perplexed that anyone would suggest an inspec-

tor limit observations to only construction damage. Fortunately, Mr. Cauthen was stubborn enough not to heed such a senseless instruction. Duke is instructed to modify its instructions and procedures, if necessary, to avoid any such understanding (or misunderstanding, if that be the case).

6. *The Harris-Mullinax Incident*

26. This incident involved a welding inspector, Lindsay Harris, and an ironworker crew and foreman, Tom Mullinax. App. Ex. 34, Att. A, at 16, and Ex. 67, Harris Att. at 1. Mr. Harris found that a tack weld applied in the fit-up of an airlock was not properly preheated. Harris, Tr. 8967, *et seq.* Mr. Harris testified that he had said he would write out an NCI if the improperly preheated tack weld was not cut out. Harris, Tr. 8968. According to Harris, foreman Mullinax threatened to whip him (or knock his teeth out) if he did not leave his men alone. Harris, Tr. 8968, 8985.³⁰ The matter was referred by each man to his supervisor and in a subsequent meeting of the parties relations were improved. Harris, Tr. 8968-69. Harris was satisfied the job was completed correctly. Harris, Tr. 8969. In a separate meeting, and unknown at the time to Mr. Harris, Mr. Cecil Wall, Job Superintendent, orally reprimanded Mr. Mullinax and cautioned against any repetition. (Mullinax, I.C. Tr. 1041, *et seq.*, and App. Ex. 99, at 3).

27. The Applicant would have the Board find that the Harris-Mullinax incident "amounted to little more than a regrettable verbal exchange" (PFF 280). The Intervenors decry the fact that the only action taken was a "mere verbal reprimand." PFF 199. The NRC Staff describes the incident as one that "on its face . . . sounds serious," but then downplays it because Mr. Harris has no continuing concerns and there was no negative impact on Harris' inspection. The Staff suggests that Mr. Harris' main concern was that, to his knowledge, no action was taken against Mr. Mullinax in support of Mr. Harris' position. PFF 277.

28. The Board concurs with the Staff insofar as finding that Mr. Harris continued to do his inspection job in a way he thought proper. Also, working relations between Mr. Harris and Mr. Mullinax and his crew were improved afterward. The Board, however, cannot simply dismiss the matter as a "regrettable verbal exchange." The incident was a serious case of harassment involving a threat of physical force to induce

³⁰ There was some indication that the threat to Harris was an attempt by Mullinax to say that his crew, not he, would whip Harris. Tr. 8983. We find this distinction improbable and, even if based in fact, insignificant.

an inspector to be less rigid. It makes little difference what part of the anatomy is to be struck and whether the force is to be applied by the foreman or someone under his control.

29. We do not know if Palmetto is concerned that only a reprimand was given, or that it was only verbal, or both. A reprimand indicating that repetition can result in termination seems a reasonable response to foreman Mullinax. The Board does not understand, however, why the reprimand was not confirmed in writing, since future job security was purported to be involved. Furthermore, failure of the Applicants to communicate information on the disposition of cases like this to the inspectors could only lead to an impression among them that they would not be supported in an effective way. Thus, although the Applicants' actions in this matter were in the right direction, the handling was so inept it could only hurt inspectors' morale.

7. *The Bryant Incidents*

30. The Board accepts the Staff's recitation of events in its Proposed Findings 278-280 as follows.

31. "Inspector John Bryant raised three incidents of alleged harassment: one in which a welder, H. Beard, threatened to push Mr. Bryant off the scaffold they were standing on, another in which a craft foreman, M. Brazell cursed him for turning down a fit-up due to an improper material marking, and a third in which a general foreman for pipe fit-ups in the auxiliary building, H. Ellenberg, said that if it were the last thing he did he was going to get Bryant out of the auxiliary building. Bryant, App. Ex. 30, Att. A; Bryant, Tr. 6050-57. Mr. Bryant's concerns focused on Mr. Davison's reaction, which was that such incidents were just part of the job, and that nothing was done about the incidents. Bryant, Tr. 6053."

32. "On cross-examination, Mr. Bryant noted that the Beard incident was satisfactorily resolved when he talked to the craft foreman, and the welder came to Mr. Bryant and apologized. He stated the men work together without problems now. Bryant, Tr. 6177."

33. "With respect to the Brazell incident, there is little in the record beyond Mr. Bryant's statement that the event occurred and that Mr. Davison took no action. Bryant, App. Ex. 30, Att. A; Bryant, Tr. 6054-55. The statement by Mr. Ellenberg came during a period in which Mr. Bryant's inspecting group had identified 'a good number of rejections' and this was holding up the craft's efforts to meet its schedule. Bryant, Tr. 6055-56. Mr. Bryant noted that his subsequent removal from auxiliary building inspections came when his crew moved to another job

assignment, and had no connection with the noted incident. Bryant, Tr. 6156-57.”

34. There is no indication these events were considered by the Non-technical Task Force (Bryant, Tr. 6053-57), and no corrective action appears to have been taken with respect to them. Any preventive action taken by Applicants would only have been organizational changes that came subsequently. The Board sympathizes with Mr. Bryant’s frustration at receiving no response from Mr. Davison about these incidents. A threat to push one off a scaffold is not a light matter to be sloughed off as part of the job. We believe this incident should have at least been investigated.

8. *The Rockholt Incident*

35. John Rockholt is a welding inspector. The Intervenors relate an incident with a craftsman as an example of harassment. Palm. PFF 204. The Staff’s proposed findings on harassment do not mention this incident. Mr. Rockholt testified that a craftsman bumped him with his shoulder. Rockholt, Tr. 6372. The craftsman did not work on anything related to Mr. Rockholt’s area of inspection. Rockholt, Tr. 6373. The craftsman was described by Mr. Rockholt as a “militant-type” who “didn’t like his own mother.” Mr. Rockholt reported it and was dissatisfied with the seeming lack of action. Rockholt, Tr. 6373.

36. The Board does not condone such conduct, but it does not fall within our definition of harassment. There is no evidence that the incident had any relation to Mr. Rockholt’s work or was intended to keep him from performing his duty. Rather it appears to be an unfriendly action by a mean character. As such it is a question for the Applicants’ personnel people, not this Board.

9. *The Langley Incident*

37. Former welding inspector Harry Langley testified that on one occasion welders threatened to kick his rear end. Langley, Tr. 6883. Very few specifics of the incident are given and the timing is uncertain. Mr. Langley said that the threat “sent me up the hill after them,” and he continued to do his work. *Id.* The record does not support any firm conclusions about this incident but, in any event, it does not appear to have been a major case of harassment or to have interfered with Mr. Langley’s work.

10. Impact of Harassment

38. Harassment was raised by a number of other inspectors in their concerns, but they do not appear to be as serious as some of the incidents detailed above. *See, e.g.,* Harris, Tr. 8969; Godfrey, Tr. 8307-08 (on incidents such as being cursed by L. Lowry: “if anything, it made us a little stricter”); Crisp, Tr. 8435 (“any harassment did not affect performance; he inspected the work, not the person”). Staff PFF 282.

39. “Mr. Bryant stated that he thought threats from craft were not properly handled, and that some inspectors might be discouraged from filing harassment charges after the Reep resolution (Bryant, Tr. 6012, 6049), but no inspector said harassment affected job performance. *See, e.g.,* Deaton, Tr. 5800; Reep, Tr. 8685; Crisp, Tr. 8428; Godfrey, Tr. 8307-08.” Staff PFF 283.

40. Some inspectors believed the craftsmen and their foremen were too production minded. McMeeken, App. Ex. 10, Att. 4, at 6. At least some of the time, a poor working relationship seems to have existed between the crafts and some inspectors. This may have resulted, in part, from poor communications about construction procedures and lack of clarity about Company policy concerning quality versus production. Some craftsmen thought inspectors were sneaky, trying to catch them in violation (Dick, Tr. 5390-91) and some inspectors thought craft were trying to slip by with substandard work. McMeeken, App. Ex. 10, at 10; Cauthen Prefiled Testimony, Att. A. If these attitudes had continued, they had the potential for reducing the motivation of QA inspectors and thereby affecting the QA program, and ultimately the quality of the construction.

41. The evidence presented to the Board does not indicate any faulty items went uncorrected. The inspectors affirmed that they continued to do their work properly in spite of the harassment. In some instances where the inspector perceived a lack of support, this too did not seem to affect the future actions of the inspector.

42. The Board was also interested in what was done to improve working relations and reduce harassment. As previously noted (pp. 1454-55, 1456, above), harassment concerns were submitted by the welding inspectors in response to the Company’s request and were considered by the Nontechnical Task Force. Establishment of a QA Department Harassment Recourse Procedure was recommended (Alexander, App. Ex. 12, Att. 3, at 5) and implemented. Open lines of communication between craft and inspection were also addressed. An employee relations specialist was made available. The Construction Department amplified its instructions to include “intimidation, coercion, or kidding will not be tolerated” and implemented a quality awareness program.

Dick, App. Ex. 24 and Tr. 5198. These measures were reported to have improved the situation. Ross, Tr. 6964; Crisp, Tr. 8414; Rockholt, Tr. 6343, 6199-6200.

11. Conclusions

43. Based on the foregoing analysis of the record the Board finds that some welding inspectors were subjected to harassment by craft workers and craft foremen for doing their job. This varied from insult and shunning to threat of injury. The existence of these incidents indicates that other similar incidents probably occurred in areas other than welding. However, the testimony reflects that the welding inspectors were not deterred from doing their job by the harassment.

44. Intervenors suggest we find that harassment of welding inspectors at Catawba constitutes a violation of 10 C.F.R. Part 50, Appendix B, Criterion I in that: "Such conduct . . . impugns the authority and freedom of persons in the performance of their quality assurance responsibility." (PFFs 190, 191 and 234.) The evidence does not support such a conclusion. The few incidents described did not deter these inspectors from performing their duties, nor was the freedom of the QA program restricted.

45. The dimensions of the harassment problem as we have defined it should be viewed in the context of the duration and magnitude of the Catawba project — some nine years of construction involving thousands of employees. In that perspective, the number of significant harassment incidents in this record is relatively small. As we noted previously (*see* I.A.26, above), the welding inspectors were asked to and did list virtually all of their concerns, including harassment concerns. Most of the welding inspectors had worked at Catawba for several years (a few of them from the inception of the project) and therefore it is reasonable to assume that they would have listed any harassment incidents that had become generally known among QA inspectors at the site.³¹ This was a vigorously contested case in which the parties offered all the strong evidence they could find. In these circumstances it seems reasonable to conclude that virtually all of the significant harassment incidents that have occurred at Catawba — or at least all such incidents involving welding inspectors — are in the record of this case. In any event, in the absence of any indication to the contrary, we can assume that correspondingly small numbers

³¹ Our primary concern is with incidents that become well known on the site because they would have a wider chilling effect on the zeal of inspectors than an incident that goes unreported. It seems fair to assume, moreover, that most unreported incidents are of a minor nature.

of harassment incidents have occurred in other major craft/inspection areas, *e.g.*, concrete and electrical work. All of this indicates that harassment was not a widespread phenomenon at Catawba.

46. In most cases, the Applicants acted in a reasoned manner to discourage repetition. Even so, the Board in looking at the Applicants' actions collectively finds them lenient. A reasonable person could have taken more severe action in each case. In addition, the Applicants' failure to publicize their actions or to communicate in a supportive way with the inspectors left inspectors with a feeling that management was not supportive of the inspection activity.

47. Lack of a clear statement of policy on harassment of inspectors was a major part of the problem. The Applicants' present written policy is aimed primarily at equal rights/equal opportunity issues. The Board directs the Applicants to revise their harassment policy and finds six months an appropriate time for this action. We suggest that the Company obtain input from both craftsmen and inspectors in the revision process.

II. CONCERNS RAISED BY MESSRS. MCAFEE AND HOOPINGARNER

A. McAfee Concerns About Concrete Pours

1. William Ronald McAfee worked in various jobs at Catawba from March 1977 until March 1979. He worked as a prepour runner (a message carrier) in concrete work in early 1978. He testified that a wall of a reactor building was poured in a very heavy rain and that he saw 2 to 3 inches of water in the forms. McAfee Testimony, Palm. Ex. 93, at 25-26; McAfee, Tr. 7873-74. Mr. McAfee was present during the middle of the pour for a few minutes. McAfee, Tr. 7873-74. He testified that covers were not in place (McAfee, Palm. Ex. 93, at 25-26). Mr. McAfee was concerned that excessive water might weaken the concrete, but conceded that he did not know whether this was an improper pour. McAfee, Tr. 7874.

2. Applicants' witnesses testified that procedures require protective materials, if warranted. Davison, Tr. 7413. A surveillance report on the pour in question had been conducted. App. Ex. 55. That report reflected that the pour had been free of water, and that adequate arrangements had been made to keep water out of the form area. *Id.* Documents also reflected that the pour had been inspected and approved. *Id.*; App. Ex. 54. The concrete pour in question called for a design strength of 5000 .

psi; test cylinders on an adjacent pour had broken at about 7000 psi. Dressler, Tr. 7606-07.

3. We adopt Staff PFF 31 on this subject, as follows: "Mr. Bryant, an NRC inspector from Region II, testified that his conclusions [that Applicants had adequately protected against rain damage] were based on examination by Region II of the records of 256 pours made during the time period January to March 1978. Bryant, Staff Ex. 5, at 6-8. Of particular note is his reference to a QA surveillance on a pour made the same day as pour W82, which showed that the pour was temporarily stopped after water accumulated in the forms and on the surface of the concrete, so that water and stone pockets which had resulted from rainwater working cement off the aggregate could be removed. *Id.* at 7-8."

4. Mr. McAfee impressed the Board as a candid and forthright witness. Thus, the Board does not doubt his testimony as to what he saw. Even so, Mr. McAfee was present for only a few minutes during a pour lasting several hours and there is no evidence that what Mr. McAfee saw materially affected the quality of the concrete. The evidence also indicates that despite any marginal decrement in strength of the concrete caused by rain, the concrete would still be far above design strength. In any event, our primary concern is not so much with a particular pour as with whether the evidence indicates a systematic deficiency with respect to concrete pours, and the inspection of pours. The Board finds none.

5. Mr. McAfee also related an incident as a prepour runner in which he had difficulty obtaining the approval of the QA Department to allow the pour to begin. McAfee Testimony, Palm. Ex. 93, at 26; Dressler Testimony, App. Ex. 37, at 34. After several hours' delay, a QA person reportedly waived requirements. McAfee Testimony, Palm. Ex. 93, at 27. Mr. McAfee was uncertain what requirements were waived. McAfee, Tr. 7877. A subsequent review of records by the Applicants in the relevant time period disclosed waivers on nine different pours, three of which were safety-related, and all of which were properly documented. Davison, Tr. 7463-64, 7470. Nonsafety-related pours do not require formal QA approval. App. Ex. 37, at 35, 37 and Davison, Tr. 7462.

6. The information provided by Mr. McAfee about this incident was so lacking in specificity that it is hard to retrospectively reconstruct what may have happened. The Applicants' evidence shows that appropriate procedures were used to document safety-related waivers. This incident does not indicate any breakdown of the QA program.

B. Rain in the Control Room

7. Nolan R. Hoopingarner, II, worked at the Catawba site for about three years as a general builder, rodbuster and scaffold builder. Hoopingarner Testimony, Palm. Ex. 94, at 1. Mr. Hoopingarner and Mr. McAfee cited an incident where water fell from the ceiling of the control room onto the installed control panels (McAfee Testimony, Palm. Ex. 93, at 27-28; Hoopingarner Testimony, Palm. Ex. 94, at 23-24.) They attributed the problem to leakage in the roof.

8. The Applicants conceded that water had fallen from the ceiling, but attributed the cause to condensation on the cold ceiling. Dressler Testimony, App. Ex. 37, at 23. There was no heat in the room at the time. An electrical inspector filed a nonconforming item report (NCI) on the incident (McAfee, Tr. 8120-21; App. Ex. 52 (NCI No. 4432)).

9. Mr. Bryant of the NRC Staff confirmed the condensation and also some roof leakage at a roof joint. Bryant, Staff Ex. 5, at 11. Two NCI reports on the day of the incident (Nos. 4395 and 4432) stimulated corrective actions to wipe the panel boards, supply heat, seal the roof, and test the circuits. (Palm. Ex. 111; McAfee, Tr. 7880-81; Dressler Testimony, App. Ex. 37, at 24; Davison, Tr. 7472-73; Dressler, Tr. 7352, 7362, 7372, 7595-96. Switches in the control panels that had been exposed to the moisture were tested subsequently and did not fail. Dressler, *Id.*)

10. It seems immaterial whether moisture was caused by condensation, roof leakage, or both. The problem is the same as to result, *i.e.*, moisture on the control panel. While the incident was unfortunate, it was the result of unforeseen circumstances and does not reflect culpable negligence on the part of the Applicants. The aftermath of the incident demonstrated that the QA program was effective in producing corrective action. Mr. McAfee concedes as much. McAfee, Tr. 7878.

C. Flooding of the Diesel Generator Rooms

11. We adopt the Staff's Proposed Findings 48 and 49, as follows: "During the weekend of September 29-30, 1979, 7 inches of rain fell in the Catawba [area] during a 38-hour period. At the time of this exceptionally heavy rainfall, site grading and drainage had not been completed, and certain manholes and electrical conduits were open allowing water to flood the diesel generator rooms. NRC Inspection Report Nos. 50-413/79-18; 50-414/79-18 (October 25, 1979), Staff Ex. 10a, at 4; Testimony of Charles J. Wylie, *et al.*, App. Ex. 37, Freeze, Allgood, at 15. The floor of the diesel generator rooms is approximately

40 feet below the outside grade (Hoopingarner, Tr. 11,907), and as a result of the combination of external events and the stage of construction, 41 inches of water filled Room 1A and 8¼ inches filled Room 1B. Staff Ex. 10a, at 4.”

12. “Witness Hoopingarner stated that water came into the rooms through an outside stairwell, and that the diesel generators had been subjected to rain [falling through an open hatch]. Hoopingarner, Tr. 11,907; Hoopingarner, Palm. Ex. 94, at 23. The NRC inspector, Milton Hunt, stated that there was no evidence that they had been rained on. Hunt, Tr. 11,841. Applicants undertook to make an inventory of all equipment in the diesel generator rooms at the time of the flood and wrote NCIs for equipment which was submerged or partially submerged. App. Ex. 37, Wylie, Freeze, Allgood, Weir, Barron, at 17.”

13. Since the rainfall was 7 inches and the flooding reached about 41 inches in the control room there had to be multiple sources of floodwater. The Board thinks it likely that the route of entry of most floodwater was the open manholes and conduits. Thus, the Board finds the combination of the stage of construction and the unusually severe rainstorm combined to produce this event. The important questions for the Board, however, were (1) did the Applicants act prudently in meeting storage requirements for diesel generators, (2) have measures been taken to prevent a recurrence, and (3) has flooded equipment been properly refurbished?

14. We adopt the Staff’s Proposed Finding 53, revising the last line: “First, Applicants had implemented storage requirements in accordance with ANSI N-45.2.2 Level C (Special), which required (1) coverings to prevent moisture from falling on the equipment, (2) energizing of space heaters where applicable, and (3) weekly inspections of all components. App. Ex. 37, Allgood, Barron, Weir, Wylie, at 16. Nevertheless, these storage requirements clearly were not adequate to prevent the flooding and resultant damage. However, as noted by the Staff, the size of the equipment was such that much of it had to be installed before the building was completed. Grading cannot be completed while movement of heavy equipment; underground construction and the like are still going on. Bryant, Staff Ex. 5, at 27.” Given these circumstances, and the unexpected extremely heavy rainfall of 7 inches in a 38-hour period, Applicants appear to have taken reasonable actions to protect equipment. *Id.* at 26.

15. We adopt the Staff’s Proposed Finding 54, as follows: “Second, the supervision of the cleaning and repairs by TDI representatives (Karcher, Tr. 11,872), and the origination of thirty-seven nonconforming item reports (App. Ex. 37, Allgood, Wylie, Barron, Weir, at 16) as-

sured that an immediate evaluation was made as to whether exposed parts would require repair, replacement or some other disposition (Hunt, Tr. 11,855). The steps Applicants took to inventory all equipment potentially damaged (Weir, Tr. 11,878) and to assure that all inspections were performed (Barron, Tr. 11,885; Allgood, Tr. 11,884), and the subsequent factory restoration by TDI (Karcher, Tr. 11,872), indicate that Applicants' procedures for identifying, documenting, evaluating, and correcting a significant deficiency such as the degradation of the diesel generator system were in place, implemented and resulted in restoration of this system to serviceability. Through its inspection process, the NRC regional inspection staff monitored the initial condition, planned corrective actions and the progress of achieving these corrective actions, and closed the items out as corrected. Bryant, Staff Ex. 5, at 26-27; Staff Ex. 10a; Palm. Ex. 107; Staff Ex. 10b, Inspection Report Nos. 50-413, 414/81-08 (May 20, 1981), ¶ 5(c)."

16. Specific corrective actions taken were as follows:

- (1) The diesel generator engine and other parts affected by water were cleaned. Wylie, Tr. 11,889.
- (2) The generator was flushed with clean water and subsequently dried out. Wylie, Tr. 11,889.
- (3) All the components in the control panels and the terminal cabinets which had been affected by water were discarded and replaced with new components. The cabinets were cleaned and restored. Wylie, Tr. 11,889.
- (4) All the motor starters which had been damaged by water were replaced. The motor control centers were cleaned and restored. Wylie, Tr. 11,889.
- (5) All accessory and support equipment for the diesel generator was refurbished and brought to an acceptable condition. Wylie, Tr. 11,889.
- (6) The engine crankcase was opened and inspected. The high-water level had been below machine parts. The crankshaft was inspected and there was no evidence of deterioration. Barrish, Tr. 11,890.
- (7) Safety-related electrical cables were tested. Allgood, Tr. 11,891.
- (8) The air compressor motors were returned to the factory for rewinding and refurbishing. Allgood, Tr. 11,891.
- (9) The RTD manifold was flushed with clean water and dried. Weir, Tr. 11,892.
- (10) Certain valves were disassembled and cleaned. Weir, Tr. 11,892.
- (11) Air tanks were cleaned. Weir, Tr. 11,892.

(12) Crankshaft seals were cleaned and inspected. Karcher, Tr. 11,893-94.

17. We adopt the Staff's Proposed Finding 56, as follows: "To prevent recurrence of such an incident, site grading has been completed, the conduit for electrical cables that served as the principal pathway of water entry has been sealed, and the drainage system has been installed. Van Doorn, Tr. 9813-14. Davison, Tr. 7557. Sump pumps are now installed in the subject manholes. Dressler, Tr. 7570. The current NRC resident inspector, Mr. Van Doorn, noted that despite 'nasty rains' since the incident, similar problems have not occurred. Van Doorn, Tr. 9627."

18. On the basis of the evidence the Board does not find the Applicants derelict prior to the flooding. We find that the Applicants have taken appropriate steps to refurbish or replace damaged equipment and that reasonable steps have been taken to prevent a recurrence of flooding.

19. Palmetto's case was based primarily on the testimony of Mr. Hoopingarner, who did not possess any expertise on diesel generators or the effect of floodwater upon them. The Applicants' case was presented by a panel of well-qualified experts, including a representative of the diesel manufacturer, two electrical engineers and three mechanical engineers. Tr. 11,870-82. The panel was responsive to questions on all aspects of the flooding incident. Palmetto objected to the presentation of this panel during the Applicants' rebuttal case. In the interest of obtaining a full record, we overruled that objection. Palmetto then waived entirely its right to cross-examine the Applicants' panel, not asking them a single question. Tr. 11,882-83. Although we are not treating that waiver as an abandonment of its right to contest this issue, we take into account Palmetto's total failure to probe the Applicants' direct case in our assessment of the record. Quite apart from that factor, however, the Applicants are clearly entitled to prevail on this issue by the weight of the evidence.³²

D. Electrical Cable

20. We adopt the Staff's Proposed Findings 42-46 on this subject, as follows: "Messrs. McAfee and Hoopingarner each raised the concern that electrical cables and cable ends were not being adequately protected, such that pulled cables were found lying on the floor, in

³² On June 22, 1982, the date of this Partial Initial Decision, the Board admitted a late contention concerning problems that have arisen in the course of testing and inspection of diesel generators at Catawba. See notes 3 and 50, hereof.

water, and were subject to abuse, such as from having wallboards placed on them, all in violation of Applicants' storage requirements. McAfee, Palm. Ex. 93, at 28-29; Hoopingarner, Palm. Ex. 94, at 9. Mr. McAfee also stated that no records were kept of failures to properly protect cables. *Id.* Written testimony by Mr. Dressler indicated that Applicants investigated Intervenors' allegations of widespread failure to properly store electrical cable and found a few instances of improper storage, but of a minor nature, which were corrected. Dressler, App. Ex. 37, at 3-4. A Staff review of ten electrical inspections by NRC Region II-based inspectors between mid-1978 and August 1980, as well as inspections by the NRC resident inspector from February to July 1980 resulted in only one violation of requirements relating to electrical cable storage — a cable identified by Mr. Hoopingarner, reported in Inspection Report Nos. 50-413 and 414/80-19. Bryant, Staff Ex. 5, at 14."

21. "Another NRC inspection of electrical equipment noted several housekeeping deficiencies. These included two Class IE installed cables lying on the floor in an area which previously contained some standing water, and the tops of Class IE panels damaged by workers using these panels as supports while conducting other work activities. These were cited to show unsatisfactory housekeeping conditions related to Class IE cable trays and cables. The NRC issued a deficiency for noncompliance with Criterion XIII of Appendix B. The report notes, however, that appropriate corrective actions were taken. Inspection Report Nos. 50-413, 414/80-12, Staff Ex. 3, at 3-4."

22. "Although these minor housekeeping deficiencies are noted, what is of concern to the Board is whether safety-related cables have been degraded as a result of poor storage practices, and whether Applicants' procedures are sufficient to identify, document and correct problems that develop during the course of construction. While we have noted the single violation identified by Mr. Hoopingarner, neither the NRC nor the Applicants identified similar violations. The testimony of Mr. McAfee is that problems identified with unprotected cable ends were readily corrected. McAfee, Palm. Ex. 93, at 28-29; McAfee, Tr. 7884."

23. "Despite Mr. McAfee's disclaimer statement that cable pull problems were not documented, it was brought out on cross-examination that he wrote an NCI on a cable he discovered to be damaged during an unplanned inspection. McAfee, Tr. 7886-87. He also documented cable protection problems on M-40C forms. McAfee, Tr. 7991-92."

24. "All safety-related electrical cable pulled during the period covered by this concern was interlocked or braided armored cable (electrical cable wrapped in steel) or is protected in conduit. Dressler, App. Ex. 37,

at 5. The ends of electrical cables are taped to protect the cable from water. *Id.* As much as 10-30 feet of extra cable are typically pulled in order to assure the pull is not too short so that, even if the ends of cable pulls touch the ground, there is little likelihood that this excess cable at the end is actually used. *Id.* at 4; *see also* McAfee, Tr. 7884. Additional lengths are discarded in stripping of insulation, where connections are made. Dressler, App. Ex. 37, at 4. Nonwicking cable, that is, cable which does not absorb moisture, is used so that the likelihood of damage from water is remote even if ends are left untaped. *Id.* at 5. Finally, preoperational testing of electrical systems to determine the integrity of insulation, as well as functional testing, provides further assurance that such cable will serve intended purposes. *Id.* at 6.”

25. There appears to be no dispute that electrical cables were sometimes found lying on the floor. Numerous deficiency reports document this occurrence. Davison, Tr. 7440. There is no evidence, however, that faulty or damaged cables were actually installed. Due to the protection afforded by the type of cable used (armor plate, nonwicking material), the practice of cutting off ends, and testing, there is no safety significance in an occasional cable lying on the floor. QA inspection procedures appear adequate and were used. On this record, the Board considers this a relatively trivial matter.

E. Piping and Rebar

26. We adopt the Applicants’ Proposed Findings 484-485 on this subject, as follows: “Mr. Hoopingarner alleged that pipes were lying on the ground at the piping fabrication shop and that, in the rebar storage yard, rebar was touching the ground and vegetation was growing through it (Hoopingarner, Palm. Ex. 94, at 17, 18) [footnote omitted]. Mr. Hoopingarner offered no opinion as to whether such incidents constitute a threat to safe operation of the facility.”

27. “We find both incidents to be of minimal significance. Again, we note that Mr. Hoopingarner made at least three different site tours with two different NRC inspectors (Dressler *et al.*, App. Ex. 37, at 4; Bryant, Staff Ex. 5, at 13; Maxwell, Staff Ex. 6, at 3; Hoopingarner, Palm. Ex. 94, at 7-9, 16-17, 18). In those site tours, Mr. Hoopingarner was able to point out only one instance of rebar touching the ground in the rebar yard and one instance of piping touching the ground outside the pipe fabrication shop. This did result in a Notice of Violation concerning pipe storage which was the subject of NRC Inspection Report 50-413/80-19 and 50-414/80-19 (80-19) (Palm. Ex. 107).”

28. There is no safety significance in rebar touching the ground so long as it is inspected to see that any weeds, dirt, excessive rust, etc., are removed prior to use. This was done (Dressler, App. Ex. 31, at 28; Bryant, Staff Ex. 5, at 28; Davison, Tr. 7574-75). Similarly, piping is inspected prior to use and safety-related piping is cleaned and tested (Dressler, App. Ex. 37, at 28). The Board also considers these two piping and rebar storage incidents to be relatively trivial matters. As the Staff points out, "with 50,000 tons of rebar and 400,000 feet of pipe, occasionally some of it may get on the ground." Staff PFF 61.

F. Alleged Improper Weld Quenching

29. Mr. Hoopingarner testified that he saw a welder use a wet rag to quench a red hot weld on a pipe. He testified that the welder told him that using the wet rag constituted a violation of procedures but that it was necessary to "get the pipe right." Hoopingarner Testimony, Palm. Ex. 94, at 10-21. Mr. Hoopingarner is not a welder himself, but he apparently concluded that the wet rag procedure had some safety significance. Accordingly, he reported the matter to NRC inspector Maxwell. *Id.*

30. Both the NRC and the Applicants investigated this incident. The NRC's Report No. 50-413, 414/80-08 states that:

the inspector discussed the quenching of welds with the welder identified by the concerned employee (Mr. Hoopingarner). The welder stated that he had not practiced nor witnessed the quenching of welds at the Catawba site. The inspector discussed the quenching of welds with the authorized Nuclear Inspector and knowledgeable Duke Power Company workers. These persons stated that they had not witnessed, nor were they aware of, quenching of welds at Catawba. There were no statements that supported the employee's concern relative to quenching.

Even assuming the alleged quenching incident occurred, quenching is permissible with prior approval. Even without such approval, it has no safety significance. Bryant Testimony, Staff Ex. 5, at 22. The Applicants' investigation and resulting testimony were to the same effect. Dressler prefiled testimony at 7-9. We conclude that, at the worst, this alleged incident represents an isolated procedural violation having no safety significance.

G. Unsafe Scaffolds Causing Unsafe Welds

31. Mr. Hoopingarner alleged that unsafe scaffolds had been erected 10 to 40 feet off the ground. He claimed that the welders were afraid to

go up on those scaffolds and therefore did their welding hurriedly, resulting, in Hoopingarner's opinion, in unsafe welds. The welders allegedly said to him that "we just fill the gap . . . fill that hole." Hoopingarner Testimony, Palm. Ex. 94, at 22.

32. We note again that Mr. Hoopingarner is not a welder (Tr. 8035) and that he apparently did not see any of these elevated and allegedly unsafe welds himself. He does not claim that any welder told him directly that these welds were unsafe. Without the benefit of more context, statements about filling the "gap" or "hole" are ambiguous at best. *See Davison Testimony, App. Ex. 37, at 10.*

33. The NRC investigated this allegation. Report No. 50-413, 414/80-08 states that:

The inspector discussed the subject with craft workers, QC and QA inspectors, and safety assistants and supervisors. There were no statements made that supported the allegation. These workers stated that scaffolds and platforms are built to satisfy the craft workers including welders, additional work areas are provided upon request, and craft work including welding is not started until the worker, or welder is satisfied that the work platform is safe and adequate for the job requirements. No related concerns were expressed to support the employee's concern.

The Applicants' review of this allegation substantiated the Staff's investigation. Davison Testimony, App. Ex. 37, at 9-12. Furthermore, that testimony describes the extensive and redundant inspection program for welds. This program gives substantial added assurance that Mr. Hoopingarner's allegations do not raise a safety concern.

H. Mr. Hoopingarner's Access to the NRC

34. During his three years as a Duke employee at Catawba, Mr. Hoopingarner expressed a wide range of safety and other concerns to his superiors and to various NRC representatives.³³ There is a contested issue concerning whether Mr. Hoopingarner was ordered not to talk to the NRC. Most of the relevant facts are not in substantial dispute.

35. In April 1980, Mr. Hoopingarner approached NRC inspector Maxwell as Maxwell was walking through Hoopingarner's work location on a tour of the site. Alexander Testimony, App. Ex. 37. According to Hoopingarner, he told Maxwell "that Duke Power was trying to fire me for bringing up all these safety items and the wrongdoing that was going on." Hoopingarner Testimony, Palm. Ex. 94, at 5. Mr. Hoopingarner

³³ Mr. Hoopingarner also expressed various worker safety concerns to the Occupational Safety and Health Administration. *See, e.g., Palm. Ex. 94, at 13.*

further testified that shortly thereafter his general foreman, R.H. McDowell, approached him and "gave me a direct order that I would not talk to or approach the NRC man."³⁴ *Id.* A few days later, Mr. Hoopingarner discussed the matter with Mr. Turner of the Employee Relations Department and, shortly after that, Mr. Hoopingarner was called to the office of Danny Powell, also of Employee Relations. Powell "withdrew" the order from McDowell that Hoopingarner should not approach the NRC man. Hoopingarner Testimony, Palm. Ex. 94, at 6.

36. There was apparently some confusion at that time about Company policy as to whether workers could approach NRC inspectors.³⁵ Clarification was sought from Mr. Beam, the Project Manager, who stated the policy as:

- (1) NRC can talk to employees on Company time as long as it is not extensive.
- (2) If NRC man is in work area, employee can approach him to show him something quickly. If they want to talk at any length with him, they should notify their supervisor so an appointment, which may or may not be during working hours, can be set up.

Turner Memorandum, dated April 23, 1980, Palm. Ex. 91. Mr. Turner stated the foregoing policy to both McDowell and Hoopingarner. When Hoopingarner remained concerned about McDowell's original order "not to talk to the NRC man," Turner told Hoopingarner to consider that "order" countermanded. *Id.*

37. We find from the foregoing that Mr. Hoopingarner was improperly told that he should not approach an NRC inspector. We also find, however, that that directive was effectively withdrawn at least twice shortly thereafter. Furthermore, this incident appears to be an isolated occurrence, not part of a pattern of restricting access to the NRC. The evidence discussed hereafter makes it abundantly clear that Mr. Hoopingarner was not deterred from contacting the NRC.

38. Palmetto is critical of the "clarified policy statement" laid down by Mr. Beam and quoted above, but it gives no specifics. In our view, Mr. Beam's version of Duke's policy was not unreasonable, at least in the absence of a clear policy on worker access to the NRC from the

³⁴ The Applicants presented a somewhat different version of what McDowell said to Hoopingarner — that workers could talk to an NRC inspector if approached on the job site, but that they should not initiate contact with an inspector while working. Alexander Testimony, App. Ex. 37, at 13-14. Given our perspective on this incident, we can assume without finding that Mr. Hoopingarner's version was essentially correct.

³⁵ The Applicants point to an April 25, 1977 letter from Mr. Dick, Vice President-Construction. Alexander Testimony, App. Ex. 37, at 14. This letter was cast in very general terms and provides no clear guidance on the situation involved here.

NRC itself. In the absence of such an NRC policy, it is hardly surprising that utility policies might vary from time to time and often be unclear. See discussion at pp. 1510-11, above.

I. Mr. Hoopingarner's Alleged Retaliatory Firing

39. The facts bearing on Mr. Hoopingarner's firing on September 4, 1980, are set forth in the record at length and are relatively complex. We will refer to and summarize the evidence only as necessary to explain our findings. The evidence can be interpreted to support three different reasons for Mr. Hoopingarner's firing; that it was: (1) in retaliation for his voicing concerns to the NRC; (2) a customary sanction for multiple unexcused absences; or (3) in response to his unusual and disruptive behavior on the job. As we shall explain, we conclude that Mr. Hoopingarner was fired primarily because of his unusual and disruptive behavior on the job and, secondarily, for his unexcused absences. He was not fired because of his contacts with the NRC. These conclusions are based on our overall assessment of the evidence — no single matter was decisive. Equally important, our conclusions rest on the demeanor and credibility of the witnesses. We stress in the latter regard that we do not question Mr. Hoopingarner's sincerity, or that he was telling the truth in this case as he, Hoopingarner, saw it. We came to believe, however, that Mr. Hoopingarner's perceptions were distorted by his self-righteousness, poor judgment, and zeal to right every wrong he saw at Catawba.

40. Mr. Hoopingarner began making complaints to his superiors and NRC inspectors about a range of personnel and nuclear safety matters in late 1979. Hoopingarner Testimony, Palm. Ex. 94, at 4-5. Following his first encounter with Inspector Maxwell (see ¶ 34, above), Hoopingarner had an extended meeting with Maxwell, including a tour of the site, on April 28, 1980. *Id.* at 7-10; Maxwell Testimony, Palm. Ex. 99, at 2-4. Mr. Hoopingarner raised a number of safety concerns, some of which were presumably within his knowledge as a builder (*e.g.*, scaffolds, protruding ladders) and some of which presumably were not (*e.g.*, welding, pipe hanger installation). Hoopingarner told Maxwell that he had already raised these concerns to numerous Duke personnel, including Steve Alexander, Marty Meldon, Bob Hamilton, Stan Wingate, Don McGurty, Brian West, Danny Powell, Robert McDowell and John Scruggs. Maxwell Testimony at 3. Shortly after this meeting, Mr. Maxwell was instructed by his superiors not to take any further action on Mr. Hoopingarner's concerns because Hoopingarner had

charged that Maxwell was on Duke's payroll. *Id.* at 5.³⁶ Although he had no further dealings with Mr. Maxwell, Mr. Hoopingarner later took two additional site tours with NRC Inspector M.D. Hunt. Palm. Ex. 107, at 31.

41. Nor did Mr. Hoopingarner confine himself to raising what he saw as safety concerns. He was also vocal in his criticisms of his co-workers and supervisors. One of his supervisors, Mr. Pelfrey, undertook to counsel Mr. Hoopingarner in March 1980 concerning various Hoopingarner charges against Pelfrey and other workers. In a memorandum of the counseling session, Pelfrey referred to seven of Hoopingarner's co-workers being interviewed separately; each had said, in substance:

there was no problem with the way the crew was handled, or the way the job was ran, and that if there was a problem it was Nolan himself.

The Pelfrey memorandum concluded that:

I think his continued accusations of these and other alleged items could and have caused a moral[e] problem on this crew, which therefore brings down the maximum productivity of this crew as a whole.

Therefore he was informed on this day 3-24-80 by R.H. McDowell in my presence to cease these accusations and bickering, or else it could result in dismissal of his job.³⁷

Mr. Pelfrey gave Mr. Hoopingarner a copy of the memorandum. Tr. 7751.

42. About a week after the Pelfrey memorandum and a few days after his tour of the site with NRC inspector Maxwell, Mr. Hoopingarner was involuntarily transferred from his crew in the auxiliary building to another crew working in the cooling towers. The reason given by Personnel Relations for the transfer was Mr. Hoopingarner's personal safety and protection. Palm. Ex. 101. The evidence amply supports that reason. Many of his fellow workers disliked Mr. Hoopingarner and he had received a number of veiled threats. Hoopingarner, Tr. 8008-09; Beam, Tr. 5467. The underlying reasons for this animosity are disputed. Mr. Hoopingarner claims that supervision had turned his crew against him by selective enforcement of safety rules against them on account of his

³⁶ As Mr. Hoopingarner later recalled it at the hearing, he had said that Maxwell and Duke employees were "in cahoots" with each other. Tr. 8052. Either formulation charges corrupt conduct for which there is no basis in the record.

³⁷ Palm. Ex. 96. We see no reason not to fully credit the statements in this memorandum. It and several related exhibits were introduced by Palmetto as substantive evidence, without qualification. Tr. 7764, 7954.

raising concerns. Hoopingarner Testimony at 12. Similarly it was suggested that Hoopingarner's crew were afraid that they would be the targets of hostility intended for Hoopingarner because of his constant accusations. Dick, Tr. 5596-97. These explanations do not seem plausible under the circumstances. Mr. Hoopingarner also claims that his crew became angry with him because they knew he had gone to the NRC and were afraid he would cause a plant shutdown and loss of their jobs. Hoopingarner Testimony at 13. We find this thesis — that Mr. Hoopingarner's activities as a self-appointed safety crusader could be viewed as threatening a project shutdown — even less plausible.³⁸ We believe that his crew's animosity toward Mr. Hoopingarner basically grew out of his self-righteous conviction that he alone cared about safety and his indiscriminate accusations against others on the job. See Pelfrey Memorandum, Palm. Ex. 96.

43. On May 15, 1980, Mr. Hoopingarner requested and was granted a meeting with Mr. Beam, the Project Manager, and Mr. Alexander, the Personnel Manager at Catawba. This meeting lasted about 2 hours and Mr. Hoopingarner covered a wide range of topics. The very fact that the meeting took place demonstrates that Mr. Hoopingarner could get a hearing from senior supervisory personnel at the site. Indeed, we find it remarkable that a project manager with responsibility for several thousand employees and a multi-billion-dollar project could afford to take the time to listen to the kinds of things Mr. Hoopingarner had to say. Apparently, Mr. Hoopingarner talked with Mr. Beam on several occasions. Beam, Tr. 5457.

44. The May 15 meeting was memorialized in a memorandum. Palm. Ex. 83. Mr. Hoopingarner expressed several safety concerns, some of which were viewed as warranting a response. Most of his comments, however, were unrelated to safety. For example, Mr. Hoopingarner made general observations about project management. He also expressed concerns about costs, *e.g.*, that unnecessary rework was being done at Catawba. Hoopingarner even questioned Beam about a grill that had been made for employee use on site because the work hours used in fabrication would be passed on to the consumer. Ironically, Mr. Hoopingarner also wanted to know if it was legal for Duke to hold employees in the parking lot and not pay them as traffic was let out by rows.

³⁸ Many of Mr. Hoopingarner's "concerns" had nothing to do with nuclear safety. See, *e.g.*, Palm. Ex. 83. Nor did Mr. Hoopingarner's explorations of the site, frequently in areas he knew nothing about, turn up very much of interest to the NRC. No major problems were brought to light. Citations for few minor violations were issued. It is unclear whether the same violations would have been cited without Mr. Hoopingarner's involvement. See NRC Reports on Catawba Nos. 80-08 and -19.

45. The following description of comments by Mr. Hoopingarner at the May 15 meeting shed some light on the preceding comments and bear on Mr. Hoopingarner's state of mind:

- (a) Says the plant is a "hell hole," and the Lord will clean it up "one way or another." Relates that "those people" are trying to destroy him; that they threatened to drop something on him. (He couldn't relate a specific threat from anyone.)
- (b) Feels he was moved from [the auxiliary] building because his life was in danger. He says every one should be moved if we cared about others' safety. States that "things are getting better due to what he's done, and this is the Lord's way of doing it." Then he said he was put in cooling towers to keep him from spreading the word of righteousness over the job.
- (c) Feels that we should read the Bible more. Lord leads him daily at work and will help him clean up the "den of iniquity" that exists. *Id.*

In the course of the May 15 meeting, Mr. Hoopingarner referred to his co-workers as "earthlings" and "slaves." See Palm. Ex. 83, at 9; Beam, Tr. 5570-71; 5600.

46. In addition to animosity, Mr. Hoopingarner's activities caused disruptions. For example, Mr. Dick, Vice President-Construction, testified that when Hoopingarner approached Maxwell on the job site (see ¶ 34, above), Hoopingarner's gadfly reputation caused his entire work crew to stop and watch. Tr. 5474-75. See also Tr. 5464, 5594. In addition, Hoopingarner's investigative activities took considerable time away from his assigned work. Beam, Tr. 5464, 5470-71, 5473. To cite one more example, Mr. Hoopingarner testified that he attempted to get documentary proof of alleged "wrongdoing" from mechanics in the powerhouse, a place where he had no assigned responsibilities and no apparent knowledge of the hardware. Hoopingarner Testimony at 12; Tr. 8092-94.

47. Duke fired Mr. Hoopingarner on September 4, 1980. The circumstances are accurately summarized by the Staff in their Proposed Findings 76 and 77, which we adopt, as follows: "Mr. Hoopingarner was removed from service (a Duke practice when an employee is accused of an offense that could lead to termination), by Mr. Cantrell, his supervisor at the cooling towers, for failure to follow instructions — talking to a welder when he should have been working. Dick, Tr. 5544; Hoopingarner, Tr. 8029; Hoopingarner, Palm. Ex. 94, at 19-20. It was subsequently determined that Mr. Cantrell's action was not justified, and Mr. Dick directed that Mr. Hoopingarner be returned to service. Dick, Tr. 5491, 5496."

48. "R.S. Alexander, site personnel manager, called Mr. Hoopingarner on Friday evening, to return to work the next Monday. Alexander, Tr. 7511-12, 7515; Dick, Tr. 5493. On that Monday, Mr. Hoopingarner did not return, and was again called by Mr. Alexander and informed that he should return. Hoopingarner, Tr. 8034; Hoopingarner, Palm. Ex. 94, at 20. However, Mr. Hoopingarner, on the advice of his lawyer, did not return to work until Wednesday morning, at which time he was again taken out of service, this time for having three unexcused absences — one in July 1980 for failure to secure permission to stay out of work after he had a dentist appointment, and the two days he had not returned in accordance with Mr. Alexander's instructions. Hoopingarner, Palm. Ex. 94, at 20; Alexander, Tr. 7523-24. The determination this time was to terminate Mr. Hoopingarner for having three 'rules of conduct' violations based on unexcused absences on three different days. Dick, Tr. 5500; Alexander, Tr. 7521. Again, Mr. Dick participated in this decision. Dick, Tr. 5500."

49. Palmetto contends that Mr. Hoopingarner's firing was in retaliation for raising safety concerns, particularly with the NRC. PFF 236-237. We reject that contention. If anything, his supervisors at the site (with one exception, *see* ¶¶ 34-37, above) bent over backwards to allow Mr. Hoopingarner opportunities to voice concerns to them and to the NRC. The idea that Mr. Hoopingarner, with his limited expertise, could be viewed by Duke as a source of difficulties for them with the NRC — particularly with a knowledgeable resident inspector scrutinizing the same site — is not credible. Nor is it credible that Duke wanted to deter other employees from following Hoopingarner's example. The widespread hostility Mr. Hoopingarner brought upon himself by his activities certainly would have discouraged imitation.

50. We find that Duke had at least a colorable basis for firing Mr. Hoopingarner for his unexcused absences, and that the absences played a part in the firing decision. Some 200 other Duke employees were terminated for unexcused absences in the period 1979-81. Alexander, Tr. 7603. The circumstances of Mr. Hoopingarner's last two absences were somewhat unusual, however, in that they were for consecutive days and were apparently incurred on advice of counsel. We share with Palmetto (PFF 104) some doubt whether an otherwise valued employee would have been fired by Duke in the same circumstances.

51. We conclude that, apart from the unexcused absences factor, the unstated reason for Mr. Hoopingarner's firing was his well-established pattern of unusual and disruptive behavior on the job. That Mr. Hoopingarner purported to be interested in nuclear safety is irrelevant. He could have achieved similar disruptive effects by talking

politics or religion. It was his pattern of neglecting his assigned work and accusing co-workers and supervisors of various wrongs that caused the trouble. Duke, as an employer, is entitled to a day's work for a day's pay and a reasonable degree of harmony in its work force. We find on this record that Duke was fully justified in firing Mr. Hoopingarner for failing to meet those standards.

52. We do not mean to imply that a concerned employee should not have reasonable opportunities to raise concerns with the NRC, including during working hours. We need not define what is "reasonable" in this context, except to note that Mr. Hoopingarner went well beyond any reasonable standard.

53. We have considered the statements of *in camera* Witness 3 which tend to corroborate some of Mr. Hoopingarner's contentions. Witness 3 Affidavit at 7-11. We question Witness 3's credibility in these respects. We note that he, like Mr. Hoopingarner, was fired by the Applicants and thus may be biased against the Company. *Id.* We also note that Witness 3 chose to confirm some of the least credible parts of Mr. Hoopingarner's testimony. *Id.* at 10, first and second full paragraphs. In any event, even if Witness 3's statements were to be considered credible, they are far outweighed by the mass of contrary evidence we have already discussed.

III. THE *IN CAMERA* WITNESSES

A. Witness 1

1. Introduction

1. Witness 1³⁹ raised seventeen concerns in his initial *in camera* testimony. I.C. Tr. 46-130. The Board later granted motions to strike thirteen concerns. I.C. Tr. 481-86.⁴⁰ As to the remaining four concerns, we denied the motions to strike. The testimony was not retained for its specifics, however, but merely to show the underlying bases for the following Board questions:

³⁹ We designate this witness and a subsequent witness as Witnesses "1" and "3" in order to keep their identities confidential. Their identities are disclosed in the record of the *in camera* proceeding. Participants in that proceeding are subject to a protective order barring disclosure of witness identities and other confidential information.

⁴⁰ The matters referred to in Palmetto's Proposed Finding 552 were stricken and we therefore disregard that proposed finding.

Witness 1 expressed concerns about out-of-roundness, wall thickness, fit-ups, and stress induced by bending pipes in the safety-related sprinkler system of Unit Number 1.

Assuming these concerns are well founded, how would the functional use and structural integrity of that system be affected under adverse conditions? What corrective action, if any, is required for the safe operation of the plant?

I.C. Tr. 482.

2. The Board decided not to recall Witness 1 to testify because most of his prior testimony had related to nonsafety matters and his testimony generally had been quite nonspecific. The Applicants subsequently presented a panel of nine persons, including six engineers, to address the Board question. The other parties and the Board cross-examined the Applicants' panel.

2. Out-of-Round Piping

3. Witness 1 testified that piping he worked on in the annulus of Reactor Building 1 was "out-of-round" or egg-shaped on the inside so that it would have to be ground or deformed for a proper fit. I.C. Tr. 21-23. This testimony underlies our concern whether "out-of-round" pipe could raise a safety question with respect to the containment spray system.

4. The containment spray system is designed to reduce containment pressure in the event of a loss-of-coolant accident. The system piping is about 8 inches in diameter. The piping is to conform to the ASME Code, which includes quality limits. The pipe for the spray system must be bent to match the dome curvature. The bending produces ovality, which is also addressed by ASME requirements. Ray, *et al.*, App. Ex. 95, at 4-5. Ray, Barnes, Williams, I.C. Tr. 606-09.

5. The Board agrees with and adopts the Staff's Proposed Findings 15-17, 19-20 on this subject, as follows.

6. "ITT Grinnell, the pipe fabricator which does the bending of pipes for Duke, is ASME-authorized and holds an NDT stamp, signifying that it is ASME-certified for such work. Ray, I.C. Tr. 624. Applicants' review of their vendor audits of Swepeco and ITT Grinnell revealed no QA problems with either company regarding piping specifications. Ray, I.C. Tr. 722-23. In addition to vendor audits, Duke conducts a receipt inspection of this piping, and prior to use of the piping there are QA fit-up and QA welding inspections. Ray, *et al.*, App. Ex. 95, at 6."

7. "The ovality of piping is of concern to the structural integrity of the containment spray system in fitting up the ends of piping and weld-

ing them together to ensure the piping is properly sealed against leakage. Ovality may be adjusted by the craft to within allowable tolerances by use of Dearman clamps and hand pressure, as specified by the ASME Code. Barnes, I.C. Tr. 668-70; Ray, *et al.*, App. Ex. 95, at 7. The restraints induced in the pipe due to fit-up and the adjustments of ovality by force would induce secondary stresses in the pipe wall but would have no effect on the primary stress levels in the pipe. These secondary stresses would be reduced by the heat of welding and any remaining locked-in secondary stresses would not affect the ability of the pipe to perform its intended function. Ray, *et al.*, App. Ex. 95, at 12.”

8. “Review of the pertinent QA documents, including weld tickets, mill test reports for heat numbers in the systems and all M-4As for welds in this system, did not reveal any ovality of piping in this spray system beyond the specification, Shropshire, I.C. Tr. 704-07.”

9. “Even assuming excessive ovality of piping and some turbulence in the flow of water through the system, there would be smooth transition of the flow down to the point of maximum ovality and such turbulence would not induce vibrations in the piping which might lead to rupture of the pipe. Barnes, I.C. Tr. 730-31. Since the concern with ovality in piping is in sealing the pipe against leakage, this would be significant in situations where piping is screwed together, since there would be no way to seal such piping. However, when pipe is welded together, it is the weld that seals the pipe against leakage and ovality is not significant in this situation. Ingram, I.C. Tr. 738.”

10. “Since applicable codes permit both ovality and the correction of ovality within certain limits, and ovality itself does not interfere with the functioning of the containment spray system except insofar as it might prevent completion of adequate welds to seal the pipe, the Board finds that, given the requirement that all safety-related welds be subjected to at least fit-up and final visual inspection, there is reasonable assurance that the structural integrity and function of the containment spray system will not be adversely affected by out-of-round pipes in the system. Consequently, there is no corrective action required for the safe operation of the plant.”

11. Palmetto’s proposed findings on this subject (PFFs 555-557), are of the speculative “what if” variety and raise no substantial concerns. Palmetto presented no contrary evidence.

3. Pipe Wall Thickness

12. Witness 1 expressed concerns that excessive grinding of welds on the containment spray system might have reduced pipe wall thickness

below minimum specifications. The piping actually in the system has thicker wall than the piping assumed in the analysis, thus building in a margin of safety. Ray, *et al.*, App. Ex. 95, at 8.

13. Excessive grinding would be detected by required visual inspections and, if found, an ultrasonic examination is done to check wall thickness. Barnes, I.C. Tr. 612-13. In addition, radiographic examinations are performed on all welds in this system and that process would also indicate any excessive grinding. Cavendar, I.C. Tr. 610; Ray, *et al.*, App. Ex. 95, at 8.

14. The Staff provides a helpful summary of the results of certain inspections, as follows (PFF 25):

Applicants' review of the M-4A documentation on welds did reveal three welds that were repaired for wall thickness violations, all of which were discovered either through radiography of the welds or in the final walkdown visual inspection. Shropshire, I.C. Tr. 708. Additionally, some M-4As indicated that minimum wall thickness was questioned and the UT inspection report check forms found these to be acceptable. Shropshire, I.C. Tr. 711. NCIs were generated for any violations of wall thickness that were identified and the items were subsequently corrected. Shropshire, I.C. Tr. 713-15.

15. Palmetto's several criticisms of the Applicants' showing are not persuasive. We comment on two. First, Palmetto complains that the Applicants refused them any informal discovery on the wall thickness issue. PFF 558. Without implying any view on the merits of any informal discovery disputes, we note that Palmetto is raising this complaint for the first time in its proposed findings. It should have been raised between Witness 1's first appearance on November 8, 1983 and the hearing on his concerns on December 15, 1983.

16. Palmetto incorrectly states that "[t]he Applicant offers no proof that such radiography is in fact done, nor that it is required for all welds on this system." We read the sworn statements on lines 12-15 of Applicants' Exhibit 95 as addressing these points.

17. In view of the foregoing, the Board finds that Witness 1's concerns about thin-walled pipes are unfounded.

4. *Fit-Up Inspections*

18. Witness 1 testified that a fit-up inspection did not occur in connection with a particular weld he described in the containment spray system.

19. The Applicants conducted a records review and identified the weld in question. Although it appeared that a fit-up inspection had been performed, the question became academic because the weld was later

replaced. As the Applicants explained, “[i]n any event, weld record form M-4A for weld INS125-4 further states that because of unacceptable lack of penetration discovered by radiography, the entire weld was cut out on 8/25/80 and remade. All subsequent inspections, welding and NDE steps on the weld record appear proper, and the weld radiographs were accepted by Duke on 9/30/80 and by the Authorized Nuclear Inspector on 9/24/80. In addition, the weld joint was hydrostatically tested to 300 psig on 8/28/83.” Ray, *et al.*, App. Ex. 95, at 9.

The Board accepts the Applicants’ explanation.

5. “Cold Springing”

20. Witness 1 expressed concerns about “cold springing” — *i.e.*, bending pipes to make a particular fit using chain jacks or “come-alongs.”

21. Procedures in effect at Catawba provide that any more than moderate hand pressure must be done under controlled conditions. Review of the containment spray system records did not indicate that any cold springing had occurred. Ray, *et al.*, App. Ex. 95, at 10.

22. The only place in the containment spray system where cold springing would be at all likely to happen would be in the ring headers at the top of the dome. Sections of pipe were cut out in those areas and the pipes had not sprung out of alignment. *Id.* at 11; Ingram, I.C. Tr. 700.

23. In addition, the Applicants stated that “discussions with many of the fitters and foremen associated with erection of the system reflect that there was no cold springing . . .” *Id.* Palmetto complains (PFF 564) that none of these “foremen and fitters” were advanced as witnesses. There is no merit in this complaint. The Applicants did produce a panel of *nine* knowledgeable witnesses on Witness 1’s concerns. It would have been completely impractical (as well as unnecessary) to bring in an additional number of workers to testify on the narrow point involved. Most of the panel members on the *in camera* concerns were middle-level professional and management people. However, where it was particularly important to hear the testimony of craft workers or inspectors or lower-level supervision, the Applicants produced those people.

24. The Board concludes that there is no basis for concerns about “cold springing” in the Unit 1 containment spray system.

25. The Board also asked whether, assuming Witness 1’s various concerns were well founded, such concerns would have adversely affected the functional use or structural integrity of the containment spray system so as to threaten the safe operation of the plant. The Applicants

answered that question in the negative, setting forth a technical basis for each concern, and the Staff basically agrees. Staff PFFs 41-42. With one exception, noted below, Palmetto did not contest this point. The Board finds the Applicants' technical positions to be reasonable and well supported, and accepts them without repetition here.

26. Palmetto faults the Applicants for failing to explore the "clear generic implications" and "potential generic consequences" of the "defects which have been observed." This criticism is not valid for two reasons. First, the Board upon its consideration of the evidence has not found any "defects" from which "generic implications" might emanate. Second, the criticism implies that the Applicants were supposed to embark on a research program extending to all parts of the plant. But this issue was bounded by the Board's question, which spoke only to the containment spray system in Unit 1.

27. Palmetto's Proposed Findings 569-577 are an extended critique of portions of NRC Staff Report Nos. 50-413 and 414/80-03 concerning several subjects, including Witness 1's containment spray system issues. We find it unnecessary to address these points because, as we shall explain, we do not consider those portions of this report to be a part of the record or to be necessary for a proper decision of those issues.

28. After we heard the Applicants' case on the containment spray concerns, we entertained a Palmetto motion that the record be held open on those concerns pending receipt of a Staff report. The Staff opposed the Palmetto motion, arguing that a Staff report on those concerns was not necessary. I.C. Tr. 1206. Thereafter in our Order of December 30, 1983, we denied the Palmetto motion and formally closed the record on the containment spray concerns. Staff Report 84-03 was prepared in January 1984 and introduced as Staff Exhibit 26 at the final hearing session on the five remaining *in camera* subjects. It deals with three of those subjects and also, in part, with the containment spray system. The Staff offered the report as relevant to the subjects before the Board, not mentioning its discussion of the containment spray subject. Tr. 12,272. However, the Staff also said that it intended to "offer the entire inspection report" (Tr. 12,272) and we later admitted the report and an associated appendix of interview summaries without limitation. Tr. 12,319.

29. As a result, the present record is somewhat murky as to the status of the containment spray portions of Staff Report 84-03. Under all the circumstances, however, we think our intentional closing of the record on the subject was correct and should control. In the interest of clarity, we now determine that the containment spray portions of Staff Report 84-03 and related interview material in the appendix are not in the record for any purpose.

B. Witness Nunn

1. Introduction

1. Howard Samuel Nunn, Jr., a former Duke welder, first appeared before the Board *in camera* in response to the Board's invitation to appear as a Board witness (Nunn, I.C. Tr. 153-294). He subsequently filed two affidavits (dated 11/16/83 and 1/24/84). In the second affidavit Mr. Nunn expressed his desire for his testimony to be in the public record.

2. Mr. Nunn worked mainly as a weld repairman (Affidavit, 11/16/83, at 6). He impressed the Board as a sincere and candid witness. Mr. Nunn raised eight issues (Nunn, I.C. Tr. 153-294 and Nunn Affidavit, 11/16/83). In response to motions by Applicants and Staff, the Board struck four issues (I.C. Tr. 12/8/83) and retained the following: laminations, accuracy of radiographs, TIG wire, and "foreman override."

2. Laminations

3. The Staff's description of laminations in steel plate in its PFF 48 is accepted. "Laminations in steel plate are nonmetallic inclusions made up primarily of residues from additions which are made to liquid steel to improve the product by reducing the oxygen content and refining the grain during the fabrication process. Staff Ex. 22, at 3. Molten steel is poured into a mold for solidification into an ingot, which is then rolled to reduce the ingot to plate. During this process, very small amounts of air or gas can be trapped in the mold and the inclusions then form flat planes inside the plate. It is these inclusions which are referred to as laminations. The rolling process used to shape structural steels produces the greatest strength and ductility in the longitudinal and transverse directions, which are most important to structures. Laminar discontinuities usually reduce the ductility of the material in the through-thickness direction. Staff Ex. 22, at 3. Laminations are inherent in rolled plate. McConaghy, *et al.*, App. Ex. 110, at 5; Economos, Tr. 12,154."

4. While repairing welds in Reactor Building 1, Mr. Nunn found laminations in a piping penetration sleeve. Mr. Nunn was concerned because it is difficult to make a proper weld in the presence of laminations and repeated repair of these welds is sometimes necessary. Construction Procedure (CP) 88 requires the welder to grind out the lamination and fill the ground out area with weld metal. Mr. Nunn described the special care he took to make a proper weld when he was called on to make repairs. "Mr. Nunn's concerns were heightened when the Authorized

Nuclear Inspector (ANI), Mr. Koskro⁴¹ expressed concern to Mr. Nunn that use of CP-88 did not solve the laminations problem, but only covered it up. These events caused Mr. Nunn to doubt the integrity of the steel itself. I.C. Tr. 154-67; Affidavit at 7-15." Staff PFF 46.

5. The Staff notes (PFF 47) "that Mr. Harry Langley also expressed a concern regarding laminations, specifically, a lamination which appeared during repair of a gouged spot on containment plate where the knuckle plates come up on the outside of the wall. This was on the second level, Stiffeners 18 and 19. That concern is addressed herein as well."

6. The Board accepts Staff's I.C. PFF 48-58, as follows: "The steel in the containment plate is $\frac{3}{4}$ " steel and is fabricated in accordance with ASME requirements. Staff Ex. 22, at 2. The ASME requirements state that laminar indications on a plate edge which are 1 inch or less in length are acceptable without repair. McConaghy, *et al.*, App. Ex. 110, at 5; Staff Ex. 22, at 2. This is so because laminations are of significance only when they are subjected to loads which would cause them to open, specifically, through thickness tensile loads which would produce stresses perpendicular to the plane of the lamination. However, the loads which produce stress in the containment plate at Catawba are parallel to the surface of the laminations. McConaghy, *et al.*, App. Ex. 110, at 6; McConaghy, Tr. 11,959-60; Staff Ex. 22, at 3."

7. "The dominant stress loading on the containment structure results from internal pressures, the dead weight of the vessel itself, and the dome. The resulting loads are radial and longitudinal. McConaghy, Tr. 11,958. The only place in the containment where the tensile load on the plate would be affected by the presence of laminations is in the bottom of containment. Hence, the plate used in this area was ultrasonically examined to assure no unacceptable laminations were present. McConaghy, *et al.*, App. Ex. 110, at 6; McConaghy, Tr. 11,966-67. The only other through-thickness loads which would be applied to the containment vessel shell would be attachments to the wall, such as some cable tray systems, some piping systems, and some minor platforms and hoists which are supported from the containment vessel proper. McConaghy, Tr. 11,972. These attachments are controlled administratively and the design analysis has established what would be acceptable attachments. McConaghy, Tr. 11,974. The Staff also testified that the type of hangers and structural members being attached to the contain-

⁴¹ Mr. Nunn originally identified the spelling of Mr. Koskro's name as "Cosgrove," I.C. Tr. 162, and subsequently corrected this, Tr. 12,185.

ment liner plate would not be cause for concern. Economos, Tr. 12,077.”

8. “Laminations are of concern in the welding process. This is so because the heating and cooling can open the lamination, thus admitting slag which would then show as a defect in the radiograph of the weld. Llewelyn, Tr. 11,968; Economos, Tr. 12,143-44. Hence, the Applicants developed Construction Procedure 88 (CP-88) which directs grinding and sealing of the lamination prior to welding to deal with the issue with regard to the containment plate. For welding of penetration sleeves, the Applicants have a similar process which is documented on Form F9B. McConaghy, App. Ex. 110, at 6-7; Ruth, Tr. 11,999.”

9. “The defect that would show in the radiograph of a weld that did not seal the laminar indications would not be a matter of structural concern, but would be of some concern since it could mask an important defect, such as a lack of fusion. Barnes, McConaghy, Tr. 11,969-71; Economos, Tr. 12,079-81.”

10. “The specific weld that aroused Mr. Nunn’s concern over laminations was fully documented and approved by both QA and the ANI representative. McConaghy, *et al.*, App. Ex. 110, at 7. Mr. Nunn, in fact, testified that he was able to satisfactorily repair this weld. Nunn, Tr. 11,186-88. Further, the Staff investigation of this concern revealed that the laminations in the weld preparation surface of the containment penetrations were repaired consistent with Code requirements. Staff Ex. 22, at 3; Economos, I.C. Tr. 150-52.”

11. “Mr. Langley also reported an instance where the outside containment wall was gouged and the repair was hampered by the presence of laminations. Mr. Langley attempted to write an NCI on this; instead it was repaired using a construction procedure and the defect was removed. Langley, Tr. 6844, 6862, 6897. We should note here that Mr. Langley’s concern was related to the correct documentation for the repair, rather than a concern about the existence of laminations. *Id.*”

12. “The steel used in the containment is supplied by Phoenix Steel and is certified to the ASME Code, section 2. Ruth, Tr. 12,002, 12,006. Vendor audits did uncover two minor mistakes in the vendors’ own internal audit procedures, but did not find any significant deficiencies. Akers, Tr. 12,023-25. The Staff witness, Mr. Economos, also testified that the quality of the steel at Catawba is similar to steel at other locations and, based on his extensive experience of over twelve years in the steel manufacturing process, the steel in the Catawba containment is satisfactory for this application. Economos, Tr. 12,074-77.”

13. “Mr. Nunn also raised a concern regarding a 3/8-inch-deep pin-hole in a vendor weld where the stub of pipe was welded into the con-

tainment wall. He testified that he pointed this out to his foreman and a QC inspector, but he believed this weld received no documentation for repair. Affidavit at 15; I.C. Tr. 234-35. Applicants' witnesses testified that this pinhole in a vendor weld was a weld joining a shroud support ring to the stub end of a piping penetration covering a bellows assembly, and this did not form a portion of a pressure retaining boundary. McConaghy, *et al.*, App. Ex. 110, at 8; Rudasill, Tr. 12,018. As a result of the Applicants' investigation of this concern raised by Mr. Nunn, it was found that this repair was not, in fact, properly documented initially, and NCI No. 17,511 (Palm. Ex. 135) was written and the weld was replaced with appropriate documentation accompanying the repair. Shropshire, Tr. 12,020-22. It should be noted this weld was fully qualified even before the repair, but the Applicants took action to correct the lack of proper documentation in removing and rewelding the item with strict adherence to the ASME Code requirements. Shropshire, Tr. 12,022."

14. "Of primary concern to the Board was whether laminations in the steel plate in the containment would adversely affect the strength of the vessel in an accident environment. Tr. 11,965, 11,971, 12,048-49. However, testimony by both the Applicants and the Staff demonstrates that the stress loading on the vessel would not be affected by laminations. This is so because the containment is designed to yield in a membrane state, stretching like a balloon, and the loads that flow around the laminations are uniformly carried across the containment plate. McConaghy, Tr. 11,959-60."

15. "The Staff summary of investigative interviews revealed two other welders who had, in fact, come across laminations in the pipe sleeve penetrations in the containment, but neither of these welders found the material itself defective and both reported the laminations were repaired according to procedures. Staff Ex. 27, at 11, 20."

16. Palmetto reviews this testimony in its Supplement to PFF (4/6/84), at 4-13. However, the Intervenor fails to address most of the expert testimony in laminations. In addition to the Langley and Nunn testimony, Intervenor refers to testimony of welding inspector Irby. Irby's concern, however, was about surface pitting — not laminations. That concern was investigated by the Technical Task Force. See ¶ I.B.139, above. Palmetto did not propose any timely findings of fact on the Irby concerns.

17. We can appreciate Mr. Nunn's concern about the difficulties welders experience in making proper welds where laminations are encountered. Mr. Nunn's own testimony, however, indicates he took special precautions to make proper welds under these conditions. The

testimony on this issue also indicates that the QA program at Catawba was effective in the identification, evaluation and correction of laminations. Although Mr. Nunn is a skilled welder, he is not a qualified engineer or metallurgist. The Board is also reassured by the expert testimony that laminations in steel at Catawba are within acceptable limits.

3. Radiography

18. The Board accepts Staff's PFFs 60 and 62-69 as accurate. "The second issue which Mr. Nunn raised as a concern in connection with the quality assurance/quality control program at Catawba was his experience with radiography of welds. The welds Mr. Nunn was responsible for repairing in Reactor Building 1 were routinely radiographed after completion in order to determine whether any defects exist in the welds which might require further repair. X-rays are taken of the welds and if a defect is found, the welder is given a tracer to overlay on the weld to show the location of the defect for repair. Mr. Nunn testified that on several occasions the tracer he overlaid on the weld did not show the defect in the correct position, but would be off by several inches, or showed defects not appearing on the previous overlay. Thus he questioned the competency of the radiography department at Catawba. Affidavit at 17-19; I.C. Tr. 171-75."

19. "The Applicants presented several possible explanations for why Mr. Nunn may not have found indications of a weld defect where it had been previously, or found a defect in a different location. One possibility was that the defect was removed in the repair process, since, when a welder cuts into a weld using an air arc to remove an identified defect, he possibly will remove the metal so quickly that some defects may be removed before he sees them. Also, when blending out a smooth repair area, he might find a small area of porosity or slag that he might consider a defect, but due to its size, such potential defect may be acceptable under the Code. Cavendar, *et al.*, App. Ex. 97, at 6. Indeed, Mr. Nunn himself describes this repair process in his testimony. I.C. Tr. 171."

20. "A second possibility is that in the actual preparation and use of the tracing based on the radiographs, the observed location of the defect may shift. When a tracing of the radiograph is prepared, the interpreter shows the location and nature of the rejectable defect by referencing it to location numbers around the circumference of the weld. The welder must align the location numbers on the tracing to the corresponding locations on the weld which were marked during radiography carefully, since failure to accurately align the location numbers and weld configura-

tion can result in improperly marking the defect location on the weld. Cavendar, *et al.*, App. Ex. 97, at 7.”

21. “A third possibility is that the geometrical relationship between the source used in the X-ray (radiograph); the defect and the film can result in the defect location on the tracing being displaced from the actual defect location on the weld circumference. Cavendar, *et al.*, App. Ex. 97, at 7.”

22. “The Staff confirmed that in certain instances weld overlays (tracers) may not depict accurately all indications within a certain area of the weld. This may be attributed in part to technique, angle of exposure, type of indication (defect), and its location/orientation. Staff Ex. 26, at 8.”

23. “The Staff reviewed the radiograph packages of approximately twenty-six safety-related welds in its investigation of this concern. Radiographic reader-sheets used by film interpreters to document findings were reviewed and evaluated for evidence of possible errors in identifying defects, their location and Code compliance. This review indicated that the locations of weld defects as depicted on the overlays were accurate. The Staff’s review did not show any evidence of discrepancies in interpretation, documentation and/or Code violations. *Id.*”

24. “In addition to the document review done by the Staff, welders were selected at random for interview and were asked for their assessment of the accuracy/reliability of film overlays to detect weld defects.⁴² Most welders interviewed did recall isolated instances where a radiograph of a repair would show an indication not previously identified in a prior radiograph, but stated their understanding that this was possibly due to different angle shots and techniques used in radiography. The majority expressed confidence in the accuracy of the overlays and the competence of the radiographers. Staff Ex. 26, at 8; Staff Ex. 27, at 3, 5, 6, 7, 10, 11, 12, 13, 14, 15, 18, 20, 22, 24, 25.”

25. “The witnesses for the Applicants testified that it is easy to misalign a tracer (overlay) on a weld by ½ to 1 inch. Rogers, I.C. Tr. 866-67. In fact, Mr. Nunn himself testified that in laying the tracer on the weld he ‘had to go an inch, an inch to this side — this way, where the line had been marked; because I knew depending on the angle that

⁴² “As part of the technical investigation of the concerns raised by the *in camera* witnesses, the Staff selected a number of welders to interview, on the basis of what systems they worked on and, from a pool of fifty to sixty, selected a random sampling. Economos, I.C. Tr. 1288-90, 1320. Based on the results of the interviews with the welders sampled, the Staff determined [and the Board agrees] that since no trend developed, there was no warrant for further expansion of the scope of the investigation. Economos, I.C. Tr. 1315.”

they shot them at, that it could be just a little bit off.' ” Nunn, I.C. Tr. 916.

26. “Additionally, the Applicants’ witnesses testified that the Code requires complete coverage of a weld to be shown via radiographs, and once a repair is made it is re-radiographed and this process continues until the weld shows no defects.” Cavendar, I.C. Tr. 879-81.

27. Palmetto, in its Supplemental Proposed Findings at 27, alleges that radiography is used “as a weapon to overrule the rejection decisions already made by welding inspectors to approve questionable workmanship.” They cite four examples involving welding inspector Bryant to support this charge. (Intervenor Supp. PFFs 46-48.) Bryant’s Concern D-15 does not seem to involve radiography. See ¶ I.B.31, above. Reexamination of the radiograph resulted in finding concavity in D-30. See ¶ I.B.8, above. D-27 was a case where a Level III inspector overruled a Level II inspector on the basis of judgment after visual inspection and radiographic evaluation. See ¶ I.B.24, above. D-22 reflects that a “minor” weld defect was accepted after redoing of PT examination and later by leak test. See ¶ I.B.6, above. None of the cited concerns support the thesis put forth by Palmetto.

28. It is not unusual for repeated radiographs to show differences because of variation in location or angle of the shot. Furthermore, there are several possible reasons why a welder could have a problem locating a defect from the radiograph. These experiences do not in themselves necessarily reflect on the competence of the radiography department. While other welders reported some similar problems, the Staff investigation found that these welders seemed to generally have confidence in the competence of the radiography department. Therefore, Mr. Nunn’s concerns notwithstanding, the Board finds no sufficient reason to question the competence of the radiography department. The testimony indicates that defective welds were repaired and inspected, repeatedly if necessary, until corrected.

4. TIG Wire

29. The tungsten-inert-gas stick welding process is known as “TIG” and weld filler material used in the process is “TIG wire” (I.C. Tr. 149). Mr. Nunn reported problems with one batch of TIG wire that sputtered when used and tended to create excessive porosity (I.C. Tr. 176-80, 203-04, 247-53) He also referred to similar problems with 3/32 stick rods (electrodes). (PFF 592, at 288 to PFF 594, at 290.) Intervenor asserts that bad weld rods were used and that the welder’s under-

standings of what to do with bad TIG wire varied (PFFs 592-594 and Supp. PFF at 19-23).

30. The Staff has adequately addressed this concern in Staff's PFFs 72-76. "Investigation of this concern by both the Applicants and Staff confirmed that one batch of TIG wire did appear to have a black streak or scoring under the protective coat on this wire. However, this wire was tested by actually welding with it and the welds thus produced were subjected to NDE examination and no defective welds were produced using this material. Rogers, *et al.*, App. Ex. 96, at 8. The Staff review of welds done with this particular TIG wire revealed that welds fabricated with this material were of sound quality, as evidenced by their radiographs. Staff Ex. 26, at 5, 7."

31. "The Staff investigation found that the material in question met minimum chemical and mechanical properties required by the applicable code. Staff Ex. 26, at 7. The filler material was checked at the issue station and even though the wire tested proved acceptable, instructions were issued to welders directing them to discard any wire believed to be defective and use other wire. Rogers, I.C. Tr. 804-06."

32. "With regard to the flux problems, again analysis gave no indication that the electrodes would not meet Code requirements. However, since minor chipping of the flux on the striking ends of some electrodes was occurring, all were examined visually and those with irregularities were removed from service. Rogers, *et al.*, App. Ex. 96, at 8-9."

33. "The Staff investigation revealed the amount of inclusions found in a random sample of safety-related welds done with this material was consistent with this type of material, weld thickness and process. . . .⁴³ A majority of welders interviewed in connection with the Staff investigation admitted having some problems with defective weld filler material, but none of them reported knowledge of any defective welds caused by use of this material. Staff Ex. 27, at 2. Rather, when defective filler material was identified by a welder, it was discarded. Staff Ex. 26, at 7."

34. "A vendor audit conducted by the Applicants in connection with the electrode flux problem found no deficiencies in the vendor's QA program. Roy, I.C. Tr. 817. Welders also had standing instructions to check filler material that was issued to them, and to discard any material that they had cause to doubt. Rogers, I.C. Tr. 795-96, 778-80."

⁴³ The deleted sentences state that there was "no evidence . . . any defective pieces used to fabricate safety-related welds." Palmetto contests that statement (I.C. PFFs 36-38), citing equivocal evidence. Assuming that a few bad welds might have been made with defective TIG wire, they should have been detected in inspections.

35. The testimony reveals that some welding material used at the Catawba site had some irregularities or imperfections. The problem appears to have been mainly with a particular batch of TIG wire. Problems noted with electrode flux appear to have been isolated events. The TIG wire problems were reported, investigated, and instructions were issued on actions to be taken.

36. The Board does not find these events to reflect a general breakdown in quality control of welding material. The wire in question may have slowed work or resulted in waste by welders discarding questionable material, but there is no indication any defective welds were accepted. One could also wonder why all the defective TIG wire was not recalled and discarded. While Mr. Nunn testified that the defective TIG wire was used, he was able to produce satisfactory welds in spite of the difficulties encountered in its use (I.C. Tr. 901-03, 921, 936).

37. Intervenors would have us find a violation of 10 C.F.R. Part 50, Appendix B, Criterion XVII. Because no records were kept of the craft test welding with the TIG wire questioned by Mr. Nunn (Palm. I.C. PFF 36, at 21), we are dubious that Criterion XVII is meant to apply to this situation, *i.e.*, a trial welding by craft with material previously accepted under required procedures. If a violation at all, it would be very low level. The Staff appears to be of a similar view since they make no references to a potential violation of this criterion in its concluding I.C. PFF 78 (or preceding supporting paragraphs, I.C. PFFs 71-77). Rather, Staff finds this series of events evidence of an effective QA program (I.C. PFF 58). The Applicants assert that there were no procedural requirements or records to be kept and no reason to do so. (I.C. PFF 65.) The Board agrees with the Staff and Applicants and we reject Intervenors' I.C. PFF 36.

5. "Foreman Override"

38. Mr. Nunn stated that welder foremen would order welders to do work in a manner contrary to prescribed procedures or to the welder's ideas of correct welding. (I.C. Tr. 181-86, 193-95, 204, 254-58, 267-68, 283-87, 289-90). These concerns came to be referred to collectively as "foreman override." Specific incidents were listed by the Applicants (App. PFF at 45 n.10), as follows:

1. He alleged that his foreman told him to finish his welds so that they looked more uniform, despite the fact that Mr. Nunn did not believe that this had anything to do with the adequacy of the weld.

2. He alleged that a fellow welder, Mr. Henry, told Nunn that Henry's foreman pressured Henry to finish one weld using a certain weld rod that was inappropriate. The witness alleges that Henry further stated that the weld was rejected, Henry's stencil was pulled because of this rejection, and he was unjustly forced to recertify.
3. Mr. Nunn alleged that another welder, Mr. Young, stated to Nunn that Young was forced by his foreman to weld one Class G weld despite the fact that the fit-up was unacceptable, and because of the poor fit-up, the one weld was rejected. He alleges that Young told him that his stencil was pulled because of this one rejected weld and Young was unjustly forced to recertify.
4. Mr. Nunn alleged that one other welder, Mr. Ray, attempted to cover up defects in a weld because he was afraid of foreman pressure.
5. Mr. Nunn alleged that his foreman, Mr. Rudasill, attempted to pressure him to tack weld fit-ups on 2-inch Schedule 80 stainless steel pipe for Mr. McKenzie's crew in the Unit 2 Reactor Building without proper paperwork present.
6. Mr. Nunn alleged that welding foremen inappropriately approved welds on construction hangers (which he stated are at times safety-related) in order to increase production.

39. A Staff investigation of these concerns reported "that while some individuals may have held their foreman in relatively low esteem in terms of qualification and ability to manage the crew this was not pervasive and may have been a personality problem. The vast majority of the craft interviewed spoke very highly of their past and present field supervisors (foremen)." (Staff Ex. 26, at 5). The Staff notes that (Staff PFF 80) "the Applicants testified that they uncovered no instances where the foreman sacrificed quality, and that if the piping (welding) schedule was falling behind a deadline, extra crews were put on for two shifts. Rogers, *et al.*, App. Ex. 112, at 5; Wilson, Tr. 12,229-30."

40. The Board sees nothing improper in a foreman asking a welder to finish welds to make them look better even if the welder does not think it necessary.

41. We accept the Staff's account of the Henry, Young and Ray incidents. Staff PFFs 83, 84. "The incident with Mr. Henry, as recounted by Mr. Nunn, concerned an instance where Mr. Henry was told to use the 1/8 rods that he had at hand, rather than going to the rod issue shack to get 3/32 rods. The 1/8 rod was said to be too large a diameter for the job at hand, and the result of using improper material on this weld was that the weld proved to be defective. Mr. Henry lost his certification as a welder and had to retest, because a foreman told him to work with the wrong materials. Nunn, I.C. Tr. 184-86, 246."

42. "Mr. Henry testified at the hearing that the machine he was using was defective, preventing him from obtaining the proper heat for

the weld. He did not inform his foreman at the time, however, that the machine was defective, but he did report it later. He retested and his certification was returned. Henry, Tr. 12,232-36, 12,244.”

43. This incident shows the Board that defective work was caught and appropriate action taken. Thus the QA program was working; although the foreman may have been as much to blame for the defective weld as the welder.

44. The incident involving Mr. Young concerned a weld he had made two years previous to the actual incident. “According to Mr. Nunn, Mr. Young had done a weld at a fit-up on the night shift that was not properly put together. Two years later a defect in the weld was discovered when the line was cut open to install a valve. Mr. Young was required to retest to keep his certification. Nunn, I.C. Tr. 185, 256. Mr. Young testified, however, that the incident did not occur as Mr. Nunn had related it. He was not on the second shift when the weld was originally made. Young, Tr. 12,243. The weld was bad due to a 1/8-inch excessive penetration and he did retest to certify his ability to continue welding. Young, Tr. 12,236-39, 12,244.” Staff PFF 85. Again, this incident demonstrates to the Board a QA program functioning properly.

45. Mr. Ray had a problem with his stick rod. “According to Mr. Nunn, due to foreman pressure, Mr. Ray continued welding with the defective rod, causing an improper weld that had to be redone. I.C. Tr. 257-58. Mr. Ray testified at hearing and stated that while welding on a structural hanger, the foreman he was working for was dissatisfied with Mr. Ray’s work and required him to retest, that is, run a practice coupon. When he returned, he ground the weld and had it inspected, but he was not pressured to do the weld improperly by the foreman. Ray, Tr. 12,241. Mr. Ray also stated that while his foreman did challenge him by stating Mr. Henry was doing better, he regarded this as encouragement to improve, rather than pressure to do inadequate work. Tr. 12,246-47.” Staff PFF 86.

46. We accept the Staff’s description of Mr. Nunn’s concerns about paperwork and foreman OK in PFFs 81-82 and Staff’s investigation in PFFs 81, 82, 87 and 88 (in part). “With regard to the instance concerning tack weld fit-ups without proper paperwork, the Applicants testified that the only work in the reactor building involving a crew working with 2-inch Schedule 80 stainless steel pipe where QA signatures on fit-up were absent was on prefabrication of a temporary bypass around the blowdown heat exchanger. This bypass was discarded after flushing of the system and such work does not require any paperwork. Rogers, *et al.*, App. Ex. 112, at 9; Rudasill, Tr. 12,249.”

47. "With respect to Mr. Nunn's concern over the construction foremen writing 'vis-ok' on welds, the Applicants testified that construction hangers are not used in nuclear safety applications, and the welding foreman is the individual who approves such nonsafety-related welds. Rogers, *et al.*, App. Ex. 112, at 11; Barnes, Tr. 12,226-27."

48. "The Staff investigative summary of interviews did not indicate a pervasive problem with the issue of foreman override, but rather that there had been isolated incidents between craft and some foremen. Staff Ex. 27, at 2, 3, 12, 13, 15, 17, 18, 22, 23. Additionally, with but one exception, none of the welders interviewed in the Staff investigation indicated any foreman pressure to use defective materials to fabricate welds or to do any welds outside procedures. Staff Ex. 27, at 3, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 18, 20, 22, 23, 24, 25."

49. "An individual designated by the Staff as 'Welder B' did make such an allegation. The summary of the interview of 'Welder B' was distributed to the Board and lead counsel of the parties only, in order to protect the identity of 'Welder B' and to preserve the integrity of the Staff inspection process. Tr. 12,373. The Staff noted it was pursuing the allegations and would be reporting back to the Board with the Staff's results. On February 17, 1984, the Board determined to leave the record open for the purpose of receiving the Staff inspection report on this matter. Tr. 12,553." We also noted that we were "not prepared to dismiss [the Welder B matter] as an isolated instance on this record" and that we would consider what, if any, further action was called for after reviewing the Staff's report. *Id.*

50. The Board and parties subsequently received letters from Staff counsel dated April 11, 13 and 26 and May 14 and 29, 1984 concerning Welder B. The April 11 and May 14 letters enclosed summaries of meetings and the April 26 letter enclosed Staff Inspection Reports Nos. 50-413/84-31 and 50-414-17 (describing a Staff special inspection). The May 29 letter enclosed additional Staff follow-up information. All of these materials are received into the record. However, these materials do not resolve this matter. As reflected in the summary of the meeting between the Applicants and Region II personnel on April 18 and 19, 1984, the Licensee is presently carrying out an extensive inquiry into the concerns first raised by Welder B and subsequently corroborated in varying degrees by other employees. Presumably, the Licensee's inquiry will thereafter be reviewed by the Staff and, following that, the Board will expect a further report from the Staff.

51. In view of the present posture of the Welder B concerns, we are holding the record open for the purpose of reviewing reports from the Applicants and Staff on their resolutions of these concerns. Upon receipt

of those reports we can consider whether any further proceedings are appropriate, such as party comments on the reports or further evidentiary hearings. However, on the basis of the present record we are resolving the “foreman override” issue in the Applicants’ favor, subject to the Board’s later resolution of the Welder B and related concerns. Apart from the Welder B concerns, there is no evidence that “foreman override” was a widespread problem at Catawba.

52. The Board finds nothing inherently wrong in a supervisor requiring a craftsman to do work in accordance with the supervisor’s instructions, even if contrary to the craftsman’s thinking. The Board, of course, would be concerned if such action by a supervisor resulted in defective work or a violation of QA procedures. It appears in the circumstances cited by Mr. Nunn that the QA program worked in identifying and correcting defective work, although in some instances Mr. Nunn felt it worked in a way to reflect unfairly on the welder. There may have been one or more isolated incidents of improper pressure from a welder foreman, but contrary to Intervenors’ conclusions (PFFs 30 and 31, at 18), there is no indication of a pattern of foreman pressure to “get the job done” without regard to quality. Mr. Nunn’s testimony indicates that in two cases bad welds were found and corrected. Thus the Board concludes, with respect to foreman override, that, subject to the resolution of the Welder B and related concerns, there has been no compromise of the QA program at Catawba, but on the contrary, the evidence indicates the program is effective.

C. Witness 3

1. Introduction

1. Witness 3 provided the Board and parties with an affidavit of his concerns and was cross-examined on them in an *in camera* session. I.C. Tr. 296-395. Applicants identified eighteen different concerns in Witness 3’s testimony and affidavit and moved to strike the evidence on all of them. I.C. Tr. 406-14. The Staff supported the Applicants. I.C. Tr. 428. Palmetto argued that all eighteen concerns should be considered and included three of them⁴⁴ among a list of ten priority issues. I.C. Tr. 446. This Board granted the motions to strike eleven of the concerns and portions of two others. I.C. Tr. 518-23. The seven concerns we retained are discussed below.

⁴⁴ These were: placement of rebar, honeycomb in concrete, and doors of the wrong size on the Auxiliary Building.

2. Applicants subsequently presented a panel of eight employees who addressed five of the concerns. Four members of this panel were engineers, two were former coworkers of Witness 3, one was his former foreman, and one was a construction superintendent. App. Exs. 104, 105, 106, 107 and 108. The Board did not recall Witness 3 as its witness at this time and he did not accept our invitation to hear the Applicants' responses to his concerns. I.C. Tr. 1106.

3. When we closed the record on most of Contention 6 on December 16, 1983, we left a few *in camera* issues open, pending receipt of Staff technical positions. One of the open issues was "honeycombing" of concrete as identified by Witness 3. Memorandum and Order of December 30, 1983, at 4. NRC inspector Harris investigated honeycombing and related concerns and prepared Inspection Reports 50-413/84-07 and 50-414/84-06. Harris sponsored this Inspection Report as his testimony on honeycombing on the final day of the hearings. Staff Ex. 30.

4. Witness 3 prepared an affidavit in response to the Harris Inspection Report (Palm. Ex. 143) and also testified on the final hearing day. I.C. Tr. 1370-81.

2. Honeycombing

5. As stated by the Staff:

[h]oneycombing is defined by the American Concrete Institute (ACI) as voids left in concrete due to failure of the mortar to effectively fill the spaces among coarse aggregate particles. Common causes of this are inadequate vibration, use of low slump (dry) concrete, and placements congested with reinforcing steel (rebar), embedments and penetrations.

Staff I.C. PFF 94.

6. Documentation and prompt repair of honeycombing had been a problem at Catawba for several years. Following an NRC inspection in April 1979, Duke was given a notice of violation for failing to identify and repair a large honeycomb in the Unit 1 containment building. I.C. Tr. 1148-49. In response to this citation Duke improved its M2 program for honeycomb and adopted a new QA procedure, S5, requiring a final walk-through inspection. I.C. Tr. 1155. Further, Duke has begun a 100% reinspection of all surfaces of nuclear safety-related structures. I.C. Tr. 1155. This reinspection was in progress at the time of the hearing. The adequacy of repairs is to be verified by NRC inspectors. Staff PFF 105.

7. Witness 3, whose work on the Catawba project included construction of forms for concrete and installation of rebar, testified that he had observed a substantial amount of honeycombing when forms were removed. Palm. Ex. 143, at 4. He mentions particularly the exterior "doghouse" of Unit 1. His first affidavit (I.C. Tr. 304) at 3 speaks of "honeycombs . . . in bunches, and many were a half-foot in diameter. The foreman's initial reaction was to put forms back over the honeycombs and literally cover them up." Later, in his response to the NRC Inspection Report, he refers to "holes big enough to sleep in." Palm. Ex. 143, at 6. We read Witness 3's concern as related more to construction techniques than to specific deficiencies. Palm. Ex. 143, at 6. Witness 3 also pointed out that honeycombing may occur because of trash in the bottom of forms and because of bracing and other items placed inside the forms. I.C. Tr. 1371-72.

8. NRC inspector Harris testified that honeycombing is associated with exterior surfaces rather than internal voids. I.C. Tr. 1360. This opinion was based on his twenty-four years of experience and his knowledge that concrete is poured into the center of forms and flows, with the aid of vibration, outward through the rebar. I.C. Tr. 1361. Voids larger than one cubic inch are to be documented by QC inspectors and repaired according to procedures specified by technical support. I.C. Tr. 1129.

9. Without knowledge of the 1979 notice of violation, Harris had questioned Duke about their handling of honeycomb. This inquiry was prompted by honeycomb he saw in the reactor building but for which he could find no evidence that it had been identified. I.C. Tr. 1347-48. He was satisfied that pours made after 1979 were adequately documented, but was concerned about the documentation prior to that time. (*Id.*) Harris made this an unresolved item which was still under investigation when he testified. (*Id.*)

10. Palmetto finds it "incredible" that NRC inspector Harris was not aware of the 1979 Notice of Violation on this subject. We agree with Palmetto, especially in view of the attention we gave this violation on December 16, 1983. I.C. Tr. 1148-61. An NRC inspector charged with investigating a particular problem at a particular site should know the history of the problem at that site. Nevertheless, we believe that Inspector Harris' testimony, based on his extensive experience and demeanor as a witness, is basically sound.

11. Based on the corrective action that has been and is being taken, this Board finds that there is reasonable assurance that all honeycombing of safety significance has or will be identified and adequately corrected. The Staff is directed to verify that any remaining honeycombing of significance is adequately repaired prior to low-power testing.

12. Palmetto alludes to improper actions by the builder foreman who, according to Witness 3, put forms back on for the purpose of hiding a large area of honeycombing. PFFs 612-614. We believe that a chagrined foreman might very well want to minimize the length of time that poor workmanship was exposed to view. We agree with Applicants, however, that such action has no safety significance since QC inspection and subsequent repair is not avoided. App. Supp. Reply to PFF at 40.

3. Rebar Spacing

13. Witness 3 initially stated his concern as follows:

the rebars were not spread evenly and therefore did not match the spacing requirements of the blueprints. Sometimes the last rebar would have to be located outside the concrete to match the spacing requirements. As a result, the foreman would just have us move the rebars to fit inside the concrete.

Affidavit at 2-3.

14. Although the rebar spacing concern was associated with the turbine building which is not safety-related, the Board allowed further testimony because the bases of the concern appeared to be construction practices and associated quality control.

15. Applicants' witnesses pointed out that while bar placement is specified in design drawings, the Design Concrete Specification allows a 2-inch tolerance on the spacing of each piece and further deviation upon approval of the project engineer. App. Ex. 108, at 4. Foreman Durham also testified that Witness 3 seemed to want to follow his own ideas of how to install rebar, even though this would be more difficult and deviate from the drawings. I.C. Tr. 1134-36.

16. Witness 3 acknowledges that QC inspectors looked at and approved rebar installation prior to pouring of the concrete. He complains about the inspectors' lack of construction experience (I.C. Tr. 332-33) and, relative to bar spacing, "it went from one extreme to the other that they quit looking not just for numbers but they were down measuring to the 16th to see if they were in the right place." I.C. Tr. 332.

17. We find nothing here to indicate that there was any significant deviation from design in the placement of reinforcing steel, nor does this concern reflect any breakdown in the QA program for assuring proper installation of the rebar.

4. *Removing Braces and Forms Too Soon*

18. On the basis of his prior experience, Witness 3 believed that forms should be left on a slab pour for twenty-eight days for proper curing. I.C. Tr. 335-36. He was concerned that the forms and braces were torn off the Unit 1 generator pier after only fourteen days. *Id.*, 335.

19. Applicants confirmed that the forms were removed before twenty-eight days, but that this was done in accordance with the Concrete Specification which allows removal at 70% or more of design strength provided the average mean daily temperature was greater than 40°F. App. Ex. 107, at 3. In this case the design strength was 4000 psi. Cylinders cured in the field for test purposes and broken at 11 days showed an average compressive strength of 4500 psi — well above design specification. Staff Ex. 30, at 3 and App. Ex. 107, at 3.

20. We find nothing irregular about the early removal of concrete forms under the conditions described here, nor any associated breakdown of the QA program.

5. *Scheduling Pressure*

21. The Staff appropriately summarizes the evidence on this concern and we adopt its Proposed Findings 116, 117 and 118 without change.

22. “Witness 3 also alleged that there was competition among the crews to see who could install the most rebar. Affidavit at 2. He also testified that the scheduling pressure was so intense that the object was first to do the job and then to go back and do it right. I.C. Tr. 314. He stated his foreman in the turbine building held a record at Duke’s McGuire Station for installing the most tonnage of rebar and he wanted to ‘keep the tradition going at Catawba.’ I.C. Tr. 315. The witness cited a specific example regarding placement of rebar in wall pours in the turbine building where the foreman told Witness 3 the bars were to be installed before the forms. I.C. Tr. 315.”

23. “Applicants filed testimony regarding this incident explaining that the design required the horizontal bars to be on the exterior of the vertical bars and thus must be installed before the forms, since access to install the horizontal bars after installation of the forms would have been extremely difficult. Once grade was established on the interior forms, the horizontal bars were adjusted for acceptable elevation and spacing in the pour and the remainder of the form was installed. App. Ex. 105, at 4-5. I.C. Tr. 1130-31.”

24. "Applicants' witness further testified that the measure for production is not tons of rebar per man-hour, but that each pour has a number of scheduled man-hours from beginning to completion. I.C. Tr. 1140. The foreman referred to by Witness 3 also testified that at McGuire he had met the schedule most of the time, and while he was on occasions complimented for his work there, he was also on occasion 'chewed-out' for his work. I.C. Tr. 1144. This foreman also testified that if quality were sacrificed for quantity he would never meet a schedule, since everything that has to be redone will delay the schedule. I.C. Tr. 1191."

25. We find nothing in the record to indicate that proper installation of the rebar was compromised by pressure to get the job done quickly. Although Witness 3 may not have agreed with his foreman's method of doing the work, the final result was according to design and approved by QC inspectors.

6. Testing the Inspectors

26. Witness 3 was concerned that QC inspectors were often "hired off the street" without prior experience. He states that sometimes he "would intentionally install hardware wrong or put in a pipe sleeve backwards, just to test and see if the QC inspectors would catch it. They never did. Although I would then go back and correct the problem . . ." Affidavit at 4. On cross-examination Witness 3 stated that his foreman encouraged such actions, "because he knew that we were [capable of] doing it right . . ." I.C. Tr. 310-11. This intentional wrong installation of hardware with subsequent correction is said to have happened in the walls of the turbine building. I.C. Tr. 321-22.

27. The foreman implicated by Witness 3 emphatically denied any involvement in intentional misinstallation or that "anything of this nature happened." I.C. Tr. 1123-24. Further, other builders on this crew had no knowledge of such actions as alleged by Witness 3. App. Ex. 106, at 7. Applicants' witnesses also point out "that it would be extremely difficult for [embedments] to be installed incorrectly and remain undetected." *Id.* at 5. We agree. We further assume that any worker caught deliberately misinstalling hardware would be severely disciplined and probably fired for cause.

28. We are persuaded that Applicants' testimony is the more credible and that this alleged concern, apart from whatever Witness 3 might have done, is not founded in fact.

7. Support for Mr. Hoopingarner

29. Several pages of Witness 3's affidavit are devoted to corroboration of certain allegations by Palmetto witness Nolan Hoopingarner. Affidavit at 7-12. These allegations were not separately addressed in the *in camera* sessions. Our findings on these allegations of Mr. Hoopingarner are presented at pp. 1543-47, above. As reflected in that discussion, for the most part, the Board's interpretations of the facts differ from those of Mr. Hoopingarner and Witness 3.

8. Prenotification of NRC Inspections

30. This concern was not stated in the initial affidavit of Witness 3, but was developed on cross-examination by Intervenors' counsel. I.C. Tr. 352-53. The primary concern seemed to be that last-minute house-keeping efforts would cover up the typically more disordered condition of the work areas. No mention was made of any attempt to hide or correct inferior work. I.C. Tr. 353.

31. None of the parties propose findings on Witness 3's "prenotification" concern and we have no reason to do so inasmuch as no construction defect or quality assurance issue was raised. Another Board witness, Mr. Harry Langley, expressed a similar concern about prenotification of NRC inspections and we address that in section D, below.

9. Conclusions

32. Of the seven concerns of Witness 3 we accepted for analysis on the record, only honeycombing was shown to warrant serious consideration in relation to construction deficiencies in safety-related structures or to the functioning of the Quality Assurance program. We find the deficiencies in Applicants' QA program that resulted in unidentified and unrepaired honeycombing prior to 1979 have been corrected and that there is now reasonable assurance that all honeycombing of safety significance has been or will be identified and corrected prior to low-power testing.

D. Witness Langley

1. Harry Langley, a former welding inspector at Catawba, first came forward with concerns in a limited public appearance session, independent of our general invitation for *in camera* appearances. As a matter of convenience, Mr. Langley was later heard on the record under the

same procedures as the *in camera* witnesses. Motions to strike were granted as to all but three of Mr. Langley's concerns. I.C. Tr. 512-13.

2. Mr. Langley testified about an incident of harassment. According to Mr. Langley, he and another inspector, Lindsay Harris, had been inspecting a personnel airlock when they were threatened by the craft foreman on the job, Tom Mullinax. Tr. 6883-84.

3. Harris and Mullinax later appeared as witnesses. Harris agreed that he and Langley had once been working on an airlock at the same time, but he could not recall Mullinax threatening him at that time. Tr. 1037-38. Mullinax could not recall threatening Langley. Tr. 1039-40.

4. Harris had testified previously about a different incident that had involved angry words from Mullinax to Harris. However, it became clear that the incident occurred after Langley was no longer employed by Duke. Harris, Tr. 1031.

5. The testimony is in direct conflict as to whether the threats of Harris described by Langley actually occurred. Neither the circumstances nor the demeanor of the witnesses resolves the conflict. We can say that, given the circumstances and the occurrence of similar incidents at Catawba, it is certainly possible that the incident did occur. We will assume it did and take it into account in our overall conclusions about harassment.

6. Mr. Langley testified about laminations in a gouged area in containment plate. This concern is addressed in our discussion of Witness Nunn's more fully elaborated lamination concerns. See pp. 1554-58, above, particularly ¶¶ 5 and 11. Suffice it to note here that Mr. Langley himself stated that the defect he saw had been repaired. Tr. 6897.

7. Mr. Langley alleged that workers at the site received prenotification of NRC inspections, implying that the inspections were somehow compromised. I.C. Tr. 1081. Palmetto offers no proposed findings on this concern, apparently not finding any safety significance in it. Neither do we. The Applicants' evidence was to the effect that prenotification did not occur, or at least was not their practice. Davison, I.C. Tr. 1012-16. Furthermore, we accept the Applicants' I.C. Proposed Finding 140 that: "even assuming Mr. Langley's allegations were true, prenotification of a specific inspection would have no effect. Concerning completed work, all of the records documenting it are dated (I.C. Tr. 1060-62, Davison, Morgan, Harris, and Freeze 12/16/83). Mr. Langley himself agreed it would be too late to change completed work (I.C. Tr. 1082-84, Langley 12/16/83). As to in-process work, specific prenotification would similarly have no effect. The NRC inspectors commonly look at numerous welds in any given area. If poor-quality work was being done, a prenotice of several days would not be adequate to retrain the

welders to perform their work well under NRC observation (I.C. Tr. 1062-64, Davison, Freeze, Morgan, and Harris 12/16/83)."

Findings of Fact on Technical Contentions

I. REACTOR VESSEL EMBRITTLEMENT

A. Calculation of Reference Temperature

1. Intervenors' Contention 44/18 reads: "The license should not issue because reactor degradation in the form of a much more rapid increase in reference temperature than had been anticipated has occurred at a number of PWRs including Applicants' Oconee Unit 1. Until and unless the NRC and the industry can avoid reactor embrittlement, Catawba should not be permitted to operate."

2. The reference nil-ductility temperature (RT_{NDT}) is significant in determining if failure can occur to the reactor vessel. (Elliott, Staff Ex. 18, at 2; Mager, App. Ex. 92, at 4.) The initial values for RT_{NDT} at Catawba Units 1 and 2 are -8°F and 15°F , respectively. (Elliott, Staff Ex. 18, at 13; Mager, App. Ex. 92, at 10.) The Intervenors concede that the initial RT_{NDT} values were determined in accordance with requirements of codes and regulations. (Riley, Tr. 11,164.) Therefore, this contention is concerned with the increase in reference temperature in reactor vessels after many years of operation.

3. Applicants based their calculations for end-of-life RT_{NDT} at Catawba on extensive tests of surveillance capsules from other Westinghouse reactors that produced trend curves showing shifts in reference temperature as a function of neutron fluence and percent copper in vessel material. (Mager, App. Ex. 92, at 6.) For Catawba Units 1 and 2, end-of-life RT_{NDT} values were calculated as 86°F and 109°F , respectively. (*Id.* at 10.) Subsequent calculations with three times as much data base gave corresponding new values of 66°F and 98.9°F .

4. Staff's calculations are based on surveillance coupons and empirical correlations of radiation effects data. (Elliott, Staff Ex. 18, at 4-5.) Originally, Staff used formula and trend curves in Regulatory Guide 1.99, Rev. 1, April 1977, to compute shift in RT_{NDT} . As additional data became available, the "Guthrie Formula" was developed. (Commission Report SECY-82-465; *id.*) Staff plans to use Guthrie Formula until data resulting from test coupons placed inside the Catawba reactors becomes available. (Elliott, Staff Ex. 18, at 6-7.) The standard deviation for the Guthrie Formula is 24°F and the Staff adds two standard deviations as a conservative measure when using that formula (*id.*).

This means there is a 97.5% probability that the true shift in RT_{NDT} will be less than the mean-plus-two standard deviations. (Elliott, Staff Ex. 18, at 13-14.) Staff's calculations result in a 97.5% probability of an end-of-life RT_{NDT} at Catawba Units 1 and 2 of less than 102°F and 125°F, respectively. (*Id.*)

5. Applicants did not use the Guthrie Formula in their calculations because it does not consider low-copper material specifically. (Mager, App. Ex. 92, at 13; Mager, Tr. 10,941-42.) The Applicants did compare their values with ones obtained using Regulatory Guide 1.99 and found results essentially equivalent. (*Id.* at 14.)

6. Intervenors question the use of data from surveillance coupons because of the wide scatter of results. (Riley, Palm. Ex. 133, at 6-7; Intervenors' PFF at 6.) They also question the use of test specimens at Catawba as not being representative of vessel wall material and stresses. (PFF at 12.) The Intervenors also cite the fact that Staff has research ongoing in this area as further reason to question the results. (PFF at 9.)

7. Intervenors point to the large shift in RT_{NDT} at Applicants' Oconee plant. (Riley Prepared Testimony at 6.) Applicants do not question there has been a large shift at Oconee, but point out that these vessels have high levels of copper and that nickel is an influence also. (Elliott, Staff Ex. 18, at 15.)

8. The Board notes the variation in data when all kinds of materials are tested, but it views Applicants' data based on Westinghouse reactors and reactor vessels with low-copper content as being more reliable for this application. Also, the Staff's addition of two standard deviations to its calculations is a conservative step aimed at taking care of variance in its data. The differences cited by Intervenors in Catawba test specimens and vessel wall material are not considered sufficient to discredit their usefulness. We note that the Applicants will use six surveillance capsules instead of four required by NRC regulations, 10 C.F.R. Part 50, Appendix H. (Mager, App. Ex. 92, at 8-9.)

9. It is desirable to extend knowledge through research and put research results to immediate use, but that is no reason not to proceed using the best knowledge available. Human knowledge will never be perfect. In this case, the calculations give reasonable assurance of safety. The Oconee experience is inapplicable because of differences in material in reactor vessels. The surveillance program meets the relevant NRC regulations. The Board rejects as unnecessary the monitoring program proposed by Intervenors. (Intervenors' PFFs 43 and 44.)

B. Pressurized Thermal Shock

10. A special concern about embrittlement is the resultant ability of the reactor pressure vessel to withstand pressurized thermal shock. The Board adopts the Staff's Proposed Findings 388-391 on Pressurized Thermal Shock, as follows.

11. "To ensure that the reactor vessel will be resistant to a pressurized thermal shock (PTS) event during the life of a nuclear plant, the Staff requires that the EOL RT_{NDT} for the limiting reactor vessel beltline materials must be less than the screening criterion specified in Commission Report SECY-82-465 'Pressurized Thermal Shock.' PTS events are pressurized water reactor (PWR) transients, including those initiated by instrument or control system malfunction and postulated accidents, such as small-break, loss-of-coolant accidents or main steam line breaks, that result in severe overcooling of the reactor vessel, concurrent with pressurization or repressurization. Screening criteria identified in SECY-82-465 were derived from fracture mechanics evaluations of postulated cracks whose orientation is parallel to the weld direction, and specify RT_{NDT} values of less than 270°F for base plate materials and axial welds, and less than 300°F for circumferential welds, as acceptable limits to prevent brittle failure in reactor vessels due to PTS events. Elliott, Staff Ex. 18, at 2-3; Mager, App. Ex. 92, at 15-16."

12. "The Staff's calculations, using the Guthrie Formula specified in SECY-82-465, determined EOL RT_{NDT} values of 102°F and 124°F for Catawba Units 1 and 2, respectively. Elliott, Staff Ex. 18, at 13. Mr. Elliott indicated that these predicted values are more than 100°F below the PTS criterion required by the Staff and, consequently, the shift in RT_{NDT} for the Catawba reactor vessels would have to exceed the mean predicted value by at least six standard deviations before PTS events present a problem for the Catawba reactor vessels. Since the probability limits for six standard deviations exceed 99.99%, the Staff concluded that PTS is not expected to be a problem for the Catawba reactor vessels. *Id.* at 15."

13. "The Applicants attempted to evaluate the validity of the Commission's screening criteria by performing an analysis of the risk of reactor vessel fractures using the screening criteria and also using the Staff's RT_{NDT} values calculated with the Guthrie Formula. Their analysis showed that if the screening criteria is not exceeded, the risk of reactor vessel failure due to PTS is 6×10^{-6} occurrence per reactor-year of operation. If the values for EOL RT_{NDT} arrived at for the Catawba vessel under the Guthrie Formula are used, Applicants calculated that the risk of reactor vessel failure would be less than 10^{-8} occurrence per year of reactor operation. The Applicants concluded that the EOL

RT_{NDT} values using the Guthrie Formula provide a large margin of safety which, when coupled with the conservatism of the Staff's calculational methodology, make a transient resulting in a nonductile condition in either Catawba reactor vessel 'so remote that it is essentially nonexistent.' Mager and Meyer, App. Ex. 92, at 15-17."

14. "Therefore, based on evidence presented above by the Staff and Applicants, and noting that the level of certainty provided by their prediction of shifts in reference temperature exceeds that called for by Intervenor,⁴⁵ we find reasonable assurance that the fracture toughness of the Catawba reactor pressure vessels is adequate to prevent breach of reactor vessel integrity due to PTS events."

15. The Board also concurs with Staff's overall conclusions in its PFF 392. "Based on the foregoing evidence, the Board finds that reasonable assurance exists that the increase in RT_{NDT} over the life of the Catawba reactor vessels will not be more rapid than estimated by the Staff and Applicants, that the surveillance program at Catawba will accurately reflect the effects of neutron fluence on the reactor vessel materials and will provide sufficient warning of any change in RT_{NDT} so that any necessary adjustments to operating limitations can be timely implemented for the protection of the public health and safety, and that the Applicants meet all relevant regulations concerning reactor vessel integrity at the Catawba facility."⁴⁶

16. On February 16, 1984, after the close of the hearings, CESG moved to reopen the record to introduce additional information which it had received on December 16, 1983, three days after its witness testified. The information was in various books that cost around \$70-\$75 each, so CESG waited until they were obtained on loan. The Board does not consider this excuse sufficient to justify reopening the record, particularly since the Intervenor has no expert to testify or cross-examine on the subjects in these publications. The Board accepts this submission only as an offer of proof.

⁴⁵ See Riley, Tr. 11,204-05.

⁴⁶ "As an alternative to the alleged inadequacy of the Staff's and Applicants' methods of determining nonductility in reactor vessels, the Intervenor suggested the use of strain gages to monitor reactor vessel integrity. Mr. Riley admitted, however, that strain gages would not measure change in RT_{NDT} or embrittlement. Riley, Tr. 11,208. Moreover, Mr. Riley conceded that the regulations do not require such devices. Riley, Tr. 11,195. Therefore, Intervenor's suggestion is not only an impermissible attack on NRC regulations, but by virtue of the Board's September 8, 1983 Order, beyond the scope of the contention."

II. ADVERSE METEOROLOGY

1. Contention 17 was jointly sponsored by Palmetto Alliance and CESG. It was based on the Staff's Draft Environmental Statement (DES) and states:

The DES is concerned with environmental impacts. Presumably, these are best represented as the entire range from trivial to serious, in conjunction with the estimates of likelihood. The DES averages meteorological conditions in its consideration of accidents, 5.9.4.5. Because atmospheric inversions and quiet air are a very common feature in this region, accident consequences should be calculated for the extreme condition of inversion and very slow air movement.

In the matter of assessing serious accidents, the environmental assumptions are complex and again do not appear to consider extreme weather, p. 5-37. The DES, which differs from the CP FES in considering severe accidents, is at fault in not considering the full range of radiological impacts by not considering extreme, but frequently encountered, weather conditions.

2. The Board admitted this contention in its Memorandum and Order of December 1, 1982 (LBP-82-107A, 16 NRC 1791, 1805) and paraphrased it as:

contend[ing] that the DES does not properly evaluate impacts of design basis and severe accidents because it does not isolate and analyze those impacts assuming extreme weather.

3. The DES was superseded by the Final Environmental Statement (FES) (NUREG-0921) in January 1983, and hereafter we refer only to the FES. Relevant portions of the FES were admitted as Staff Ex. 12 (Tr. 11,456A).

4. Both the Staff and the Applicants moved for summary disposition on Contention 17, but we denied these motions in our Memorandum and Order of October 18, 1983 (unpublished), pointing out that the Staff had not included in its FES any results of its calculations for design basis accidents made with "very poor" meteorology and that the manner in which unfavorable weather was factored into the severe accident evaluations was obscure.

5. At the hearing, the Staff presented a panel of three witnesses (an accident evaluator, a nuclear engineer, and a meteorologist), Staff Ex. 20. Applicants presented one witness (a meteorologist), App. Ex. 94, and Intervenors presented one witness (a former meteorologist for the U.S. Weather Service), Palm. Ex. 134.

6. The meteorological data base used by the Applicants and Staff to compute the impacts of design basis accidents was collected at the

Catawba site over a two-year period (December 17, 1975 through December 16, 1977). App. Ex. 94, at 2. For the serious accident evaluations, the Staff used measurements from the Applicants' onsite meteorological program for the period August 1, 1976 through July 31, 1977. Staff Ex. 20, at 11. The meteorological conditions that existed during this period are considered to be representative of those that will exist over the next forty years. App. Ex. 94, at 2.

7. There is no dispute among the parties that conditions of stable air inversion and low wind speed occur frequently in the Catawba-Charlotte area. Intervenors' PFF B.3; Staff PFF 402. Applicants' meteorologist, Mr. M. Casper, testified that stable conditions exist at Catawba about 40% of the time. Tr. 11,593. Maximum health consequences are associated with such conditions. Staff PFF 407. The question for us to resolve is whether the FES properly considers highly unfavorable weather in the evaluation of environmental impacts.

8. The FES contains estimates of the environmental consequences for both design basis and severe accidents.

9. *Design basis accidents* postulate that specific design and operating features of the plant will limit the potential radiological consequences. "An important implication of this expectation is that the releases considered are limited to noble gases and radioiodides and that any other radioactive materials (for example, in particulate form) are not expected to be released. [Consequence calculations] also use the meteorological dispersion conditions that are an average value determined by actual site measurements." FES, p. 5-35.

10. The atmospheric dispersion conditions are computed from hourly onsite meteorological data of wind speed, wind direction and atmospheric stability. Tr. 11,243-44. Precipitation is not considered and for each hourly set of data, the wind is assumed to continue to flow in the same direction at the same speed. App. Ex. 94, at 4.

11. The "average" dispersion condition used in the FES for design basis accidents is actually the 50 percentile or median. App. Ex. 94, at 4; Staff Ex. 20, at 2-3. Although all of the atmospheric dispersion conditions for the two-year data collection period (represented as relative concentration or X/Q values) are included in a cumulative frequency distribution (Staff Ex. 20, at 2), they influence the median only to the extent that half of the X/Q values are smaller and half of them are larger.

12. The evidence before us shows clearly that calculations of the consequences of design basis accidents presented in the FES reflect only the median atmospheric dispersion condition. Although the frequency of stable air inversions in this region is among the highest in the United States (Palm./CESG PFF B.3), none of the X/Q values representing the

poor dispersion conditions associated with stable air were actually used in the consequence calculation. This conclusion follows from the testimony of Mr. Casper that, "[i]f you take into account all daily situations that occur at the site in terms of E, F and G stabilities, it would be somewhere around 40% of the time." The stability condition is a major determinant of X/Q . App. Ex. 94, at 3. By definition, the "median" (or 50 percentile) is the middle of a series. It would not, therefore, be among the values that are in the lowest or highest 40% of the full series. For the case at hand we surmise that the median X/Q is representative of a neutral stability condition.

13. The consequences of design basis accidents were also calculated by the Applicants and the Staff for "near worst" case (5%) meteorology. These calculations were made for the Safety Evaluation Report (SER) to evaluate site suitability and are not used in the FES. Staff PFF 404.

14. The 95 percentile X/Q (rather than the median) used in the SER calculations should be reasonably representative of the more stable atmospheric conditions.⁴⁷ We find it unfortunate that the Staff avoids use of the 95 percentile, and even any reference to the SER calculations in the FES. This is especially appropriate in a situation like Catawba where inversions occur frequently.

15. The Staff argues that use of the "median" atmospheric dispersion condition is all that is necessary to meet NEPA requirements. PFFs 395-396. They rely on application of a "rule of reason," *Natural Resources Defense Council, Inc. v. Morton*, 458 F.2d 827, 834 (D.C. Cir. 1972) which was applied by the Appeal Board in *Public Service Co. of Oklahoma* (Black Fox Station, Units 1 and 2), ALAB-573, 10 NRC 775, 779 (1979), and in *Public Service Electric and Gas Co.* (Hope Creek Generating Station, Units 1 and 2), ALAB-518, 9 NRC 14, 38-39 (1979), [quoting from *Trout Unlimited v. Morton*, 509 F.2d 1276, 1283 (9th Cir. 1974)]. The specific language of interest here is:

An EIS need not discuss remote and highly speculative consequences. . . . A reasonably thorough discussion of the significant aspects of the probable environmental consequences is all that is required by an EIS.

9 NRC at 38-39.

16. We disagree with the Staff that using an X/Q associated with stable weather conditions to calculate the consequences of design basis

⁴⁷ In its motion for summary disposition of Contention 17 (July 7, 1983), the Staff stressed the significance of the SER calculations in relation to "extreme, but frequently encountered, weather conditions." Affidavit at 5.

accidents would be "remote and speculative." Improbably severe accidents (as in the case of Hope Creek) may well be highly speculative, but weather conditions which occur as much as 40% of the time should certainly be a part of any "reasonably thorough discussion" of probable environmental consequences.

17. *Severe accidents* are considered less likely to occur than design basis accidents but their consequences could be more severe since the containment structure may fail to limit the release of radioactive materials to the environment. FES, p. 5-36. Prior to 1980 the Staff was not required to include an evaluation of severe accidents in its environmental impact statements. However, the Commission published a *Statement of Interim Policy* on June 13, 1980 (45 Fed. Reg. 40,101) which required the Staff to include in the EIS a:

"reasoned consideration of environmental risks (impacts) attributable to accidents" giving equal attention "to the probability of occurrence of release and to the probability of occurrence of the environmental consequences of those releases."

18. Applicants for plants where the environmental evaluations were already completed were not required to make a severe accident analysis, and Duke did not make one for Catawba. Tr. 11,588.

19. From the description of severe accident assessment in the FES (§ 5.9.4.5(2), p. 5-36), it is not at all evident whether the Staff separately considered adverse weather conditions or used some sort of an average as they did for design basis accidents. Testimony at the hearing brought out that periods of adverse weather are indeed considered separately, but that this is done in a very complex manner.

20. Our interpretation of the evidence is that:

- a. Onsite meteorological data at hourly intervals for one year (August 1, 1976 through July 31, 1977) were provided by Duke to the Staff. App. Ex. 20, at 11.
- b. These 8760 hourly observations appear as two tables in the CRAC computer program used to calculate consequences. One table has data on atmospheric dispersions (stability, wind speed and precipitation), the other is data for a wind rose — the frequency that the wind blew in each of sixteen compass sectors. *Id.* at 11-12.
- c. Severe accidents were postulated to start at selected times during the year and the concentration of the radionuclides in the atmosphere (and thus the environmental consequences) were calculated for at least the next 120 hours or as long as required for the contamination to travel a selected distance away from the plant. Tr. 11,248.

- d. For each accident start, the code assumed that the same wind speed and other atmospheric properties existed in all directions of the compass. Tr. 11,318.
- e. In order to cover the full year and, hopefully, all weather conditions of interest, a new accident start was postulated about every fourth day. This resulted in a total of ninety-one accident starts over the full year. Staff Ex. 20, at 12.
- f. The computer calculates complementary cumulative distribution functions (CCDFs) which are combinations of released radionuclides, meteorological sequences and wind directions. Since four different severe accidents were considered, there were ninety-one different start times, and there are 16 compass sectors, a total of 5824 CCDFs resulted. *Id.* at 14.
- g. Since all hours of the year are used at least once in generating the 5824 CCDFs, adverse weather conditions are certain to be included.
- h. The CCDFs are not presented as such in the FES, but rather they are a basis for the figures that portray the probability of consequences (FES Figures 5.3, 5.5, and 5.7). *Id.* at 14; Tr. 11,268.
- i. The curves presented in FES Figures 5.3, 5.5, and 5.7 terminate at points calculated from the single most unfavorable CCDF and thus represent the most extremely unfavorable weather conditions sampled by the scheme which was used. The 10^{-8} probability line of FES Table 5.11 (p. 5-81) also reflects such unfavorable weather. Tr. 11,269-72.
- j. The wind rose data are used in relation to the probabilities of certain consequences, rather than as an initial orientation of where the consequences will occur. Tr. 11,181-83.

21. Based on the record developed at the hearing, we conclude that the FES analysis of the severe accident case does include a consideration of extreme, but frequently encountered, weather conditions. The consequences are also related to the probability of occurrence and thus the Staff's analysis is responsive to the Commission's 1980 Statement of Interim Policy.

22. Nevertheless, the scheme which the Staff is using is so complex and computer-dependent that the influence of individual parameters, such as atmospheric stability and wind direction, are hopelessly buried within the computer "black box" and thus not practically available to interested persons.

23. Further, the FES presentations of the serious accident consequences do not adequately portray the influence of adverse weather

conditions. Absent the kind of information developed at the hearing, we doubt that very many people would decipher that weather substantially influences the very low probability portions of the consequence graphs.

Conclusion

24. The FES does not adequately take adverse weather into account in the analysis of environmental consequences of design basis accidents.

25. Adverse weather is adequately considered in the analysis of serious accidents, but the FES does not adequately delineate its significance in relation to the accident consequences.

26. We find the FES deficient in these aspects. This deficiency is of minor significance, however. Adverse weather was considered in the SER and the results are presented there. The contribution of adverse weather to the consequences of adverse accidents is incorporated into figures and tables of the FES even though its inclusion is not apparent.

Conclusions of Law

In an operating license case, a Licensing Board is to decide only the issues in controversy between the parties. 10 C.F.R. § 2.760a. Numerous issues previously advanced by the Intervenors were eliminated from controversy by preliminary Board rulings or upon summary disposition. The evidentiary hearing focused on a broad quality assurance contention (Palmetto Contention 6) and two technical issues concerning embrittlement of reactor vessels and the effects of adverse meteorological conditions during a severe accident.⁴⁸ Upon consideration of the evidentiary record and in light of the foregoing findings of fact, the Board concludes that —

- A. With respect to the Atomic Energy Act of 1954, as amended, and the Commission's rules relating to quality assurance and pressure vessel integrity, and notwithstanding certain findings adverse to the Applicants, the Applicants have met their burden of proof and have demonstrated a reasonable assurance on the following contentions:
1. Palmetto Contention 6. Neither the concerns of the welding inspectors, nor of Messrs. Hoopingarner and McAfee,

⁴⁸ A third technical issue became uncontested and was dismissed when the Intervenors failed to file proposed findings of fact on it. See note 1, above.

- nor of the *in camera* witnesses evidence systematic deficiencies in plant construction or Company pressure to approve faulty workmanship such that the plant cannot operate without endangering the health and safety of the public. This is true notwithstanding certain blemishes on the Applicants' quality assurance performance, notably the retaliatory evaluation of Supervisor Gary (Beau) Ross.
2. Contention 18/44. The amount of material degradation of the Catawba reactor pressure vessels resulting from neutron irradiation damage over the life of the plant can be reliably predicted, Staff's and Applicants' projections of the shift in reference temperature (RT_{NDT}) of the Catawba reactor vessels are conservative, and the Catawba reactor vessels can and will be operated within acceptable safety margins for material degradation.
- B. The Staff and Applicants have not met their burden of proof and therefore have not demonstrated a reasonable assurance on Contention 17. In their assessment of the environmental impacts of design basis accidents in the FES, the Staff did not give adequate separate consideration to the effects of extreme meteorological conditions, effects which are not uncommon in the Catawba area. Although their assessment of the impacts of severe accidents did include the effects of adverse weather conditions, this fact is not apparent in the FES. Accordingly, the Staff has not, in the Board's view, fully discharged its obligations under the National Environmental Policy Act of 1969, and the Commission's implementing regulations (10 C.F.R. § 51.23(c)). However, the legal question is fairly debatable and the NEPA violation is not a flagrant one. The type of assessment for design basis accidents that is missing from the FES would be similar to one that appears in the SER. Furthermore, the Staff's NEPA cost/benefit analysis (FES Part 6) strikes the balance clearly in favor of plant operation. In these circumstances, although this Board has not performed an independent cost/benefit analysis (taking all environmental factors into account *de novo*), it is inconceivable to us that the lack of a reasonable assurance on Contention 17 (concerning limited aspects of a design basis accident) could significantly affect, let alone shift the cost/benefit balance and change the result. *Cf. Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-701, 16 NRC 1517, 1527-28 (1982) (the "radon case"). In other words, the lack of a reasonable

assurance on Contention 17 is harmless error. Therefore this conclusion adverse to the Applicants does not preclude authorization of an operating license.⁴⁹

Order

IT IS HEREBY ORDERED, pursuant to the Atomic Energy Act of 1954, as amended, and the Commission's rules, that the Director of Nuclear Reactor Regulation is authorized, upon making the findings on all applicable matters specified in 10 C.F.R. § 50.57(a) and upon satisfaction of the conditions in the following paragraph, to issue to Applicants Duke Power Company, North Carolina Municipal Power Agency Number 1, North Carolina Electric Membership Corporation and Saluda River Electric Cooperative a license to authorize low-power testing (up to 5% of rated power) of Unit 1 of the Catawba Nuclear Station. A license to authorize full-power operation of Unit 1 is within the jurisdiction of the separate Licensing Board constituted to consider and decide emergency planning contentions. The Director of Nuclear Reactor Regulation is also authorized, upon the necessary findings and a favorable decision by the emergency planning Board, to issue licenses for fuel loading and operation of Unit 2 upon the completion of that facility.

This Order is subject to the following conditions:

1. Meeting of the obligations imposed by ¶¶ I.B.61, I.B.145, I.D.25, and I.D.47 of our findings to the satisfaction of the Staff, provided that the obligation imposed by ¶ I.D.47 may be satisfied by the time specified therein, or prior to full-power operation, whichever is later.
2. Demonstration to this Board of a reasonable assurance that the "Welder B" and related concerns described in ¶¶ III.B.48-III.B.51 do not represent a significant breakdown in quality assurance at Catawba. We are retaining jurisdiction over this issue.
3. Demonstration to this Board of a reasonable assurance that the emergency diesel generators at the Catawba Station can perform their function and provide reliable service with reference

⁴⁹ Pursuant to 10 C.F.R. § 50.52(b)(3) our findings and conclusions on this issue are deemed to modify the FES and are to be distributed as the FES was distributed. Although the Staff may wish to prepare and issue a supplement to the FES containing a separate assessment of adverse weather under design basis accident conditions, and clarify its presentation about the consequences of severe accidents, we do not condition the license on such a supplement.

to the concerns encompassed by the Intervenor's late contention admitted June 22, 1984. We are also retaining jurisdiction over this issue.⁵⁰

Effectiveness and Review of Initial Decision

This Partial Initial Decision is effective immediately and will constitute the final decision of the Commission forty-five days after the date

⁵⁰ On June 21, 1984, the Intervenor moved in an on-the-record telephone conference for reconsideration of our previous denials of their diesel generator contentions. See note 3, above. Our reasons for rejecting those contentions still obtain and therefore reconsideration is denied. The Intervenor also moved the admission of a contention — worded identically to the Board's former *sua sponte* contention — to be considered as an intervenor-sponsored, late contention and therefore subject to the five "lateness" factors under 10 C.F.R. § 2.714(a)(1). This motion was opposed by the Applicants and the Staff for somewhat varying reasons in the course of lengthy discussion, which included the five-factor balancing process. The transcript was not yet available when this decision was issued.

As a threshold matter, we do not believe that the Commission's Order of June 8, 1984 (unpublished) disapproving our exercise of *sua sponte* authority under 10 C.F.R. § 2.760a has any bearing on the pending motion. The principles applicable here flow from an earlier Commission decision in this case concerning the five-factor balancing process. CLI-83-19, 17 NRC 1041. We conclude that the balancing process clearly favors admission of this contention, because: *Factor 1* ("Good Cause") — Until the Intervenor received the Commission's June 8, 1984 Order, they had every reason to believe that they would be able to litigate site-specific diesel problems at Catawba under the Board's *sua sponte* contention. Furthermore, had the Board not raised that contention back in February, we believe that the Intervenor would have proffered a similar contention at that time. Therefore, good cause has been shown. *Factors 2 and 4* ("Other Means" and "Interests Represented by Existing Parties") — Both of these factors favor admitting the contention. A section 2.206 petition is no substitute for litigation here because such petitions are discretionary with the Director of NRR; the Staff properly disclaims the notion that it will represent the Intervenor's interests. *Factor 3* ("The Intervenor's Contribution to the Record") — As we have made clear in the past, we do not believe the present Intervenor can make a substantial contribution to these technical issues unless they are prepared to present expert testimony or at least have expert assistance in their cross-examination. The Intervenor has repeatedly indicated that they will be able to produce experts; so far, however, they have not done so. Now that the Intervenor has in hand the Applicants' report on site-specific problems at Catawba, they should be in a position to move quickly to obtain the appropriate expert assistance. In these circumstances, our admission of this late contention is conditioned upon the Intervenor's serving by July 6, 1984 their designation of a named diesel generator expert or experts, along with a description of qualifications (resume). Failure to meet this condition will result in dismissal of this contention. Conversely, if this condition is met, *Factor 3* will favor admission of the contention. Finally, *Factor 5* directs us to consider resulting delay. We see no reason why there should be any resulting delay. As far as this Board is concerned, the Applicants already have all the authority they need to load fuel and conduct pre-criticality testing. Under their present schedule (which has slipped several times recently) they will not need a full-power operating license until September 14, 1984. If a hearing is necessary on the contention we admit today, we expect to complete it and decide the issues well before mid-September.

Generally, the Board proposes to follow the schedule agreed to in the May 21, 1984 telephone conference. Tr. 12,643-47. Specifically, discovery is to recommence on this date (June 22, 1984) and to continue until terminated by the Board, probably in late July. The Intervenor should serve any interrogatories they may have on the Applicants' recent site-specific report as soon as possible. As represented to us by Staff counsel, we expect the Staff to issue its supplemental SER on the Catawba diesels about July 15, 1984. Should a hearing be necessary, it is tentatively scheduled to commence on August 6, 1984, in Charlotte, N.C., the exact time and place to be specified later.

Subject to the foregoing discussion, the Intervenor's motion is granted and the following contention is admitted:

Whether there is a reasonable assurance that the TDI emergency diesel generators at the Catawba Station can perform their function and provide reliable service because of the problems that have arisen in the course of testing and inspection of such generators, such as the problems reported in the Applicants' letter to the Board of February 17, 1984.

hereof, unless a party appeals or seeks a stay. Pursuant to 10 C.F.R. § 2.762, an appeal from this Partial Initial Decision may be taken by filing a notice of appeal with the Atomic Safety and Licensing Appeal Board within ten days after service of this decision. A brief in support of an appeal must be filed within thirty days after the filing of the notice of appeal (forty days if the appellant is the NRC Staff). Within thirty days after the period for filing and service of the briefs of all appellants has expired, any party not an appellant may file a brief in support of or in opposition to the appeal. The NRC Staff may file a responsive brief within forty days after the period for filing and service of the briefs of all appellants has expired.

Any party may apply to the Appeal Board for a stay of this Partial Initial Decision pursuant to 10 C.F.R. § 2.788.

Report by Office of Investigations

The Commission's Office of Investigations ("OI") initiated an investigation of certain quality assurance issues at Catawba during the evidentiary hearing in this proceeding. The Board denied several motions to postpone the hearing pending completion of the investigation. OI recently informed the Board that its investigation is nearing completion and that its report will be available to the Board and parties (subject to possible deletions to fulfill pledges of confidentiality) in the near future.

This Partial Initial Decision is based solely on the evidentiary record in this case. The Board has not had access to or considered the upcoming OI report in any way. We expect, however, that in view of its scope as described in the initial Board Notification that report will cover some of the same concerns addressed in the evidentiary record, and that a party or parties may seek to reopen the record on that basis. Should that happen after a notice of appeal has been filed and jurisdiction has passed to the Appeal Board, that Board may consider such a motion

itself, or it may remand it for consideration by this Board in the first instance.⁵¹

**THE ATOMIC SAFETY AND
LICENSING BOARD**

**Dr. Richard F. Foster
ADMINISTRATIVE JUDGE**

**Dr. Paul W. Purdom
ADMINISTRATIVE JUDGE**

**James L. Kelley, Chairman
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland
June 22, 1984**

⁵¹ Appendix C to the Staff's SER addresses the status of unresolved safety issues, as required by the Appeal Board's decision in *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-491, 8 NRC 245 (1978). The Staff discusses in some detail a number of such issues that are applicable to the Catawba facility and explains why the licensing of those units to operate should be allowed before a generic solution to the problem is found. We have reviewed these Staff explanations and find them to be adequate.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

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

In the Matter of

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

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

June 29, 1984

Pursuant to a stipulation that authorizes a grant of summary disposition unless a hearing is necessary for the Board to reach a reasoned decision, the Board grants summary disposition of nine issues, including five issues discussed by the Board in a previous decision.

RULES OF PRACTICE: SUMMARY DISPOSITION

Summary disposition may be granted with respect to issues explicitly left open by the Board in a memorandum and order. The previous decision of the Board provides the framework for consideration of the motion.

RULES OF PRACTICE: SUMMARY DISPOSITION; STIPULATIONS

The parties may provide the Board with greater authority to grant summary disposition through a stipulation. For example, the Board may be authorized to grant summary disposition whenever it decides that it can reach a reasoned decision without conducting a hearing. That standard permits the Board to grant summary disposition in some circumstances in which it would otherwise be required to find that there is a genuine issue of fact requiring trial.

TECHNICAL ISSUES DISCUSSED

Applicability of AWS Code to ASME Pipe Supports
ASME Code: Simultaneous Effect of AWS Code Provisions
Preheat
Weave Welding
Downhill Welding
Cap Welding.

MEMORANDUM AND ORDER **(Written-Filing Decisions, #1: Some AWS/ASME Issues)**

This memorandum and order inaugurates a series of decisions intended to resolve, without further hearings, as many as possible of the design quality assurance and design issues remaining in this case.

The issues subject to this series of decisions are those discussed in LBP-83-81, 18 NRC 1410 (1983) and its successor (concerning a motion for reconsideration), LBP-84-10, 19 NRC 509 (1984). The first such issue — and the one we take up now — is “Applicants’ [Texas Utilities Electric Company, *et al.*] Motion for Summary Disposition of Certain CASE¹ Allegations Regarding AWS² and ASME³ Code Provisions Related to Welding Issues; Request for Expedited Response,” April 6, 1984.

¹ Citizens Association for Sound Energy.

² American Welding Society.

³ American Society of Mechanical Engineers.

I. PROCEDURES

Motions for summary disposition arise under 10 C.F.R. § 2.749(d). Generally speaking, a party seeking summary disposition files a "Statement of Material Facts as to Which There Is No Genuine Issue" and supports that statement with a brief and with an accompanying affidavit. Parties opposing summary disposition must demonstrate, through briefs and affidavits, that there are genuine facts in issue. The opponents of summary disposition may not rely on generalities. Only genuine issues of fact are set for hearings.

This series of decisions on summary dispositions is doubly unusual. First, we are considering summary disposition subsequent to the issuance of a formal order concerning the issues in controversy. That order is binding in this litigation and provides the framework for consideration of the summary disposition motions.

Another unusual aspect of the procedure is that we have adopted — with the permission of the parties — a somewhat more lenient standard for granting summary disposition. Whenever we find ambiguities requiring further clarification, we will ask questions (in writing or on the record), request briefs or otherwise seek to clarify matters fairly. Having done that, we will schedule a hearing (or cross-examination of one or more witnesses) only if we determine that the hearing is *necessary for us to make a reasoned decision*; we have described this as "adopting a procedure . . . which favored the determination on written papers in the discretion of the Board. . . ." Tr. 13,798, 13,800-01, 13,803.

The purpose of this more lenient standard for summary disposition is to avoid unduly prolonged hearings on technical matters, which generally are better resolved based on an understanding of the facts rather than by use of a magical wand to discern truth telling. Our experience in these hearings is that technical issues require careful study and the comparison of the views of the experts called by the parties. This is an arduous task that is helped by cross-examination only when there is substantial lack of clarity in the written filings or there are important disagreements that require clarification and resolution through the oral interchange provided by a hearing. Cross-examination rarely succeeds in unmasking experts as charlatans and tends to waste time.

We are grateful to all the parties for their consent to the Board's suggestion that these procedures be adopted.

II. THE ISSUES

As our previous decision sets forth, CASE filed Proposed Findings of Fact setting forth ten aspects of the AWS Code that it believed to be applicable to welds made at Comanche Peak, even though the ASME Boiler and Pressure Vessel Code is the principal code of record. We found Applicants' answer, that the AWS Code does not apply to Comanche Peak, to be unacceptable.⁴ Our concern was analogous to the legal problem of whether federal legislation completely "fills the field" and prohibits complementary state action or whether a state may enact legislation to supplement the federal purpose. In this context, the concern was whether the ASME Code had "filled the field" with respect to welding or whether the AWS Code had some proper scope within that field as well.

In their present filing, Applicants have acknowledged that there is a proper role for the AWS in the field of weld *design*. The bottom line is that "neither code provides all the details necessary to design a weld joint, and both codes rely on the designer to assure that the weld joint is designed to meet the design and operating loads."⁵ As a consequence, Applicants will deal separately with ASME/AWS *design* issues in a separate written motion.

At this time, we address only whether welding procedures at Comanche Peak that are based entirely on the ASME Code are adequate to assure the fabrication of sound welds⁶ — when used by qualified welders in the context of an appropriate QC (quality control) system. (For the purpose of deciding this motion, we do not consider it relevant to determine whether Applicants use qualified welders or have an appropriate QC system.) In addition we are concerned with the appropriateness of Applicants' procedures for weave welding, downhill welding, preheat requirements, and cap welding.⁷ This motion does not cover in any way whether the plant has been constructed according to the applicable procedures.

⁴ 18 NRC at 1436; LBP-84-10, 19 NRC at 525-26.

⁵ Affidavit of W.E. Baker, *et al.* (Applicants' Affidavit) at 3.

⁶ The five AWS/ASME issues before us, identified by numbers originally assigned by CASE, are: (1) "Preheat requirements for welds on plates over ½-inch thick," (2) "Drag angle and work angles (which limit the space allowed for the welder to function)," (3) "Beta factor for tube-to-tube welds," (7) "Lap joint requirements," and (9) "Limitation on weld sizes relative to plate thickness." Applicants' Motion at 8-9.

Applicants' Motion is ambiguous with respect to how they will handle the application of Korol and Mirza criteria to NPSI rear brackets (LBP-84-10, 19 NRC at 526), but that appears to be a design issue and is not covered here.

⁷ Applicants' Motion at 19 to 25. Note that Applicants' Request for an expedited response was denied but the Board removed the issue covered by the motion from the hearing calendar.

III. DISCUSSION OF CASE'S ANSWER

We note with some dismay the irrelevance of substantial portions of CASE's brief and its answer to the Applicants' Statement of Material Facts. We infer that CASE's engineer-consultant did not grasp that we are dealing only with a piece of the record. The principal question being litigated is whether the ASME Code and its required qualification testing procedures fully cover the AWS provisions listed in note 6, *supra*. If the ASME Code fully covers these provisions, there is nothing left to argue about.

Because CASE often has made cogent technical points in this proceeding we examined its filing with special care. However, we failed to find any instance in which CASE singled out an ASME provision, compared it with an AWS provision and showed why the ASME provision was not adequate to the purpose also addressed by AWS. We are confident that if CASE knew of such an instance it would have told us of it. Since it has not done so, though it had an opportunity, we have no basis for concluding that the ASME provisions covered by Applicants' motion require supplementation from the AWS Code.

As we went through CASE's filing, we found several recurring errors. The first recurring error we note is that CASE tends to omit any explanation of why its objections are relevant to the issues. For example, it does not argue why "design restrictions outlined in AWS" are relevant to this motion nor why the failure to implement preheat *in the field* is relevant to this motion. See CASE's Answer, May 14, 1984, at 1, 2; 6-7, for example.

CASE's second recurring error is that CASE sometimes fails to contradict Applicants' statement. For example, Applicants stated that "[b]oth the AWS and ASME Codes include requirements for welding procedures that will result in welds that are adequate for their intended uses." Instead of contradicting this statement, CASE addresses an alleged implication. In this instance, CASE alleges that Applicants have implied that "ASME does not require consideration of the design restrictions outlined in AWS." However, in this fashion, CASE does not rebut the statement itself — only the alleged implication. Furthermore, since the genuine issues were designed to logically flow into one another, challenges to alleged implications simply miss the main flow of the argument and leave it undisturbed.

We urge that in future filings CASE address the logical underpinnings of the Applicants' argument, demonstrating important issues that affect the public safety. To do this properly, CASE should first attempt to understand each argument analytically and as a whole. Only in that way

will it be able to determine the importance of individual sub-issues that build toward that whole.

We will not further address CASE's arguments that we have already addressed generically as being responsive to "implications" or as not being shown to be relevant to the pending motion. For example, many of CASE's comments seem relevant to design issues or to construction issues, neither of which were covered by this motion.

CASE's Answer⁸ takes issue with Applicants' statement of a genuine issue of fact concerning limited access welds. To the extent that CASE points out that limited access welds require special welder qualification,⁹ we accept CASE's correction of the Applicants' statement. It is our understanding of the record that the safety of limited access welds depends in part on their being performed by qualified welders and in part on appropriate QC checks.

With respect to the Beta Factor for Tube-To-Tube Welds, the essence of Applicants' proposed finding is that the AWS Code uses the Beta factor as a criterion for requiring qualification testing for welds. Since all welds at Comanche Peak are qualified, the apparent dispute over what the Beta Factor requirement is has no significance. The ASME qualification procedures appear to satisfy the AWS requirement, based on Beta Factors, that certain welds need to be qualified by testing. To the extent that the Beta Factor controversy involves proper weld design, it is not related to the pending motion for summary disposition.

With respect to weave beading, CASE does not make any argument contradicting Applicants' statement that its weave beading procedure is properly qualified. Nor has CASE pointed to any AWS Code provision that is not also reflected in ASME. Hence, Applicants have established that its weave beading procedure is appropriate. The argument that the procedure is being improperly applied in the field is irrelevant to the pending motion.

With respect to downhill welding, the record reflects that the only permitted welding at Comanche Peak (with the exception of a qualified procedure for one contractor) is uphill welding. Hence, there is no showing that Applicants are disregarding a relevant AWS requirement.

With respect to cap welding, the core "disagreement" is that Applicants state that there are no "unique restrictions in placing new weld

⁸ "CASE's Answer to Applicants' Statement of Material Facts as to Which There Is No Genuine Issue," May 14, 1984, at 9.

⁹ We adopt this CASE finding even though it is not accompanied by a transcript citation. In the future, CASE acts at its peril when it fails to give record citations, but it is our clear memory of the record that this fact is correct. Furthermore, the finding does not affect the outcome and Applicants are not prejudiced.

material on an old weld,” and CASE attempts to rebut this by stating that each pass of a multiple pass weld “must have the same heat input as provided . . . by Table 2.7.” However, this does not join the issue. Applicants never contended that heat input requirements are inapplicable. Heat input is not a “unique” restriction on a multiple pass; it is uniformly applicable to all weld passes regardless of whether they are part of a “cap” weld made some time after the remainder of the weld is completed.

With respect to undersized welds, there is no reason to believe that the original weld material would be subject to an increased risk of cracks. Hence, they represent no special risk and there is no reason given by CASE to prohibit repair by laying on a new weld over the top.

With respect to underbead cracking, CASE does not indicate any AWS section to which Applicants ought to comply but to which they do not comply.

In short, we find only one of CASE’s comments to have merit and that one comment does not undermine the basis for Applicants’ case.

IV. STAFF ARGUMENTS AND BOARD FINDINGS

The filing with which we most nearly agree, and the one that most clearly sets forth the issues, is Staff’s filing.

Staff’s Response¹⁰ correctly states the principal issue: “whether welding procedures qualified by test in accordance with the ASME Code are adequate in light of the AWS requirements for prequalified welds.” Because we find Staff’s argument to be clear and persuasive, we accept the following findings suggested to us by Staff and Applicants:

1. The 1974 ASME Code requires that all welding procedures be qualified by testing in accordance with specified ASME Code requirements. CASE has failed to indicate any way in which those Code requirements are inadequate or need to be supplemented by AWS requirements. Consequently, the ASME Code testing procedures provide an adequate assurance of safety.

2. All of Applicants’ ASME procedures are qualified by test pursuant to Section IX of the ASME Code.¹¹

¹⁰ “NRC Staff Response to Applicants’ Motion for Summary Disposition on AWS and ASME Code Provisions on Welding,” May 11, 1984.

¹¹ We adopt this finding based on Applicants’ Statement of Material Facts as to Which There Is No Genuine Issue, ¶¶ 2 and 8. These statements were not controverted.

3. Welds made in compliance with the ASME Code are sound. CASE has not demonstrated that there are any AWS procedures whose application is required because ASME-qualified welds are not acceptable.

4. The Staff of the Commission has compared the provisions of the ASME and AWS Codes for each of the five AWS welding parameters for which summary disposition is sought.¹² The Staff has not found any AWS provisions that require implementation to assure the safety of welds along any of these parameters. Nor has CASE demonstrated that there are any such provisions of the AWS Code.

5. Applicants' procedures for weave welding, downhill welding, pre-heat and cap welding comply with the ASME Code.¹³ CASE has not indicated that there are any provisions of the AWS Code that need to be applied with respect to these factors in order to assure adequate safety of the welding process. Staff has found that Applicants' procedures also comply with the AWS Code, and CASE has not persuaded us otherwise.

V. CONCLUSION

There is no genuine issue of fact related to the pending motion. Additionally, pursuant to the agreement of the parties we have examined the written filings and have reached a reasoned determination that Applicants' compliance with ASME Code has been adequate to assure the safety of its welding procedures with respect to the welding parameters in issue. CASE has failed to substantiate its concern that AWS Code provisions must be used to supplement ASME procedures to produce safe welding practices along the parameters in question.

Accordingly, summary disposition should be granted.

Order

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 29th day of June 1984,

ORDERED

That Applicants' Motion for Summary Disposition of Certain CASE Allegations Regarding AWS and ASME Code Provisions Related to

¹² Staff Response at 10-12.

¹³ Applicants' Affidavit (Affidavit of W.E. Baker, M.D. Muscente, J.D. Stevenson, and R.E. Lorentz, Jr., Regarding Allegations Involving AWS and ASME Code Provisions, April 2, 1984) at 17-21.

Welding Issues, April 6, 1984, is granted. Accordingly, the issues covered by the Motion are dismissed from the proceeding with prejudice. .

**FOR THE ATOMIC SAFETY AND
LICENSING BOARD**

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

**Walter H. Jordan (by PBB)
ADMINISTRATIVE JUDGE**

**Kenneth A. McCollom (by PBB)
ADMINISTRATIVE JUDGE**

Bethesda, Maryland

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF THE EXECUTIVE DIRECTOR FOR OPERATIONS

William J. Dircks, Executive Director for Operations

In the Matter of

Docket Nos. PRM-50-32
50-32A
50-32B

OHIO CITIZENS FOR RESPONSIBLE
ENERGY
MARVIN I. LEWIS
MAPLETON INTERVENORS

June 22, 1984

The Nuclear Regulatory Commission denies three petitions for rulemaking requesting that the Commission amend its rules of practice to require applicants for construction permits and operating licenses for nuclear power plants to provide for design features to protect against the effects of electromagnetic pulse (EMP). The petitions are denied because the requested amendments are unnecessary for the protection of public health and safety, are contrary to sound administrative practice, and are inconsistent with the established national policy that the protection of the United States against hostile enemy acts is the responsibility of the nation's defense establishment.

Based upon results of studies done by the NRC and for the NRC (Sandia National Laboratory Report, NUREG/CR-3069, "Interaction of Electromagnetic Pulse with Commercial Nuclear Power Plant Systems") there is no reason to believe that an EMP would prevent any commercial nuclear power plant from achieving a safe shutdown condition. In addition, the rationale behind the issuance of 10 C.F.R. § 50.13, which was upheld in the U.S. Court of Appeals, was that Congress did not intend to implement legislation that would require nuclear power plants to be capable of warding off the effects of hostile enemy acts. This rationale has been reevaluated in light of the petitions and at

this time the Commission finds no information to support a change in policy.

DENIAL OF PETITIONS FOR RULEMAKING

I. BACKGROUND

Mr. Robert Alexander, on behalf of the Ohio Citizens for Responsible Energy, filed a petition for rulemaking (PRM-50-32) on March 16, 1982. Notification of the petition was placed in the *Federal Register* of June 24, 1982 (47 Fed. Reg. 27,371).

The petitioner requested 10 C.F.R. Part 50 be amended to read in the following manner:

1. **Section 50.13 — Attacks and destructive acts by enemies of the United States; and defense activities** (a) An applicant for a license to construct and operate a production or utilization facility, or for an amendment to such license, is not required, with the exception of (b) below, to provide for design features or other measures for the specific purpose of protection against the effects of (i) attacks and destructive acts, including sabotage, directed against the facility by an enemy of the United States, whether a foreign government or other person, or (ii) use or deployment of weapons incident to U.S. defense activities. (b) Such applicant must, however, provide for design features to protect against the effects of electromagnetic pulse from whatever source.

Appendix A of Subpart 50 — *Criterion 4 — Environmental and missile design bases*. Structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be appropriately protected against dynamic effects of missiles, pipe whipping, and discharging fluids, that may result from equipment failures and from events and conditions outside the nuclear power unit including, but not limited to electromagnetic pulses.

Mr. Marvin I. Lewis filed a petition for rulemaking (PRM-50-32A) which was received by NRC on August 5, 1982. Notification of the petition was placed in the *Federal Register* of November 24, 1982 (47 Fed. Reg. 53,030).

The petitioner requested that the following sentence be added to 10 C.F.R. Part 50, Appendix A, Criterion 13:

Instrumentation shall be hardened to protect against electromagnetic pulse generated by a high altitude, nuclear explosion.

Mr. Wendell H. Marshall, on behalf of the Mapleton Intervenors, filed a petition for rulemaking on August 31, 1982. Notification of the petition was placed with that of PRM-50-32A in the *Federal Register*.

The petitioner requested that 10 C.F.R. Part 50 be amended as follows:

Section 50-13. Attacks and destructive acts by enemies of the United States; and defense activities.

(a) An applicant for license to construct and operate a production or utilization facility, or for an amendment to such license, is not required, with the exception of (b) below, to provide for design features or other measures for the specific purpose of protection against the effects of (I) attacks and destructive acts, including sabotage directed against the facility by an enemy of the United States, whether foreign government or person, or (II), Use of deployment of weapons incident to United States defense activities.

(b) Such applicant must, however, provide for design features to protect against the effects of electromagnetic pulse from whatever source.

The petitioner also requested that Appendix A, Subpart 50 be amended to read as follows:

Criterion 4 — Environmental and missile design bases. Structures, systems and components important to safety shall be designed to accommodate the effects of and be compatible with the environmental conditions associated with normal operation, maintenance, testing and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be properly protected against dynamic effects of missiles, pipe whipping and discharging fluids that may result from equipment failures and from events and conditions outside the nuclear power unit including, but not limited to the electromagnetic pulses.

As the basis for the requests, the OCRE petition states that when 10 C.F.R. § 50.13 was established, the effects of EMP were not known. All three petitioners state that the present regulations have a serious defect that would permit a flaw in the design of nuclear power plant safety systems, and that this flaw can be corrected "quite simply with little hardship worked upon applicants."

II. PUBLIC COMMENTS

A. Description of Comments Received on Petitions

Notification of the filing of the three petitions was published in the *Federal Register* twice, on June 24, 1982 (47 Fed. Reg. 27,371) and November 24, 1982 (47 Fed. Reg. 53,030), with PRM-50-32A and

PRM-50-32B sharing the same notice. This notice also reopened the comment period for PRM-50-32, and assigned January 24, 1983 as the expiration date for the comment period applicable to all three petitions. Comments, in general, were considered for all three petitions as a whole since the petitions were nearly identical.

Of twenty-eight letters of comment received, including rebuttals by the petitioners, eighteen were opposed to the petition, ten in favor. Five of the commenters raise the concern that EMP-induced voltage/current transients in conducting materials can disrupt, damage or destroy electronic circuits and components, leading to a loss of heat removal from the core and hence meltdown. At present, the NRC staff is unaware of any data to substantiate this point. On the contrary, a study performed for the NRC by Sandia National Laboratories (NUREG/CR-3069, "Interaction of Electromagnetic Pulse with Commercial Nuclear Power Plant Systems") concluded that the EMP-induced signals at the components required for safe shutdown are considerably less than nominal operating levels.

The Sandia study was performed on a sample nuclear power plant chosen from the plants currently undergoing an operating license review. Three additional plants of different design were later surveyed to assess whether the results could be applied generally. The study was limited to those systems required for safe shutdown of the nuclear plant. A "worst-case" EMP threat situation was postulated. The incident plane wave embodied a bounding field intensity and an orientation relative to the plant systems so as to optimally excite every point of interaction. From the analysis of this "worst-case" threat it was concluded that the diffuse fields inside seismic Class 1 or structurally equivalent buildings due to the incident EMP plane wave were negligible sources of energy, with responses of less than 1 volt, and a duration of approximately 10 microseconds. The predicted EMP signals at the critical equipment in the sample plant were found to be substantially less than nominal operating levels. The principal source of EMP energy coupled to critical circuits in the plant was the current induced by the incident wave on external cables which penetrate into the plant buildings. Although response levels at some plants may be higher than those calculated for the sample plant (due to plant topology and cabling practice), the Sandia study found damage thresholds for the components examined high enough to preclude component failure postulating higher response levels. The summary conclusions of the Sandia study were (1) the safe shutdown capacity of the sample plant would not be disabled by an EMP event, and (2) the safe shutdown capability of nuclear power plants in general would survive the postulated EMP event.

The NRC staff's study on EMP found that a loss of offsite power is the most probable plant upset condition that could result from an EMP event with little or no effect on the in-plant normal and emergency AC and DC power distribution systems. In plants that include design features that enhance coupling with incident EMP (due to plant topology and cabling practice), any exposed portions of the in-plant normal and emergency AC or DC power distribution systems may experience signal upset effects. However, these effects would be limited to the exposed portions of the system and recovery is expected to be possible in a reasonably short time (10-20 minutes) depending on plant unique design features. The NRC staff's study further concluded that the reactor trip system, engineered safety features actuation system, control systems, and the control room alarm and indication systems are relatively invulnerable to EMP-induced signal upset.

The subject of cost of implementation was commented on by both supporters and opponents of the petitions. The petitions stated that implementation could be accomplished "without great expense." Eight commenters took issue with this, and in one case suggested that a cost-benefit analysis be made. In support of their claim that the cost of implementation was not great, two petitioners and one additional commenter stated that the military is presently "hardening" its equipment against the effects of EMP and that not all power plant equipment need be hardened. In addition, it was argued that solid-state equipment could be replaced by vacuum tubes and relays as a means of providing protection.

No Commission regulation requires a petitioner for rulemaking to submit design details or cost information associated with proposed amendments to 10 C.F.R. Part 50. Therefore, no estimate of the cost of implementation of hardening measures was provided in these petitions. However, a switchover from solid-state devices to vacuum tubes would not be a minor undertaking. Vacuum tubes and relays have much larger power and size requirements than solid-state devices. Not only would entire circuits require redesign; additional power sources and possibly new electrical equipment rooms or layouts would be required. It should be noted that although the NRC staff does not subscribe to the view that hardening costs would be inconsequential, the conclusion that the petitions should be denied does not rest on high cost; it is based, rather, on the absence of necessity, as explained above.

The fact that the military is presently hardening its equipment against the effects of EMP is not considered relevant to this issue because the needs and resources of the military and the equipment and systems involved are not similar to those of nuclear power plants.

Ten commenters stated that revision of the *Code of Federal Regulations* would be contrary to the philosophy used in establishing 10 C.F.R. § 50.13, which assumes that national defense is the responsibility of the defense establishment and the risk of attack is borne by the nation as a whole. The commenters note that this philosophy was supported by the United States Court of Appeals for the District of Columbia in *Siegel v. AEC*, 400 F.2d 778 (D.C. Cir. 1968). Similarly, four commenters note that the effects on a nuclear power plant due to a nuclear explosion and its resultant effects would be minor compared to the nuclear detonation itself. In rebuttal, the petitioners point out that the AEC was not aware of EMP when 10 C.F.R. § 50.13 was written and that EMP may be caused by sources other than those that are military in origin.

The intent and basis for 10 C.F.R. § 50.13 were set forth in NRC's Statement of Consideration (32 Fed. Reg. 13,445):

The protection of the United States against hostile enemy acts is a responsibility of the nation's defense establishment and of the various agencies having internal security functions. The power reactors which the Commission licenses are, of course, equipped with numerous features intended to assure the safety of plant employees and the public. The massive containment and other procedures and systems for rapid shutdown of the facility included in these features could serve a useful purpose in protection against the effects of enemy attacks and destructive acts, although that is not their specific purpose. One factor underlying the Commission's practice in this connection has been a recognition that reactor design features to protect against the full range of the modern arsenal of weapons are simply not practicable and that the defense and internal security capabilities of this country constitute, of necessity, the basic "safeguards" as respects possible hostile acts by an enemy of the United States.

Though adjudicated in 1968, the decision of *Siegel v. AEC* is no less valid today than it was then. The court at that time agreed that the AEC need not require nuclear power plants to protect themselves from hostile acts against this country by enemies. EMP is an effect of a weapon whose use would be regarded as a hostile act. Other portions of the Commission's regulations address the physical protection and security of nuclear power plants, including 10 C.F.R. § 73.55 which specifies the requirements incumbent upon each licensee for protection against acts of sabotage. Nonhostile atmospheric explosions are banned by the Nuclear Test Ban Treaty and are exceedingly unlikely.

A truck-mounted EMP generator used by terrorists is another scenario raised by commenters. Though it may be feasible to mount the necessary equipment on several large trucks, there are complicating factors which make this scenario improbable. The staff believes, based on general knowledge of the full-scale test apparatus presently in use by the

military, that EMP generators are massive, costly, and technically complex. EMP fields produced are lower level and highly localized compared to those produced by a nuclear detonation. To provide a better distributed radiation pattern would require several antennas, spatially distributed around a plant, each of which would be electrically attached to the generator. The energy in a pulse would then have to be distributed to all of the antennas, thus lowering the energy density. It would be incredible for a construction project of this nature to be accomplished all around a plant site without being detected.

In addition, no matter how improbable an accidental or nonaccidental, commercial or military nuclear-generated EMP, the effects are enveloped by the Sandia and staff studies and are unlikely to disable the safe shutdown capability of a nuclear power plant. Although the Sandia study did not explicitly include analysis of the effects of a terrorist-generated EMP, it is the staff's judgment that such effects are enveloped by the results of the Sandia and staff studies. This judgment is based on consideration of the conservatism in the Sandia study and the substantial safety margins calculated therein.

Three commenters noted that the most likely effect of EMP would be a safe shutdown. These comments are probably based on a 1977 report by Oak Ridge National Laboratory and the premise that safety systems are designed to fail in the safe direction upon loss of power.

A number of commenters stated that the petition should be denied because not enough was known or that studies were not yet complete. With the publication of the Sandia study on EMP and completion of the NRC staff's evaluation of signal upset, there exists sufficient information upon which to base a decision.

Four commenters noted that the petitioners were using the rulemaking to delay the licensing of Perry or to obstruct nuclear power altogether. However, the petitioners were required by 10 C.F.R. Chapter 1, Subpart H, to state their grounds for and interest in the action petitioned for.

The petitioners' request that applicants for construction permits and operating licenses of nuclear power plants provide design features to protect against the effects of EMP goes against the intent of Congress, as embodied in 10 C.F.R. § 50.13, and against the decision of the U.S. Court of Appeals. Furthermore, there is no documentary evidence supporting the contention that EMP imperils the safety of nuclear power plants. The evidence on hand indicates that the requested amendments are unnecessary.

III. FINDINGS

Based on the above considerations and careful consideration of the public comments received on petitions PRM-50-32, PRM-50-32A, and PRM-50-32B the Commission hereby denies the petitions for rulemaking filed by the Ohio Citizens for Responsible Energy, Marvin I. Lewis, and the Mapleton Intervenors. Copies of the petitions for rulemaking, copies of the letters of comment, SECY-83-367, and the Commission's letters of denial are available for public inspection at the Commission's Public Document Room at 1717 H Street, NW, Washington, DC 20555. Copies of NUREG/CR-3069 may be purchased by calling (301) 492-9530 or by writing to the Publication Services Section, Division of Technical Information and Document Control, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, or purchased from the National Technical Information Service, Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161.

FOR THE NUCLEAR
REGULATORY COMMISSION

William J. Dircks
Executive Director for
Operations

Dated at Bethesda, Maryland,
this 22nd day of June 1984.

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